GRA, Incorporated

Economic Counsel to the Transportation Industry

ACRP

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Building and Maintaining Air Service Through Incentive Programs

Contractor's Final Technical Report

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TRANSPORTATION RESEARCH BOARD
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1. Introduction

The evolution of the U.S. commercial air passenger industry has seen important changes in the strategies used by the airline industry and equally important changes in the ways in which airports and the communities they serve have responded to an evolving air service environment. For airports, and especially for communities, the breadth of air service options available to residents and potential visitors is an important determinant of their connectedness to the global economy. At the same time, airlines must choose between many alternative routes and markets within which their defined fleets can be deployed. Because of this, airports and the communities they serve have increasingly offered air service incentives to encourage new services and mitigate some of the financial risks that new services can create for airlines. While innovations have occurred in these incentive activities in the U.S., their scope and design are limited by existing statutes governing airline deregulation, competition, and airport federal obligations as expressed by airport grant assurances.

The objective of the ACRP Project 03-44 research was to develop a guidebook that would help airports and communities maintain and build commercial air service through incentive programs. As a result of the project research, the guidebook, which is built on the research findings reported in this Technical Report, provides:

- Perspectives on key current and emerging issues and trends affecting air service, from evolving airline business models to factors affecting airline fleets and labor issues
- Information about an online GIS database covering incentive programs at U.S. commercial service airports
- Background on the regulatory guidelines and policies that affect the structure and use of incentive programs, particularly those funded by airports and airport sponsors
- Analysis and insights from airlines and from airport case studies that will assist airports and communities as they develop and implement incentive programs that are tailored to the unique circumstances of their own airport or community
- Information based on the case studies regarding the available types of air service incentive measures, including funding sources, that are prevalent in the U.S., and their ability to successfully induce and maintain desired air service
- Approaches to help airports gauge the effectiveness of incentive programs

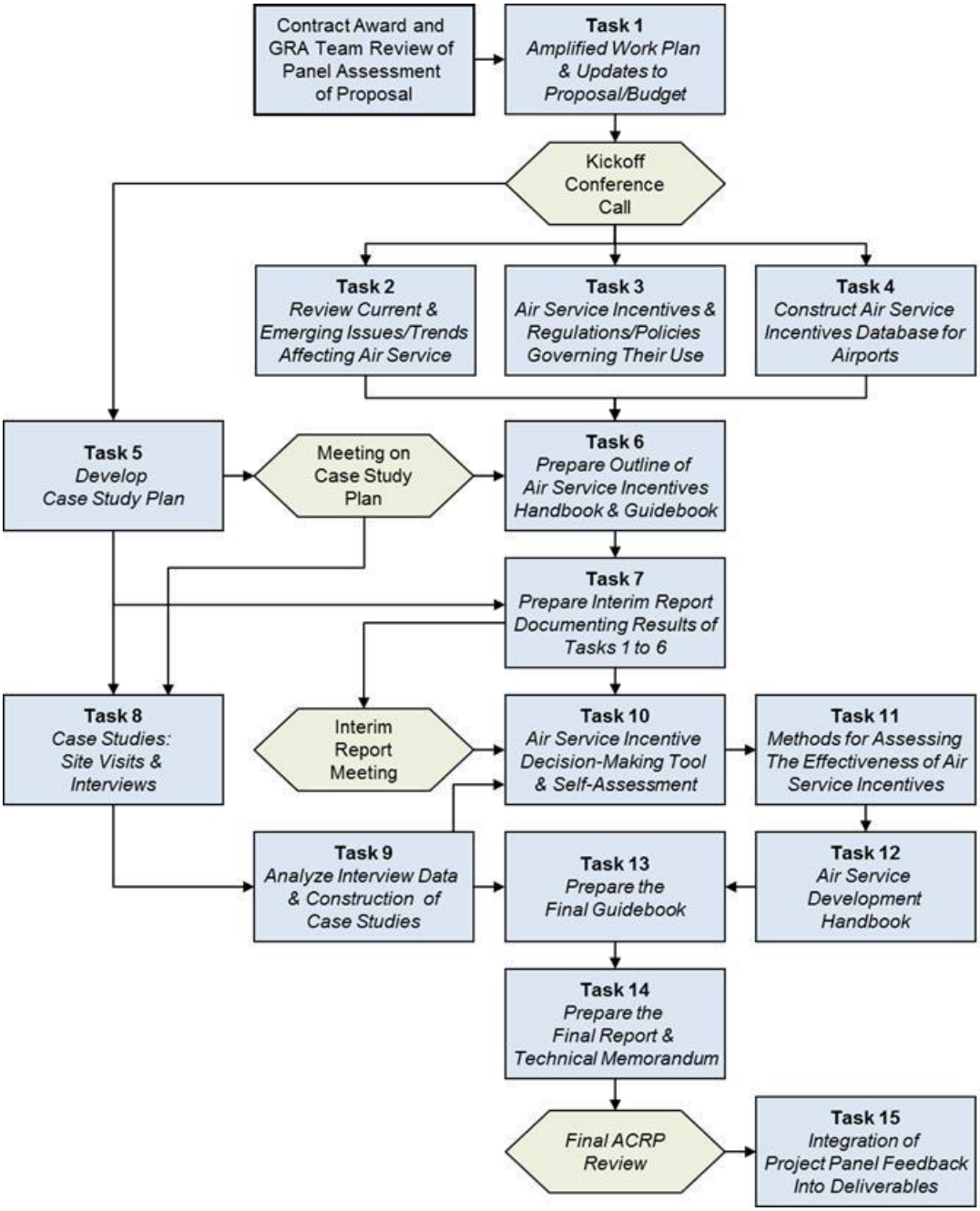
The work presented in this Technical Report, much of it included in the project Guidebook, together with the accompanying online database, will better enable airports and communities to understand the ways in which incentive programs are being used at other airports that might be regarded as competitors or peers. It will also allow airports and communities to better understand both the perspectives of other aviation system stakeholders vis-a-vis incentives, most importantly the FAA and the airline community, and the requirements that contribute to the structure and provisions of incentive programs.

Finally, the research results clarify the significance of air service incentives for regional economies and their development in an aviation environment in which airport and community incentive programs have become more widely used.

While conducting the research, the project team used face-to-face and telephone interviews as well as community focus groups to develop information on attitudes toward, and uses of, air service incentive programs by aviation community stakeholders.

Exhibit 1 provides a schematic of the sequentially structured work program used to conduct the project research.

Exhibit 1. Project Task Schematic



2. Current and Emerging Issues and Trends Affecting Air Service in the United States

a. Passenger Aviation Activity Trends and Airport Size

ACRP Report 142, *Effects of Airline Industry Changes on Small- and Nonhub Airports*, reviewed issues and trends affecting air service in the U.S. between 2001 and 2013, with a particular focus on small hub and nonhub airports. The issues reviewed included the negative impact of the September 11, 2001 terrorist attacks, the resulting increased security measures and the recessions of 2001 and 2007-09 on passenger demand for air travel; increased airline costs primarily resulting from increases in the price of jet fuel; impact of reduced demand and increased costs on airline profitability; and resulting airline industry mergers, consolidation, and evolution of business models.

This report expands the scope of the air service trends review beyond ACRP Report 142 by extending the analysis to 2018 and expanding the analysis to include large and medium hub airports. Since ACRP Report 142 was completed, the airline industry has continued to consolidate, low cost and ultra-low cost carriers have continued to grow, there has been an emergence of transatlantic low cost carriers, the average aircraft size has continued to increase, regional carrier fleets and relationships with their major partners have continued to evolve, and new regulations have affected air service. These trends have had varying impacts on airports, depending on airport size, the airport's role in the air transportation system, and the circumstances of the communities served by the airport.

The trends that will be discussed are among the numerous factors influencing airline decision making about their air service networks and how they provide service at specific airports. Understanding these current and emerging trends is essential for individual airports in assessing whether a particular incentive program is likely to be successful.

The majority of the following figures and analysis were produced using *OAG* airline schedule data. The analysis includes full annual data for all departures from airports located in the U.S. from 2000 through 2018. For some analyses, airports were categorized by FAA hub group, which groups airports based on the percentage of annual passenger boardings. At the time of publication, the most recently available FAA hub groups were for 2017 so those were used for all analyses. Exhibit 2 presents the number of airports in each hub group and the three airports with the most passenger boardings in each group.

Exhibit 2. FAA Airport Hub Groups

Hub Group	Definition (annual passenger boardings)	Number of Airports in 2017[1]	Airports with the Most Passenger Boardings
Large Hub	1% or more	30	ATL, LAX, ORD
Medium Hub	At least 0.25% but less than 1%	31	DAL, STL, HOU
Small Hub	At least 0.05% but less than 0.25%	71	MEM, CHS, OKC
Nonhub	More than 10,000 but less than 0.05%	249	CHA, AVL, MFR
Commercial Service	At least 2,500 and no more than 10,000	142	GAL, GST, HYS

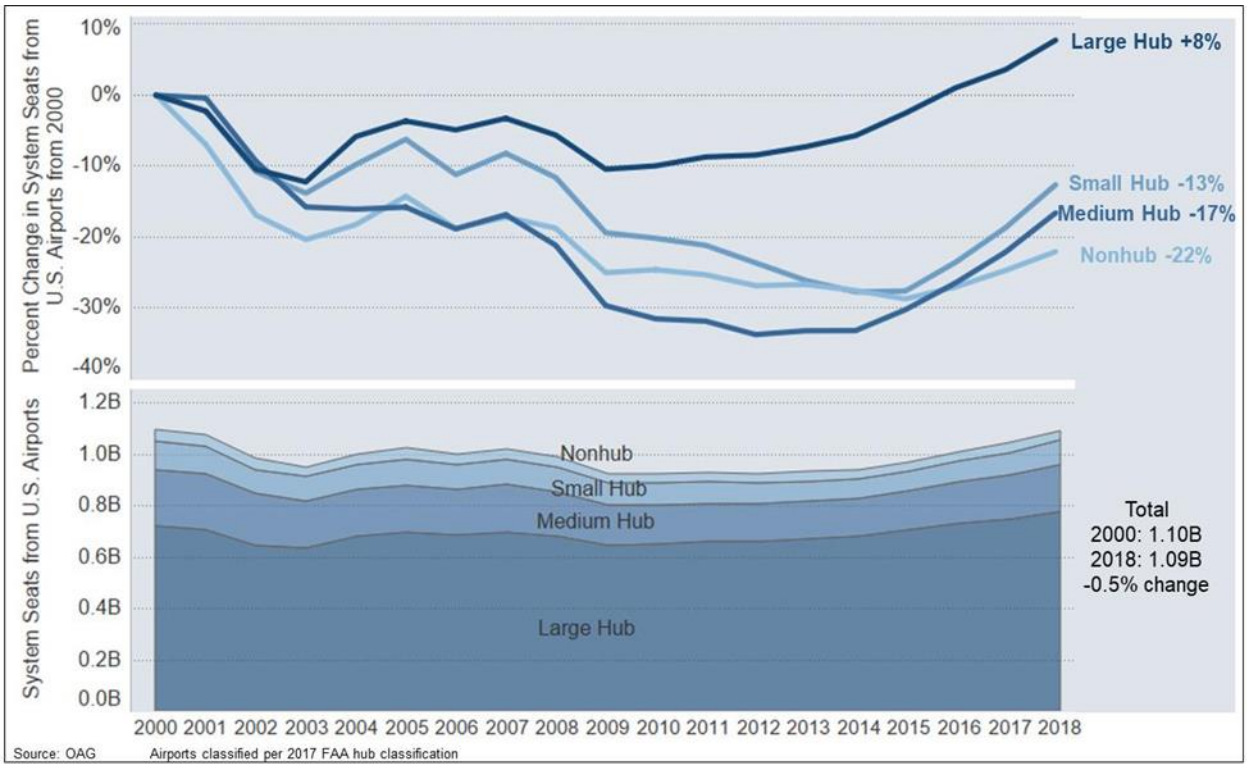
[1] Publicly owned airports in the U.S. and U.S. territories that receive scheduled passenger service

The information on key emerging issues and trends affecting air service is organized from an airport perspective to form the essential background for the understanding of the design and implementation of effective incentive programs described in this report.

These trends can be seen in the following data:

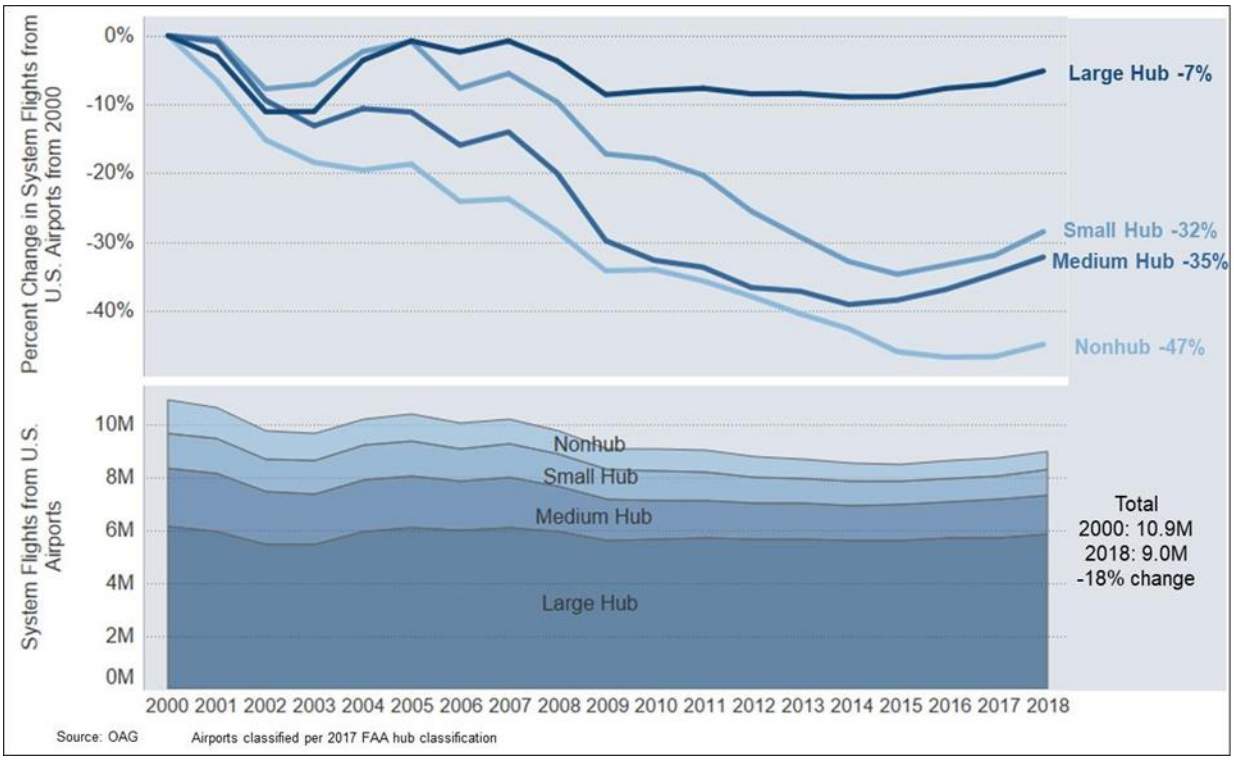
Overall system seat capacity in the U.S. decreased by 0.5 percent from 2000 to 2018, but there are significant differences depending on airport size. The number of seats at the 30 large hub airports, comprising 72 percent of all system seats in 2018, increased by eight percent from 2000 to 2018. The number of seats offered at airports in the three smaller size groups decreased by between 13 and 22 percent during this period, as shown in Exhibit 3. However, seat capacity has increased across all airport hub groups since 2015.

Exhibit 3. Change in System Seat Capacity from 2000 to 2018 by Airport Hub Group



Perhaps more importantly from an airport perspective, overall system flights decreased by 18 percent from 2000 to 2018. The number of flights at large hub airports (which together comprised 66 percent of all system flights in 2018) decreased by seven percent from 2000 to 2018. The number of flights offered at airports in the three smaller size groups decreased by between 32 and 47 percent, as shown in Exhibit 4.

Exhibit 4. Change in System Flights from 2000 to 2018 by Airport Hub Group

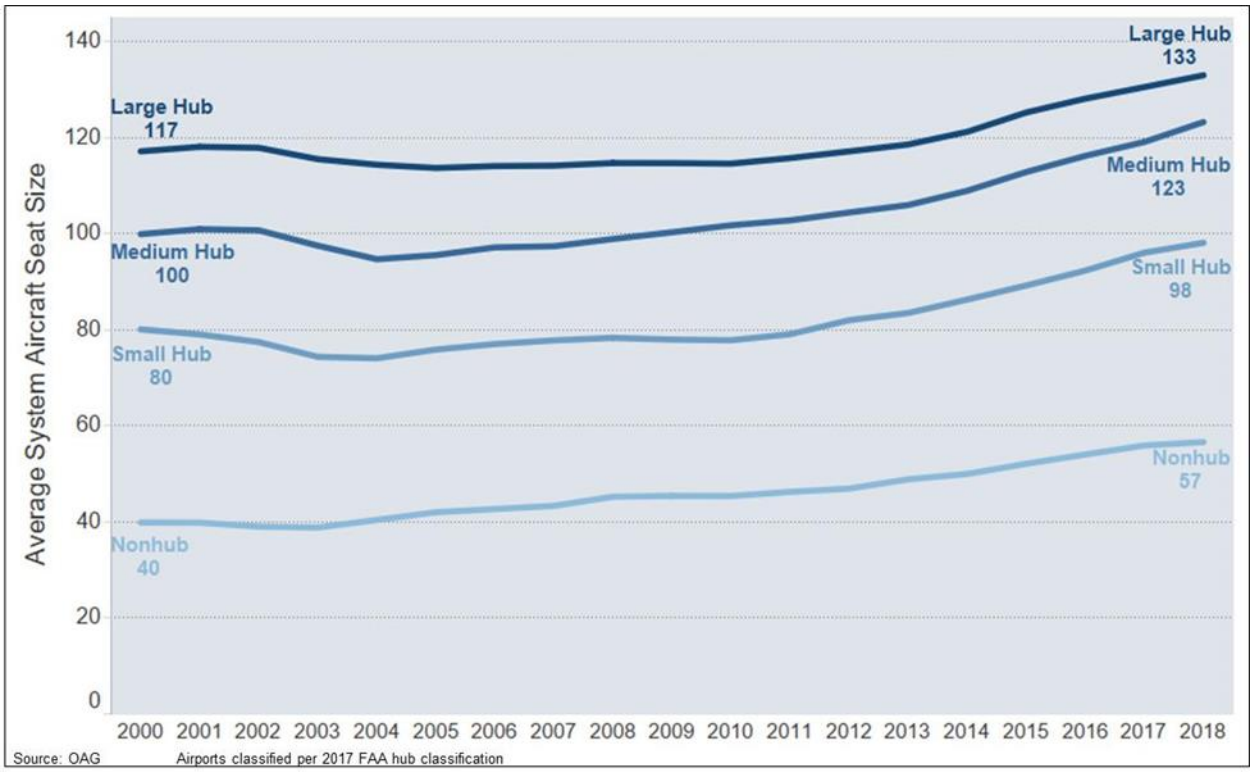


b. Changes in the Airline Industry

The 18 percent decrease in flights from 2000 to 2018, and only 0.5 percent decrease in seats reflects the airlines' average aircraft seat size increase across their fleets; the average aircraft seat size increased by between 16 and 23 seats in the four major hub groups, with the greatest absolute increase in average seat size occurring at medium hubs and the greatest percentage increase at nonhubs. As can be seen in Exhibit 5, this trend of increased aircraft seat size has accelerated in recent years, with a large increase occurring since 2012. This recent increase is largely driven by several factors, including:

- Upgauging within the regional aircraft fleet as turboprops and 50-seat regional jets are replaced by larger regional jets
- Upgauging within the narrowbody fleet (i.e., more jets being purchased at the larger end of standard jet families, such as the Airbus A321 and Boeing 737-800)
- Airlines adding more seats for a given aircraft type
- Relatively rapid growth of ultra-low cost carriers (ULCCs), which tend to have denser aircraft configurations than other types of airlines

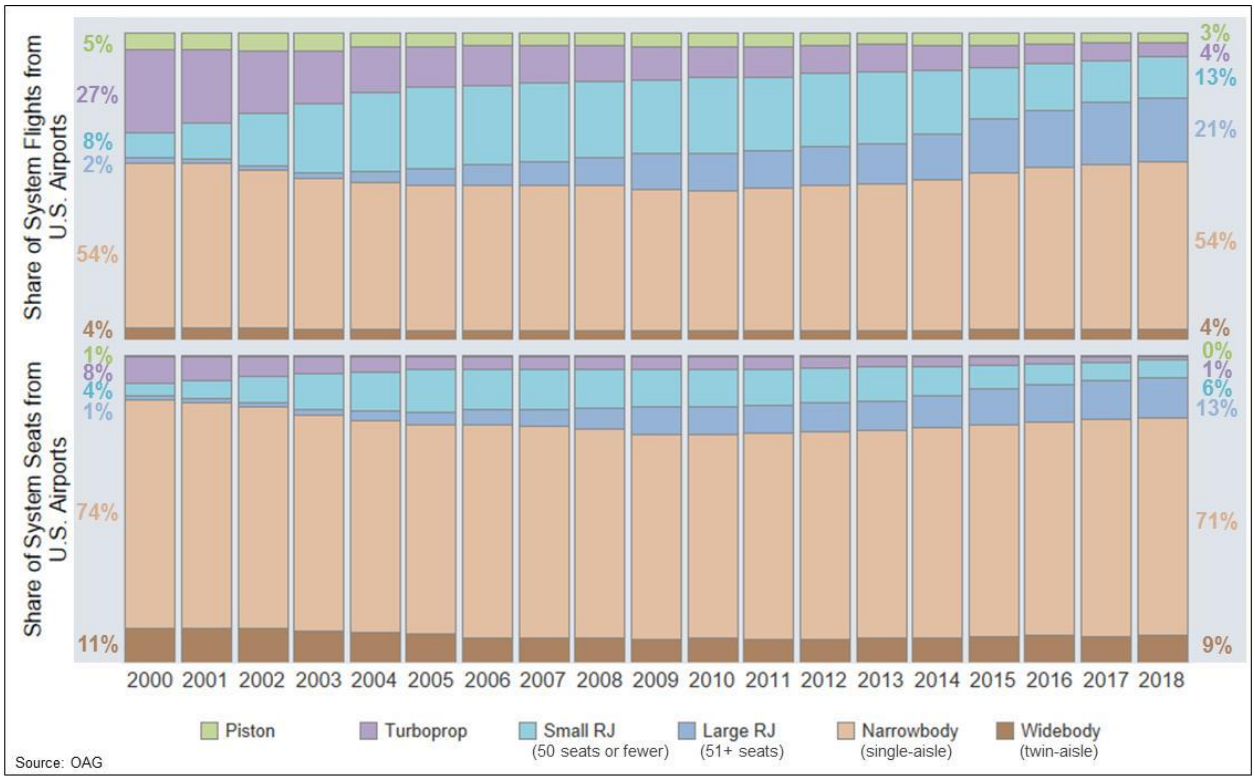
Exhibit 5. Average Aircraft Seat Size from 2000 to 2018 by Airport Hub Group



The share of system flights conducted by the smallest aircraft groups (piston engine aircraft, turboprop aircraft, and regional jet with 50 seats or fewer) peaked at 40 percent in 2003. Since then, the share of system flights conducted by the largest aircraft groups (regional jets with greater than 51 seats, narrowbody aircraft, and widebody aircraft) has increased to 79 percent in 2018, a transition driven by changes in airline fleets away from smaller regional jets and turboprops toward large regional jets.[1] (Note that the shares of flights conducted by narrowbody and widebody aircraft have stayed fairly stable over the 2000-2018 period.) The share of system seats offered by the largest aircraft groups increased from 86 percent in 2000 to 93 percent in 2018 as shown in Exhibit 6, again with the increase being driven by large regional jets.

[1] Small regional jet aircraft are those with 50 seats or fewer; large regional jet aircraft are those with more than 50 seats.

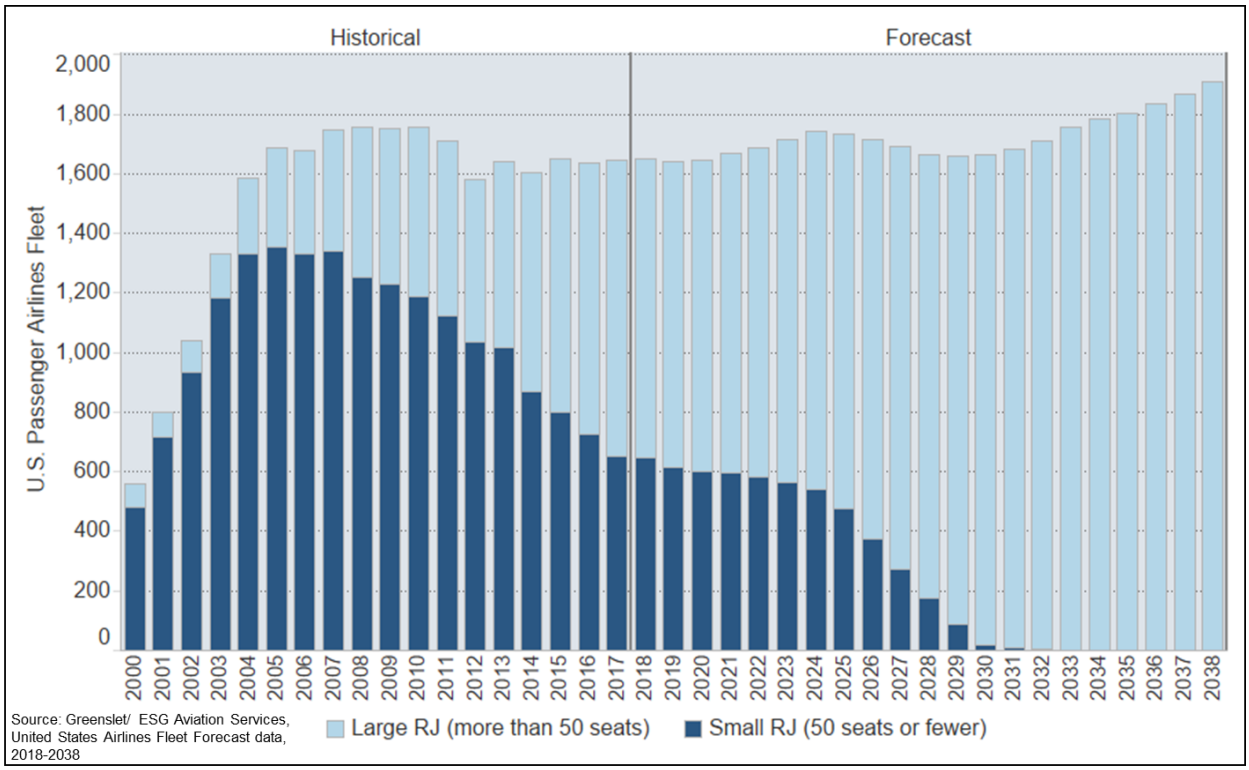
Exhibit 6. System Flights and Seats from 2000 to 2018 by Aircraft Group



The trend in the use of large regional jets rather than small regional jets is expected to continue in the future, due to the favorable economics of the larger aircraft. Small regional jets are generally less efficient in terms of pilot, fuel and maintenance costs (especially as these aircraft age). In addition, the larger regional jets generally provide multiple class cabins, whereas 50-seat jets are generally single class cabins. Scope clauses in pilot labor contracts are also a factor in driving the mix of large versus small regional jets, with many airlines' contracts allowing more large regional jets as the mainline fleet grows. Exhibit 7 shows the historical and forecast domestic regional jet fleet, which reflects the decreasing use of small regional jet aircraft by the regional partners of mainline airlines. This change in fleet evolution is especially impactful for many of the scheduled flights between small and nonhub airports and the larger airline hub airports that connect smaller communities with the national aviation network.

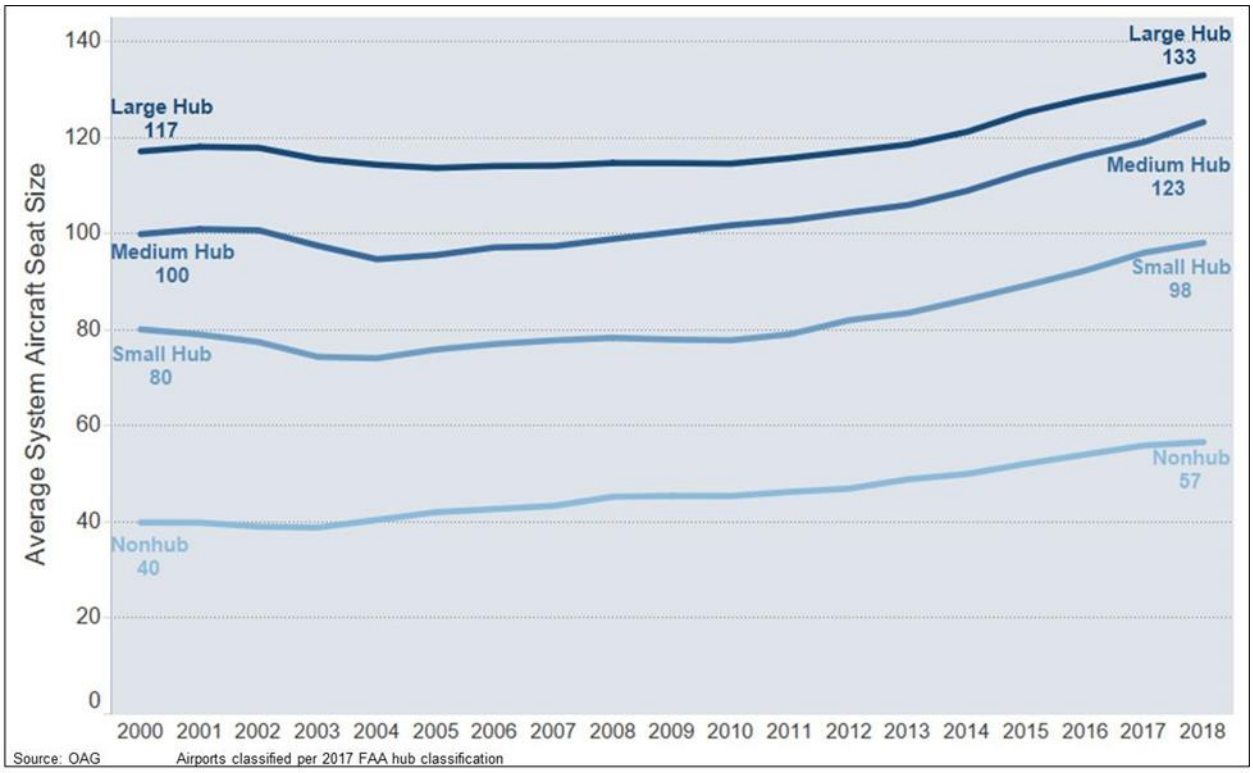
Since these flights served relatively small markets and were served primarily in these smaller aircraft, the hurdles to restoring such service may be especially challenging to overcome with incentive programs. In some cases, airlines may continue to serve these routes with large regional jets, but with less frequency (and possibly less connectivity) than they provided previously.

Exhibit 7. Domestic Regional Jet Fleet History and Forecast from 2000 to 2038



Since 2000, there has been significant consolidation within the U.S. airline industry, as evidenced by the average number of carriers serving an airport, although this contraction in the number of carriers has not been uniform across all airport hub groups. Exhibit 8 shows the average number of airlines (by marketing airline, and including domestic and international airlines) serving an airport by airport hub group. Large hub airports with a modest increase of three percent compared to 2000 levels are the only group that has not seen a substantial decrease in the average number of airlines since 2000. Airports in all of the other airport hub groups experienced a decline of between 14 and 20 percent in their average number of airlines since 2000.

Exhibit 8. Average Number of Airlines per Airport from 2000 to 2018 by Airport Hub Group

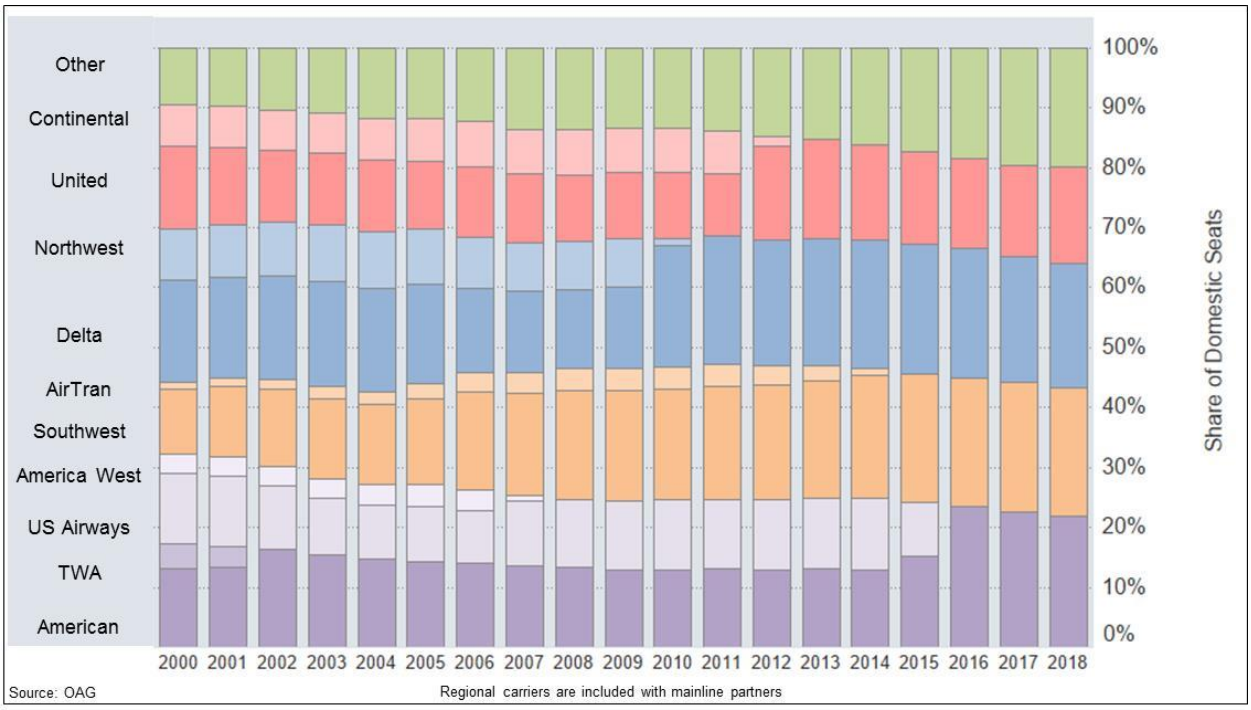


An important reason for the decrease in the average number of carriers per airport at medium hub and smaller airports is the series of mergers and acquisitions among major U.S. airlines, beginning with the acquisition of TWA by American Airlines in 2001 and continuing through the acquisition of Virgin America by Alaska Airlines in 2016.

Exhibit 9 shows the share of domestic seats offered by major U.S. airlines from 2000 to 2018. In 2000, ten major airlines offered 90 percent of domestic seat capacity, with the top four carriers offering about 50 percent of domestic seats. By 2018, those ten carriers had consolidated into just four carriers offering 81 percent of domestic seat capacity.[2] This means that an airport has fewer major airlines and fewer national networks to target when designing and marketing an incentive program today compared to in the past.

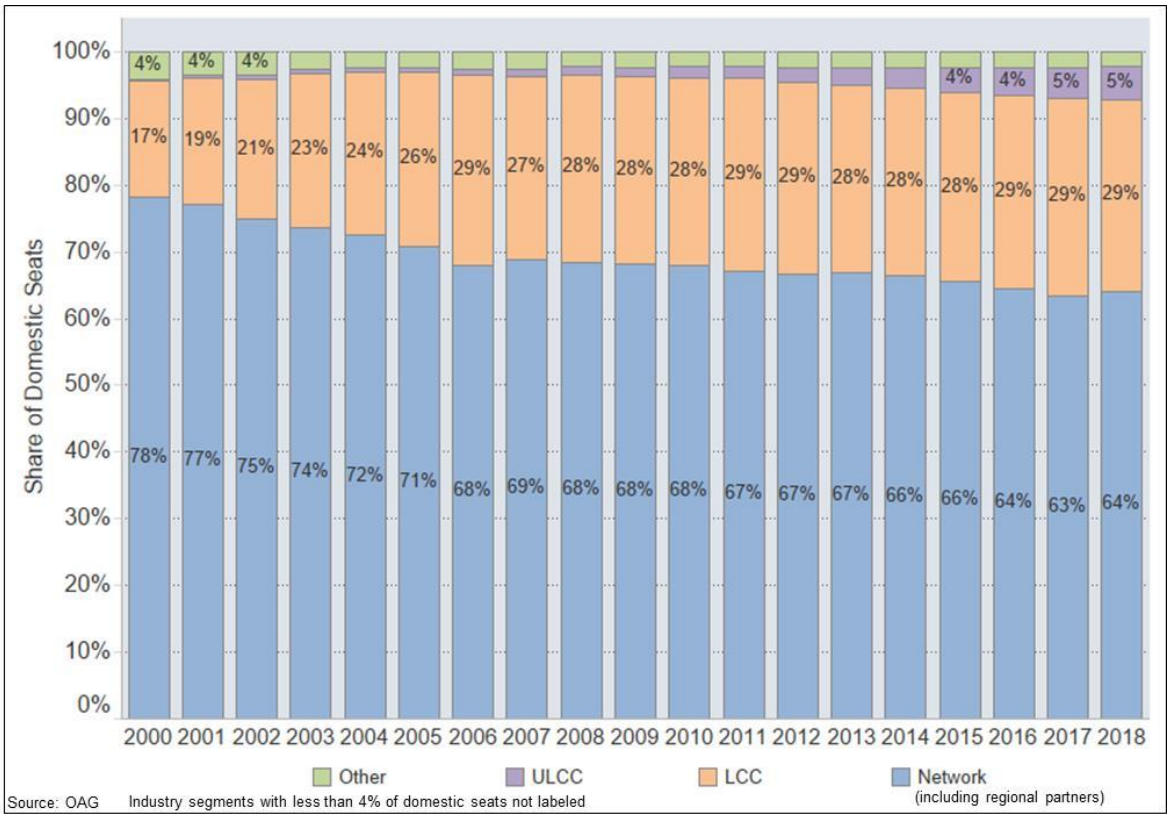
[2] Service by regional partners is included with the mainline airline where applicable (e.g., Delta includes service operated on Delta's behalf by airlines flying under the Delta Connection brand).

Exhibit 9. Share of Domestic Seats Offered by Major Airlines from 2000 to 2018



Despite the consolidation of the domestic U.S. airline industry, there have been differences in airline growth rates depending on airline business models. Network airlines (and their regional partners) that operate hub and spoke models have historically been the largest segment of the domestic industry, but their share of domestic seats decreased from 78 percent in 2000 to 64 percent in 2018. Network airlines include American Airlines, Delta Air Lines, United Airlines, and their predecessors. The airlines that have increased domestic market share since 2000 include low cost carriers (LCC) and ultra-low cost carriers (ULCC) as shown in Exhibit 10. These carriers typically operate point-to-point service and may operate from secondary airports and in some markets offer service that is seasonal or less than daily, although some airlines are increasingly offering connecting services via hubs or hub-like focus cities. The largest LCCs are Southwest Airlines and JetBlue Airways, while the ULCCs include Frontier, Allegiant Air, and Spirit Airlines.

Exhibit 10. Domestic Seats by Airline Type from 2000 to 2018



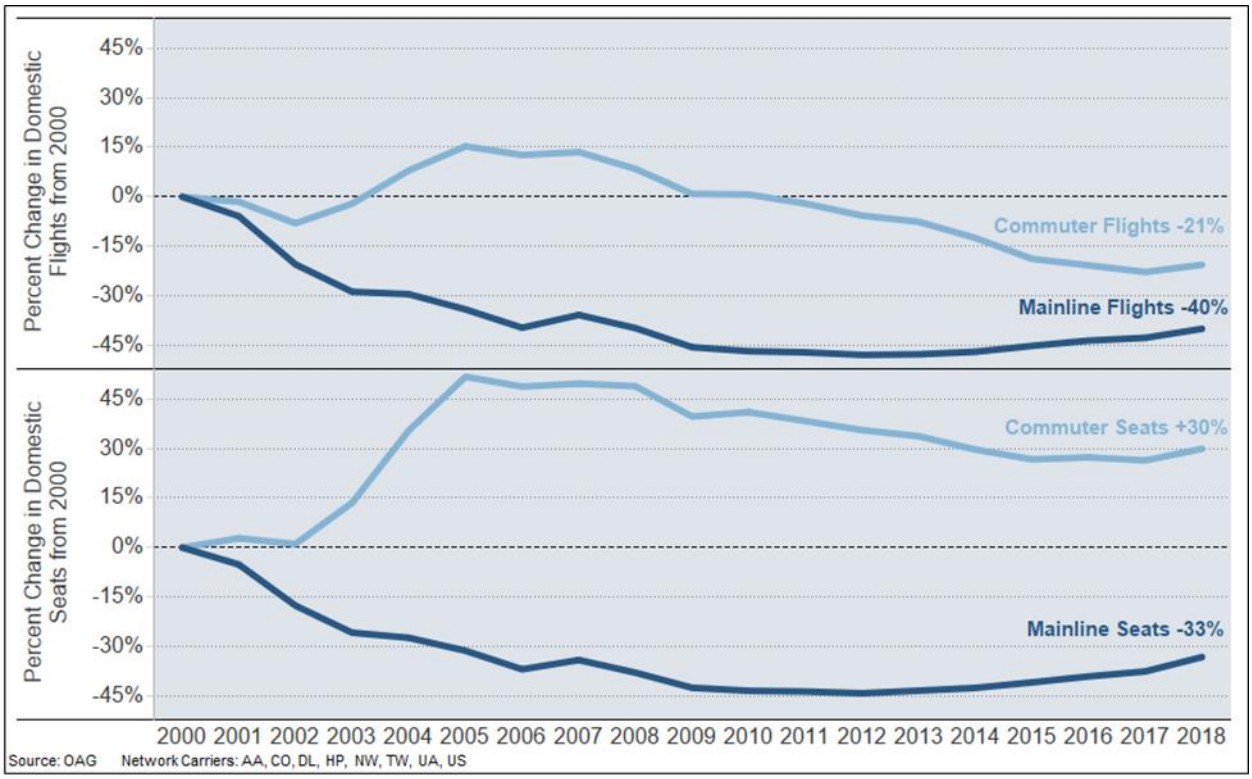
The evolution of business models in the domestic industry has changed the competitive landscape—and provides new opportunities for airports to pursue incentive programs. For example, ULCCs often connect smaller airports to other smaller airports or provide targeted and less frequent service to specific leisure markets (although even within the ULCC category, carriers offer significantly different business models). However, the growth in seats offered by LCCs and ULCCs has not offset the substantial decline in seats offered by network airlines over the last two decades, especially at smaller airports. Exhibit 11 shows the cumulative change in domestic seats since 2000 by airline type and hub group. At large and medium hub airports, LCCs and ULCCs offered 125 million more seats in 2018 than in 2000, but this was offset by a decrease of 160 million seats offered by network and other airlines. At small hub and nonhub airports, the 40 million seat decrease in seats offered by network and other airlines was about three times greater than the 15 million seat increase offered by LCCs and ULCCs.

Exhibit 11. Cumulative Change in Domestic Seats by Airline Type and Airport Hub Group, 2000 to 2018

The decrease in flights and seats offered by network airlines since 2000 was due to fewer flights and seat production on mainline aircraft, vs. regional (commuter) aircraft as shown in Exhibit 12. The number of seats offered by regional partners increased by 30 percent despite a 20 percent decrease in flights, which is due to the use of larger regional jets (greater than 50 seats), rather than smaller regional jets (with 50 seats or fewer) and turboprops, the latter of which has been retired by most of the major airlines' regional partners.

By 2018, mainline flights declined by 41 percent since 2000, but because these flights were conducted using larger aircraft on average, mainline seat offerings in 2018 declined by a smaller (but still significant) 34 percent margin compared to seats offered in 2000.

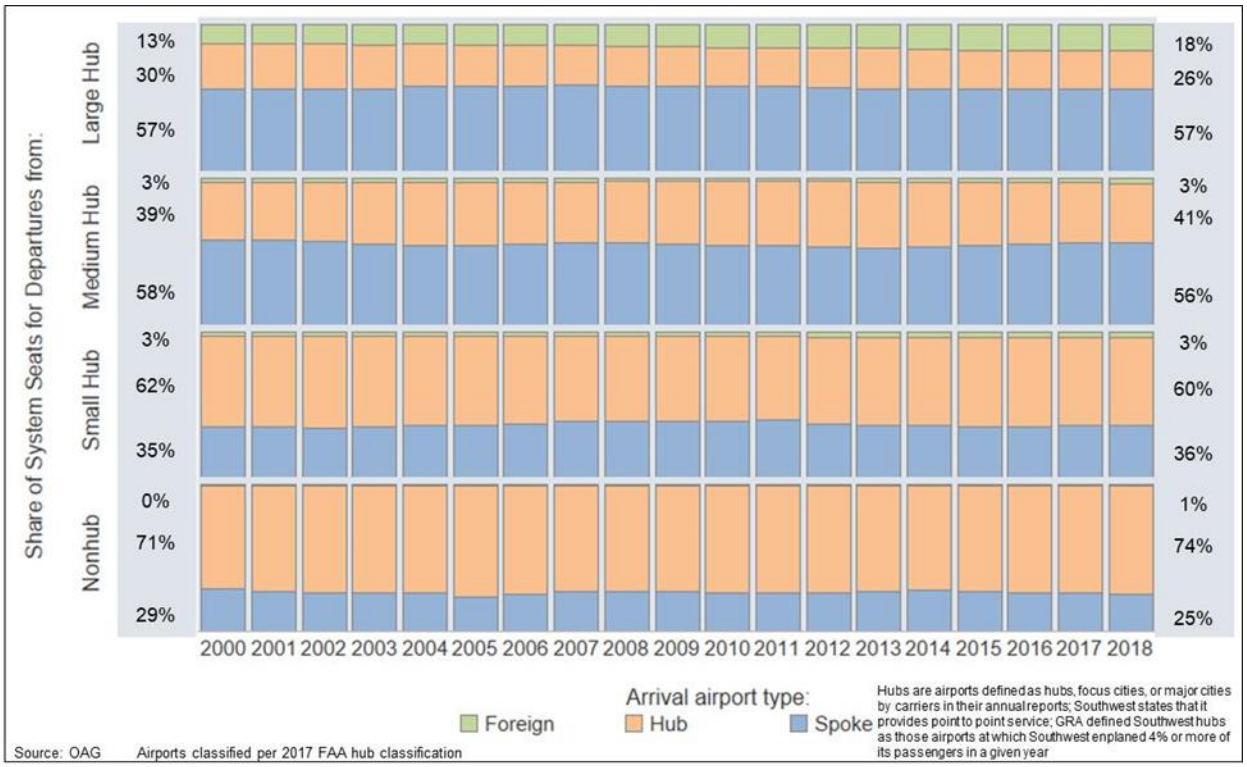
Exhibit 12. Cumulative Change in Network Airline Domestic Flights and Seats Since 2000



When designing an incentive program, it is important for an airport to consider how it fits into an airline's network. The typical type of destination for flights depends greatly on airport size. For example, the majority of seats departing from small hub and nonhub airports go to airports that serve as operational hubs for network airlines, and most seats to international airports depart from large hub airports.

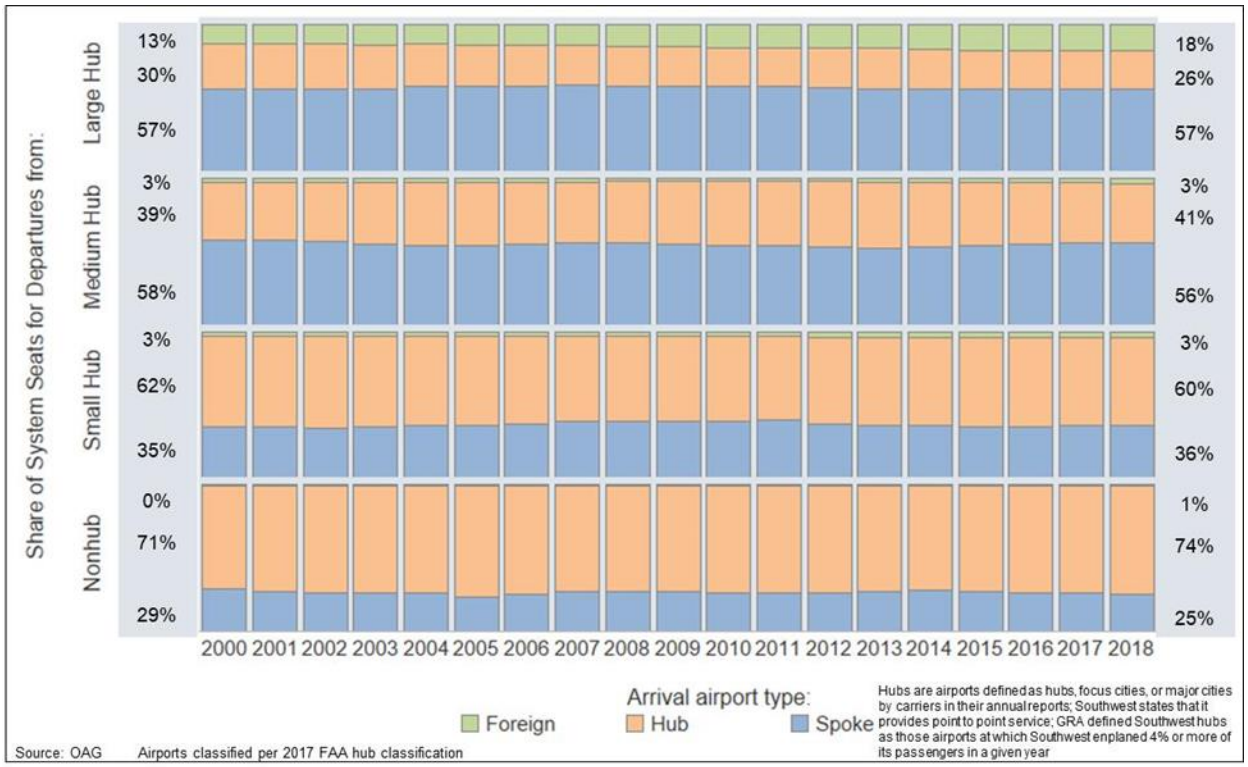
Exhibit 13 shows seat departures by destination type from each of the major airport hub groups. Airline operational hub airports are distinct from the FAA hub airport classifications, and are self-identified by airlines in their annual financial reports filed with the Securities and Exchange Commission (SEC).

Exhibit 13. System Seats by Destination Type from 2000 to 2018 by Airport Hub Group



The number of airports with international service has decreased slightly from 2000 to 2018; 85 airports had international service (on either U.S. or foreign airlines) in 2018. Most of the airports with international service are large or medium hub airports, as shown in Exhibit 14. The small hub and nonhub airports with international service typically only have service to nearby countries such as Canada, Mexico, or the Caribbean.

Exhibit 14. U.S. Airports with International Service, 2000 to 2018



In international markets, growing foreign airlines such as Norwegian are now using new-generation narrowbody aircraft (such as the B-737 MAX and A321neo) to fly to the U.S., which may open the door to new low-cost transatlantic flights to smaller markets in the U.S.

Norwegian currently serves several smaller airports, such as Providence and Stewart International Airport in New York, which have not traditionally been candidates for transatlantic service because of the market size of their catchment areas and proximity to larger airports.

The impact of new aircraft designs and low cost, long haul business models is still evolving. The rapid growth of long haul international LCC carriers such as Norwegian is coming under pressure due to poor financial results, which has already resulted in the failures of Primera Air and WOW Air[3] on the North Atlantic.

On the one hand, these recent developments may portend an inflection point on the recent growth curve of long haul, low cost carriers, and a smaller footprint in the future. From an airport perspective, it may also signify long haul LCCs focusing more on larger markets, i.e., being a "small fish in a big pond," as opposed to the opposite. Airports serving larger markets typically are under less pressure to offer aggressive air service development incentives, as the inherent size of their markets is considered to be sufficient. Exhibit 15 shows the rapid recent growth of transatlantic LCCs (defined as Eurowings, Norwegian, and WOW Air) in terms of flights and seats from the U.S. and number of U.S. airports served. It is worth noting that in late 2018 and

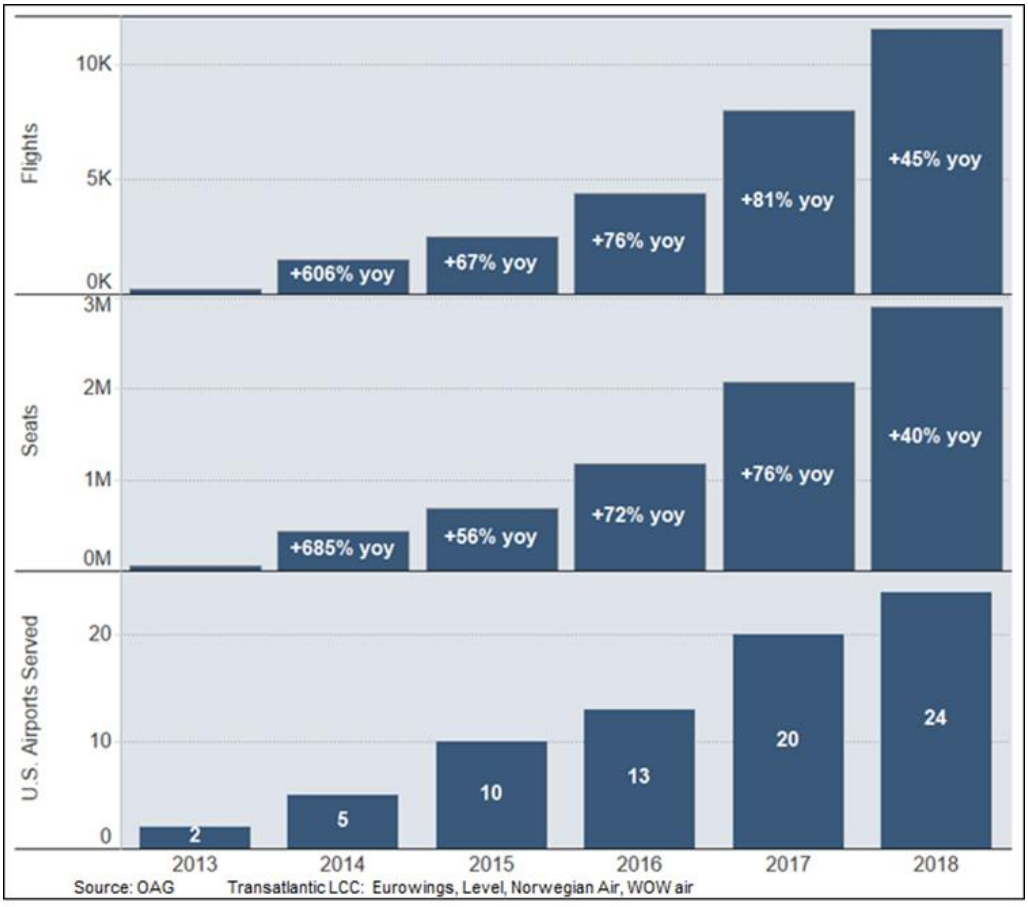
[3] WOW Air began scaling back some operations in late 2018 and early 2019, and ceased operations completely in March 2019.

early 2019, several transatlantic LCCs have announced reductions in service to U.S. points and, as noted above, WOW has ceased operations.

Given the recent developments in this space, it remains to be seen if the long haul LCCs, such as Level (IAG) and Eurowings (Lufthansa group) that are sponsored by legacy carriers will continue on their respective growth trajectories.

On the other hand, traditional network carriers appear to be testing the viability of medium-sized airports with direct transatlantic service, using newer technology aircraft, such as the Boeing 787 and Airbus 321neo. Examples include British Airways service to Austin and Nashville and stated service goals by both Aer Lingus and TAP/Air Portugal for new North American gateways to be served by the single aisle Airbus 321neo. Often times, these legacy carrier service initiatives involve financial incentives on the part of the airport and local community.

Exhibit 15. Rapid Recent Transatlantic LCC Growth



c. Regulatory Changes and the Supply of Airline Pilots

Changes in regulations are another factor that has influenced the economics of airline service to smaller airports. In 2013, the FAA issued a final rule implementing the Congressional mandate (passed in 2010 as part of Public Law 111-216) for first officers for passenger and cargo airlines to hold an ATP certificate rather than the previously-required commercial pilot certificate (78 FR 42323). This change effectively increased the minimum number of flight hours required before a pilot can fly for a commercial airline from 250 to 1,500 (with some adjustments for military and/or educational experience), meaning that becoming an airline pilot is now more time consuming and expensive than it had been in the past.

According to the Regional Airline Association (RAA), several individual regional passenger and air cargo airlines, a number of industry experts, and others, the new pilot certificate requirement, coupled with increased demand for pilots from mainline airlines facing a wave of pilot retirements, has resulted in a pilot shortage for the U.S. commercial airline industry and the U.S. military. According to the RAA, the 1,500-hour rule "reduced the pool of hirable pilots" and regional airlines hired only 63 percent of the number of pilots they desired to hire in 2015. The RAA has argued that "fewer new pilot certificates are being issued during a period of unprecedented retirements at the major airlines" (RAA 2016). Horizon Air, Republic Airways, and Empire Airlines are among the carriers that have cited the pilot shortage as impacting operations in recent years (Gates 2017; Rucinsk 2016; Hemmerdinger 2017). The Air Force has cited increasing competition from commercial airlines as a factor leading to a shortage of fighter pilots (Starr 2016).

Regional airlines have cited a pilot shortage as the cause of financial difficulties and operational difficulties. In 2016, Republic Airways filed for Chapter 11 bankruptcy protection and cited decreased revenue resulting from an inability to complete its flight schedule due to a lack of pilots (Rucinsk 2016). Other carriers such as Horizon Air have also cited a pilot shortage as a cause of operational difficulties resulting in cancelled flights. Horizon cancelled more than 300 flights in June 2017 and pre-emptively cancelled additional flights throughout the summer (Gates 2017). These reductions have particularly affected smaller cities that are typically served by smaller aircraft.

Not all of those in the aviation industry agree that there is a pilot shortage, and some believe there are signs that the labor market is beginning to adjust, indicating that the phenomenon might be transitory. The Air Line Pilots Association (ALPA) argue that "there is no reliable data" to support the position that there is a pilot shortage caused by the 1,500-hour rule. ALPA believes that the number of ATP certificates recently issued by the FAA and the forecast for future ATP certificates is sufficient to meet the demand for pilots. According to ALPA, "lower salaries, poor work-life balance, and fewer opportunities for career progression" are the cause of a lack of pilots at carriers that report a pilot shortage and any air service challenges at small communities are a result of economics, not pilot supply (ALPA 2017).

Regional airlines have increased pay in recent years to attract more pilots. In recent years, salaries at several carriers have more than doubled, with an average salary of $55,000 in 2017. In addition, pilots may receive signing and/or retention bonuses; Horizon Air began offering signing bonuses for the first time in 2017 (Fickenscher 2017).

The impact of the increased wages for regional pilots on the industry as a whole is unknown, as it represents additional cost pressures for airlines. If service to smaller communities is already only marginally profitable, the additional cost may lead to further service reductions. This could cause competition for air service among smaller communities to increase, resulting in increased airline attention on air service incentive programs that could offset increased airline operating costs.

Other Analyses of Recent Passenger Aviation Market Trends

A number of other recent studies and reports have noted many of the issues and trends identified in this section. In 2017, Oliver Wyman published a report primarily focused on the drivers of costs and revenues and resulting profit for U.S. airlines. Oliver Wyman also examined global capacity by region; in the domestic U.S. region, it is noted that "recent capacity growth has exceeded GDP growth… [which] appears to have had a negative impact on passenger yield" (Oliver Wyman 2017). The Eno Center for Transportation examined the factors that led to the record profits that U.S. airlines have earned in recent years and looked at what airlines are doing with the profits. Eno found that "increasing efficiencies, both from consolidation and from accommodating more passengers on fewer flights" were key contributors to profitability and that airlines are making large capital investments (particularly in aircraft fleets) with the profits (Eno 2017).

Each of the major aircraft manufacturers publishes annual global market forecasts that review recent and current trends to predict future demand for air travel and for aircraft. Boeing forecasts long-term average annual growth rates of three percent for intra-North America traffic and average annual growth rates of 3.5 percent for international traffic to/from North America (Boeing 2018). Airbus forecasts long-term average annual growth rates of 2.1 percent for intra-North America traffic and 3.8 percent for international traffic to/from North America, noting both the increasing share of departures being flown by smaller airlines at U.S. airports and the increasing size of aircraft in use for domestic routes in the U.S. (Airbus 2018). In a recent forecast, Embraer notes that "business travelers continue to value frequency, demonstrating an opportunity to run smaller capacity aircraft more often in flight schedules" (Embraer 2017).

d. Past ACRP Research on Airports and Air Service Incentives

In addition to ACRP Report 142 (described at the beginning of this section), two other past ACRP Reports (ACRP 2015b; ACRP 2007) directly address air service issues at airports, describing the factors affecting air service and the importance of adequate air service to the communities served by airports. In this section, details from these two reports are summarized.

ACRP Report 18: Passenger Air Service Development Techniques (2007)

1. Definition: "Air Service Development": All activities related to maintaining existing air service at an airport, or adding air service at an airport. This document focuses exclusively on commercial passenger service. It includes understanding:

a. The local community and its economy, getting local business to "sell" the community to airlines
b. The service and fares that carriers offer, how carriers differ, and how the airport compares to others nearby
c. The cost/revenue issues that drive carrier decisions on which markets to serve
d. How the airport can offer financial and nonfinancial incentives to carriers to begin or increase service
e. What carriers value most and what they want to know about a market
f. How to present a business case to carriers
g. How to evaluate Air Service Development (ASD) efforts and revise them as needed

2. The report is oriented towards "small" communities—those served by the 426 small and nonhub airports in the U.S. These communities have traditionally had a hard time attracting and maintaining passenger service.

Importance of ASD, and what it encompasses

3. Air service is an economic driver—a prerequisite for attracting investment, which generates employment. Additional flights contribute to economic well-being.
4. Airlines pick which markets to serve based on cost vs. projected revenue.
5. While cost of jet fuel is important, so are locally-influenced costs like landing fees and rents. Airlines must also consider the costs of launching service (moving equipment).
6. Understanding how carriers decide which markets to serve is essential. Carriers now expect some financial risk-sharing to start new service, and the level of local support can be a key deciding factor.
7. Airports and communities can help carriers decide by:
    a. Providing information on local economy
    b. Organizing efforts to stimulate local demand for travel
    c. Developing financial incentives that help share risk with carrier
    d. Providing marketing assistance
8. Stakeholders in ASD include: the airport, major employers, chamber of commerce, local economic development agency, hotel associations and resorts.

ASD in Context

9. Most small communities are "spokes" in network carriers' systems—service is to a carrier's hub, where passengers can connect elsewhere. When this report was published in 2007, low cost carriers (LCCs) rarely served small communities. Sometimes niche carriers (Allegiant Air or USA 3000 Airlines) did, but at low frequency.
10. Short- and medium-haul service is often provided by regional airline affiliates of network carriers. Carriers have to match the limited passenger counts (and therefore limited revenue) with right-sized aircraft (9 to 108 seats) to control costs.

Competitive Challenges to ASD at small communities

11. Almost all small airports suffer from "leakage," where passengers bypass their closest airport for another. Primary reasons are:
    a. For business passengers: availability of nonstop flights, preferable flight times, and/or more frequency.
    b. For leisure passengers: lower fares, availability of nonstop flights.
12. Major competitive challenges for small airports:
    a. Proximity of network airline hub: passengers drive to hub to access direct flights, more frequency, and lower fares. Carriers know this is hard to reverse.
    b. Proximity to airport with LCC service: leisure travelers will drive a long way to access airport with low fares. Carriers who cannot match LCC fares know they will continue to lose these passengers.
    c. Small isolated populations sometimes make it challenging to generate more demand
    d. Passenger base is often fragmented among multiple airports; even absent a network hub or LCC airport in vicinity, if multiple airports have commercial service, the market is highly competitive
    e. Year-round residents of predominantly inbound tourist destinations struggle to get service in off-season, as airlines may not be aware of economic activity present year-round
    f. Airports often face more than one of these challenges
    g. Table S1 in Report 18 lists airports with each challenge

Addressing competitive challenges through an active ASD program

13. An ASD program relies on an assessment of existing service and airport stakeholders:
    a. Analyze passenger and carrier data in top O&D markets. How competitive is the airport?
    b. What are route deficiencies (markets that could potentially support nonstop service, but lack it)?
    c. Analyze carrier pricing, capacity, equipment and reliability (how is price compared to similar airports, are there enough flights, is business class offered?). Most common problem is high fares.
    d. Analyze competitiveness of airport (landing fees, ground handling, rents). Are there runway length/obstruction issues?
    e. Understand why passengers fly from that airport, and why they "leak" to other airports.

Identifying available financial and human resources

14. Obtain financial and human resources: Financial resources can come from airport or from community.
    a. Airport resources usually come from the marketing budget, which means the operating budget. These funds come from in-terminal and non-terminal (air

freight, maintenance ops, fixed base operators, rentals) sources. Airports that accept any federal dollars are restricted on use of funds.

b. Resources can also come from off-airport sources such as private corporations and associations. It is these organizations' involvement that is the best predictor of success. If business travelers' needs are not being met, it is in their interest to get more air service. Resorts, hotels, convention/visitors bureaus may also support ASD programs.
c. Federal Small Community Air Service Development Program (SCASDP) provides grants—over 200 grants totaling $100 million through FY2007. Range from $20K to $1.6 million.
d. The other needed resource is people with expertise and enthusiasm. Some can be provided by airport staff but other expertise must usually come from local community and hired consultants.

Establishing and validating ASD goals

15. Community should be involved in setting ASD goals:
    Retain existing service: if a carrier pulls out, that may leave negative impression in the market, i.e., that the community is too small or competitive to be profitable.
    a. Add service to new destinations, which the report states may be better done by an existing carrier vs. making market more competitive by bringing in a new operator[4]
    b. Add frequencies to current service
    c. Lowering fares/adding competition
    d. Improving reliability
    e. Upgauging aircraft
16. Goals must be examined to be sure they are realistic. Airports and communities must develop a compelling case; the proposed new service must be supportable by community and profitable for carrier. ASD team should determine what equipment (seats and range) would be appropriate for the new service, and be sure they are compatible with airport infrastructure.
17. New service is more likely if the new entrant would be the first carrier offering direct service in that market.

Selecting Strategy and Techniques for ASD

18. ASD incentives fall into two categories; carriers may have a strong preference for one or the other, even though they both improve the bottom line:
    a. Boost carrier revenue by promoting demand or guaranteeing minimum revenue
    b. Offset costs
19. ASD incentive techniques include:
    a. Minimum revenue: guarantee an amount of revenue that a carrier will receive for operating a particular service to a particular destination over a given length of time

[4] The report expresses this, but sometimes increasing competition at an airport may also be desirable.

b. Guaranteed purchases (travel banks): Community deposits funds in a bank account that can only be used for buying a carrier's tickets.
c. Cost subsidies such as waivers or discounts of fees. These are generally a fixed amount, without regard to profitability.
d. Marketing/advertising: The most common ASD technique[5]—airport or community buys ads on behalf of airline.
e. In-kind contributions: products, goods or services donated to the carrier by third parties.
f. ASD consultants: consultants can be invaluable for smaller airports, providing information on the industry to the ASD team.

20. Carriers often have a preference for what incentives they prefer. ASD teams should understand those preferences.

Making a compelling case for air service

21. Airports present a business case to airlines they target. The route forecast is an important part of any proposal. This forecast represents the airport's best estimate of how successful new service will be.
    a. Includes proposed schedule, equipment type, seating capacity and configuration
    b. Also includes comparison of the proposed route to other routes flown by target carrier, and a summary of how new services would compare to services by other airlines
    c. Operational and financial assumptions
    d. Whether the route would be a meaningful contributor to carrier's bottom line
22. In addition to the route analysis, carriers want information they do not usually collect, or do not have easy access to: local demographic data, details about local business and their travel habits, information about local civilian and military facilities, and local tourist facilities that drive inbound leisure traffic. Carriers are particularly interested in the strength of local businesses and their travel habits, because business travelers are generally higher fare travelers.
23. Attracting airline service is an ongoing process and may require a prolonged effort. Expectations should correspond. An airport should focus on establishing rapport with airlines—service may take months or years.
24. Most airports met with carriers at their headquarters, or less often at conferences.[6] For meetings at headquarters, three to four representatives of an airport typically attend. For conferences, typically only two airport representatives attend.

Evaluating and refining the program

25. Evaluate ASD team's effectiveness; this can be difficult to do well.

[5] Note that this reflects the vintage of the report. Cost interventions such as fee waivers have become the most common or frequently used form of incentive. It is also necessary to place these proposed interventions with airlines in the context of existing constraints on discriminatory practices by airport sponsors and communities.
[6] Note that since the publication of this ACRP study, airport-airline meetings at conferences (including conferences organized solely to facilitate such interaction) has become the rule, with meetings at airline headquarters becoming less common.

a. Know objectives exactly: knowing the goals is essential to evaluating how well those goals were achieved
b. Measure outcomes: operational data is a good source of metrics. Passenger reactions are also important.
c. Attributing causation: national economic conditions also affect airline finances, so it is important to try to separate these national factors from particular ASD program results.

26. Keep key stakeholders informed.

ACRP Synthesis 68: Strategies for Maintaining Air Service (2015)[7]

1. The airline industry that exists today is rapidly-evolving. It is very different from its form ten years ago and will continue to change.
    a. Airline consolidation has significantly changed the shape of the industry
    b. Fleet issues—reduction in the number of 50-seat RJs and resulting loss or modification of service for some airports
    c. Regulatory modifications, like the "1,500 hour rule" that created a pilot shortage
    d. Evolving airline business models
    e. Fuel price volatility
2. Literature Review: publications worthy of note are:
    a. *Trends and Market Forces Shaping Small Community Air Service in the United States*. (Wittman and Swelbar 2013).
    b. *Air Carrier Incentive Program Guidebook: A Reference for Airport Sponsors*. (FAA 2010).
    c. An overview of Essential Air Service by the Office of Aviation Analysis (5 pages, USDOT, 2009).
3. Factors influencing air service
    a. Cost—total cost of operating at an airport. Cost Per Departure (CPD) is more important than Cost Per Enplanement (CPE).
    b. Communication—airport staff needs to establish and maintain dialogue with carrier staff. A standing appointment for discussion is good. Keep the carrier informed on what is going on in local economy.
    c. Community—airport acts as carrier's liaison to local community. If an airport can act to reverse downturns in traffic through community effort, that can preserve a route.
4. For airline costs, air carrier incentive programs are important. The many relevant restrictions are addressed in FAA's guidebook (2.b.).
5. Communication leads to community engagement. Examples of challenges that may come up include:
    a. Misconnecting flights—local business traveler missed his connection at hub and was unable to reach his destination or missed his connection home.
    b. Fleet issues—unable to transport coffins because of small equipment used on route?

[7] As discussed below, reliance on air service incentives and other programs for maintaining air service must adhere to, or be in balance with existing boundaries requiring fair access to airport use as defined in airport sponsor grant assurances.

    c. Fare disparities.
6. Community engagement is also critical to improving prospects for air service:
    a. Educate “leaking” fliers about the time and cost involved to drive to another airport
    b. Manage community expectations regarding potential additional air service
7. Many resources are available to airport staff to gain information on carriers, other airports, FAA, pricing, etc.
8. Techniques for maintaining air service include:
    a. Remaining very aware of TOTAL cost to carrier
    b. Maintaining intensive communication, including scheduled trips to carrier headquarters
    c. Attending ASD conferences

3. Airport and Community Use of Air Service Incentives

This section provides an assessment of the characteristics and objectives of the air service incentive programs used by airports and communities. It includes:

- A description of the publicly available online database that the Project Team created for this project with the types and features of air service incentive programs that are in place at U.S. airports
- Consideration of the applicable federal requirements for these programs, including how they may be limited or given specific structures due to these requirements
- A snapshot (developed using the online database) of the ways in which these incentive programs are being used by U.S. airports of all sizes
- A brief review of air service incentive programs have been used in the recent past by airports outside the U.S.

Together, these elements will provide a comprehensive foundation for analyzing the case study airport and community interviews that play a principal role in this report.

Air service incentives are financial inducements offered to airlines to encourage new service to particular airports and to mitigate some of the financial risk that an airline takes when it starts service in a market that it did not previously serve. Generally speaking, there are two sources of air service incentives: airports themselves and community organizations that are interested in a region's air service scale and scope, such as state and local governments, private business or economic development organizations, and convention and visitors bureaus. A complete list of types of air service incentives and other relevant terms and examples can be found in the Glossary. These programs must also be structured in accordance with federal grant assurances (FAA, 2014), including restrictions on unjust discrimination among users that direct incentive benefits to subsets of airport users.

The types, duration, and other characteristics of incentives offered by airports (i.e., coming from airport funds) are limited by FAA policy and relevant statutes. Airports may offer *reductions or waivers of fees*, such as various airport rents, landing fees, and certain other airport facility fees as well as *marketing support or assistance*, in the form of funds to assist in marketing new air service. These offers are subject to certain restrictions, such as duration of support or ensuring active competition among airlines at the airport. The general principles are that airports cannot offer subsidies such as direct cash payments to carriers, and that airports may only offer incentives that are limited in duration (to a maximum of one or two years, depending on whether the incentives are offered only to new entrants or to both new entrants and incumbent airlines).

These airport incentives are now quite common in the U.S., with a majority of airports offering fee waivers, marketing assistance or both. In some ways, this widespread use means that these types of incentives are a cost of doing business for an airport, or a "door prize" for new airline service that is expected by airlines. That said, there remains some significant variation across airports in amount, structure and duration for these incentives. These are examined in the

summary cross-tabulations of incentive use among U.S. airports (Exhibits 22, 26, 30, 34, 38 40, and 48), and in greater detail in Chapter 3, Section b.

With so many airports offering fee waivers and marketing assistance, community-sponsored incentives have become more significant as a potential differentiator among airports and their air service incentive programs, even though it is not the airport that is providing the differentiating incentives. These community incentives can take many forms and are not subject to FAA restrictions as long as they are not airport-directed, determined or funded. Perhaps due to this greater freedom in designing incentives, communities tend to be the source of innovative air service incentive programs. However, community-directed incentive programs remain subject to the requirements for economic nondiscrimination and the granting of exclusivity to recipients, even if airport or airport sponsor revenues are not involved. Community incentives can be sponsored by state governments, local governments (in cases where an airport is part of local government, only so long as the community incentives funding source is separate from airport funds), chambers of commerce, economic development councils, convention and visitors bureaus, and other business or governmental organizations. The types of air service incentives are identified in Exhibit 16.

Exhibit 16. Types of Air Service Incentive, by Incentive Sponsorship

Sponsor of Incentive Program	Incentive	Areas of Impact or Application
Airport-Administered	Reduced/waived fees, rents, or other airport charges	Landing fees, fuel flowage fees, departure charges, overnight aircraft parking fees, and terminal rent fees (baggage handling fees, ticket counter fees, and gate and ramp services).
	Advertising or marketing assistance and support to inform local markets of service	Cash or in-kind resources for advertising new flights, airlines, or destinations.
	Offsetting start-up costs of new services	Provision of equipment, training, personnel, and other services.
Community	Minimum revenue guarantee to airline(s) providing services	Agreements establish a target revenue level the airline will receive for operating service on a route over a specified period of time. Revenue shortfalls covered by communities.
	Advertising or marketing assistance and support to promote airport service and the region as a destination	Cash or in-kind resources for advertising new flights, airlines, or destinations, or for advertising at other locations to promote the region as a destination.
	Travel bank	Local businesses or individuals dedicate funds to be used only for purchasing tickets on the new route over a given period of time.

Unlike airport-funded incentives, community incentives can be direct subsidies to airlines, and community incentives are not required to be time limited. These incentives can come in many forms, including *minimum revenue guarantees*, *marketing assistance*, *loans*, *lodging discounts*, or *travel banks*, among others. Of these, minimum revenue guarantees and marketing assistance tend to be the most common forms of community incentives among the airports and communities we studied. At small hub and nonhub airports, these types of incentives can be partially funded using Small Community Air Service Development Program (SCASDP) grants awarded annually by the U.S. Department of Transportation.[8]

a. Online GIS Database of Air Service Incentive Programs in Use at U.S. Airports

A necessary piece for analyzing air service incentive programs by U.S. airports and their communities is information about the types of programs that are currently in use in the United States. With nearly 400 airports falling into one of the four hub size categories, this is not a trivial data-gathering exercise. Therefore, as part of the research, the Project Team, led by the Center for Regional Development of the Bowling Green State University, developed an online geographic information system (GIS)-based data tool using airport-specific incentive program data.

The data contained in the database for each airport was assembled from a variety of sources. The Project Team attempted to provide the most accurate information that could be derived for each airport's and/or community's incentive program by triangulating multiple sources of data. Importantly, the team attempted to limit its information to incentives offered from 2012-2017. First, the Project Team conducted web-based searches for each airport's incentive plan either on the airport's website or the website of the airport sponsor. In many cases, the Project Team found incentive plans in the records of airport board meetings, city council meetings, or other meeting minutes. Second, the Project Team collected news articles on service announcements and looked for reporting on the type and amount of incentives offered for new service. Third, the Project Team examined the websites of community organizations such as chambers of commerce, Convention and Visitor Bureaus (CVBs), and Economic Development Councils (EDCs) to look for press releases or program information. For small and nonhub airports, the Project Team used applications for SCASD grants for information not only on community incentives, but also on incentives offered by the airport. Finally, the Project Team used grant announcements from the Department of Transportation (DOT) to assess whether a community received a SCASDP grant and information from media reports and press releases on whether an incentive program using SCASDP funds was awarded to an air carrier.

A GIS is a framework for gathering, managing, and analyzing data. Rooted in the science of geography, a GIS can be used to integrate many types of data into a format that features spatial or geographic locations, which are used to organize multiple layers of non-geographic information into visualizations such as maps or 3D scenes. Visualizations in this GIS tool are limited to geographic locations on maps.

[8] The Essential Air Service Program and SCASDP can be regarded as federal (DOT-administered) programs that complement or soften some of the impacts of the Airline Deregulation Act on smaller communities with hard to sustain air service.

The base data for the tool are the 382 large hub, medium hub, small hub, and nonhub airports identified by FAA in the 2017 Terminal Area Forecast (TAF), their geographic locations, and data on recent population and labor force size in the metropolitan or micropolitan area surrounding the airport. The database then includes, for each airport, a detailed record of the types of air service incentives offered in the recent past by the airport, the characteristics of each offering (such as the dollar amounts associated with the incentive, and the length of time it may be used by an airline), and the sources for this information. This information is provided for both airport-directed and funded incentive programs and for community-directed and funded programs. The database also identifies any relevant community organizations for each airport, such as Chambers of Commerce, economic development offices, and visitor or tourism bureaus.

There are five GIS database tools, one for each of the four FAA hub size categories and a fifth database that includes the entire set of U.S. airports. Exhibit 17 shows the data elements included in the GIS database for each airport. There are 65 total data categories used in the GIS Database, 12 data items regarding the airport and the community it serves, including the geospatial location of the airport; 25 data items detailing the types and characteristics of the airport-directed incentives in use by the airport (including URL links to stories and reports documenting these incentive offerings); and 28 data items detailing the types and characteristics of the community-directed incentives in use in support of the air services operating at the airport (including information about the community organizations operating near the airport and URL links to stories and reports that document these community-directed incentive offerings). When the user clicks on the location of an airport, the database tool opens a callout box that contains this data for that airport.

The first 12 data elements reported in Exhibit 17 provide airport and community characteristics including identification data for the airport, the airport's geographic location (which enables the GIS software to place the airport on the U.S. map), and recent information on the population of the metropolitan statistical area (MSA) served by the airport and the airport's enplanement activity.

The second section of Exhibit 17 contains information about the types of air service incentives that have been made available to airlines in the recent past. In order to be able to respond to a range of queries from database users, this information includes both general aspects of an airport's incentive offerings—does the airport offer any incentives at all? Are they domestic incentives or international service incentives?—and more detailed information about the types of incentive included in the airport's program. These include specific types of incentives that may be funded with airport generated funds, such as marketing assistance to airlines, waivers and rebates of different types of airport fees and rents, and assistance with specific airport services such as ground handling and terminal space. In most cases, the information collected in the database includes data about the dollar amounts associated with the incentive and the time span (up to two years) that the incentive could remain in effect. For each airport there is also a record of the URL links to news stories and airport press releases that were used as sources for each airport's incentive data.

Exhibit 17. Data Elements in the Air Service Incentives GIS Database Tool

Airport and Community Data		
LOCID	LATITUDE	MSA Population 2015
AIRPORT NAME	LONGITUDE	Total Enplanements 2014
STATE	GEO ID	Total Enplanements 2015
CITY	MSA Population 2014	Hub Size
Airport-Directed Incentives Data		
Airport Incentives - Any	Airport Marketing Assistance - Duration (note)	Airport Terminal Rent Rebate - Any
Airport Incentives - Domestic	Airport Fee Waiver - Any	Airport Terminal Rent Rebate - Amount
Airport Incentives - International	Airport Fee Waiver - Type	Airport Terminal Rent Rebate - Amount (note)
Airport Marketing Assistance - Any	Airport Fee Waiver - Amount	Airport Terminal Rent Rebate - Duration
Airport Marketing Assistance - Maximum Amount	Airport Fee Waiver - Amount (note)	Airport Terminal Rent Rebate - Duration (note)
Airport Marketing Assistance - Maximum Amount (note)	Airport Fee Waiver - Maximum Duration	Airport Ground Handling
Airport Marketing Assistance - Maximum Duration	Airport Fee Waiver - Duration (note)	Common-Use Airport Ticket Space Waiver
URL Links to Stories and Sources for Airport-Directed Incentives		
Community-Directed Incentives Data		
Air Service Committee - Any	Local Government Incentives	Minimum Revenue Guarantee - Amount + Route
Air Service Committee Name	Local Government Name	SCASDP Grant - Any
Involvement of Community Organizations in Incentives	Local Government Incentive-Amount	SCASDP Grant - Amount + Route
Chamber Incentives - Any	State Government Incentive	Travel Bank - Any
Chamber of Commerce Name	State Agency Name	Travel Bank - Amount + Route
EDC Incentives - Any	State Tourism Incentives	Community Marketing Assistance - Any
EDC Name	State Agency Minimum Revenue Guarantee - Any	Community Marketing Amount
CVB Incentives - Any	Minimum Revenue Guarantee-Any	Community Marketing Assistance - Amount + Route
CVB Name	Minimum Revenue Guarantee Amount	
URL Links to Stories and Sources for Community-Directed Incentives		

The third section of Exhibit 17 provides similar detail for community directed incentives. Among the 28 data elements for community-directed incentives, there is information about the presence or absence in the airport's community of the types of organizations that typically provide air service incentives, such as Air Service Committees, Chambers of Commerce, Economic Development Councils (EDCs), Convention and Visitor Bureaus (CVBs), and any state or local governmental organizations. There is also data about the types of community-directed incentives that these organizations might fund and offer to airlines, such as minimum revenue guarantees, marketing assistance, and travel banks. There is also information about SCASDP grant funding that may be provided by the U.S. DOT to small and nonhub airports. Among the small hub and nonhub airports, those that have received a SCASDP grant sometime since 2012 are designated as SCASDP airports. Finally, for each airport there is a listing of the URLs leading to the online sources that provided the information about the airport's community-directed incentives.

The purpose of the database is to enable the user to choose one or more types of air service incentive from the list of incentive plan components and characteristics, which are displayed on a U.S. map that shows the locations of airports, and identify U.S. airports that provide such incentives. As with many online tools, a user can quickly learn details about the software and its functionalities by opening the tool and "playing around" with it. However, the following screenshots provide an introduction to the software and its contents.

Exhibit 18 uses the large hub version of the GIS tool to illustrate some of the functions in the software. As can be seen, all 30 large hub airports are shown on the map. At the label A is the "Contents" button, which toggles the information sidebar at the left of the screen on and off. Toggled off, the software displays only the GIS map, and toggling on opens the sidebar into the display. At the label B is the "Basemap" button, which allows the use to select one of 12 base maps for the display, from the plain light grey map used in the Exhibit 18 screenshot to more complex maps that include roads or topographical details.

Also illustrated in Exhibit 18 is the way in which information about airport uses of air service incentive programs is retrieved from the underlying airport database. Retrieving the data on the use of a particular type of incentive is done by checking the appropriate "Content" box from the list of incentive types on the left side of the screen. In this example, two boxes are checked (these are emphasized by the ovals use to highlight these examples)—the marketing assistance by amount box and the minimum revenue guarantee button. It is these selections that result in the "dots" appearing at each of the large hub airports shown on the map.

Exhibit 18. Air Service Incentives GIS Database Tool Screenshot, Showing Display Options for Choosing Map Appearance and Individual Incentives

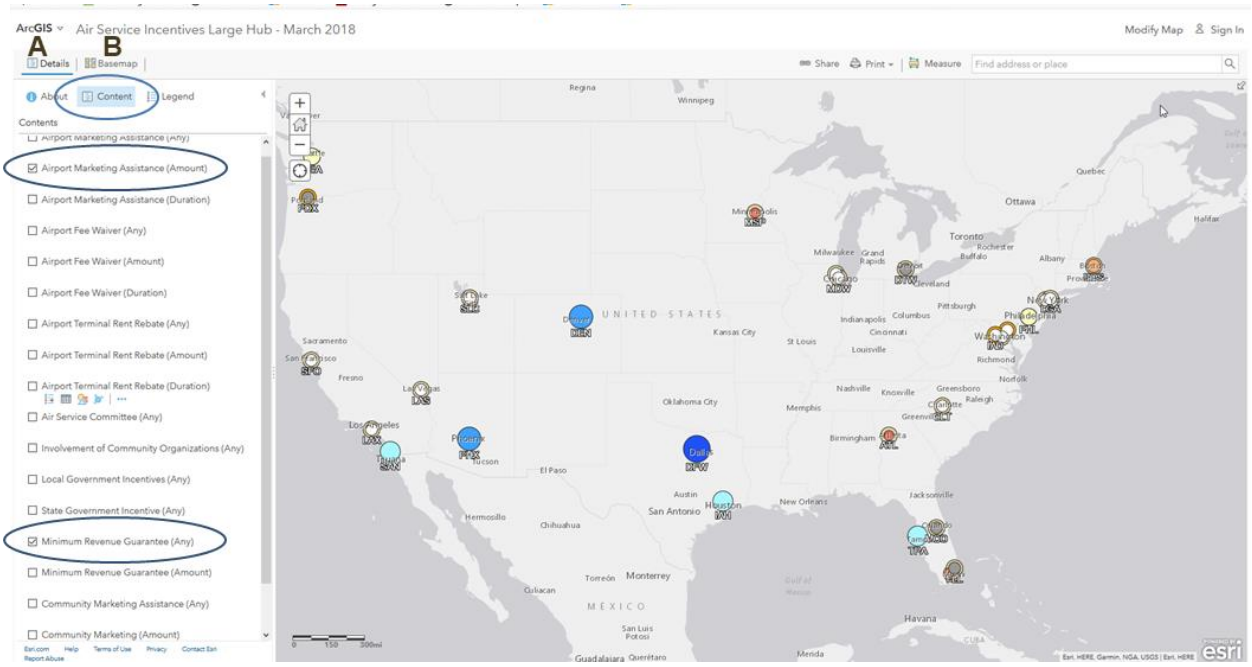


Exhibit 19 (also taken from the large hub airport GIS database) shows the way in which the air service incentive information requested by a user is displayed on the map and in the legend for the map. As seen in Exhibit 19, the "Details" button, identified as A, toggles the left hand sidebar into and out of the map, and the "Basemap" button, identified as B, allows the user to choose from 12 map formats. To show the map legend for the types of air service incentives selected using the "Content" button illustrated in Exhibit 18, the user can click the "Legend" button, shown circled in Exhibit 19. Using the "Legend" displays the symbols and symbol colors used to indicate a variety of incentive characteristics in the current map.

Exhibit 19. Screenshot from Air Service Incentives GIS Database Tool, Showing Access to the Map "Legend" Function

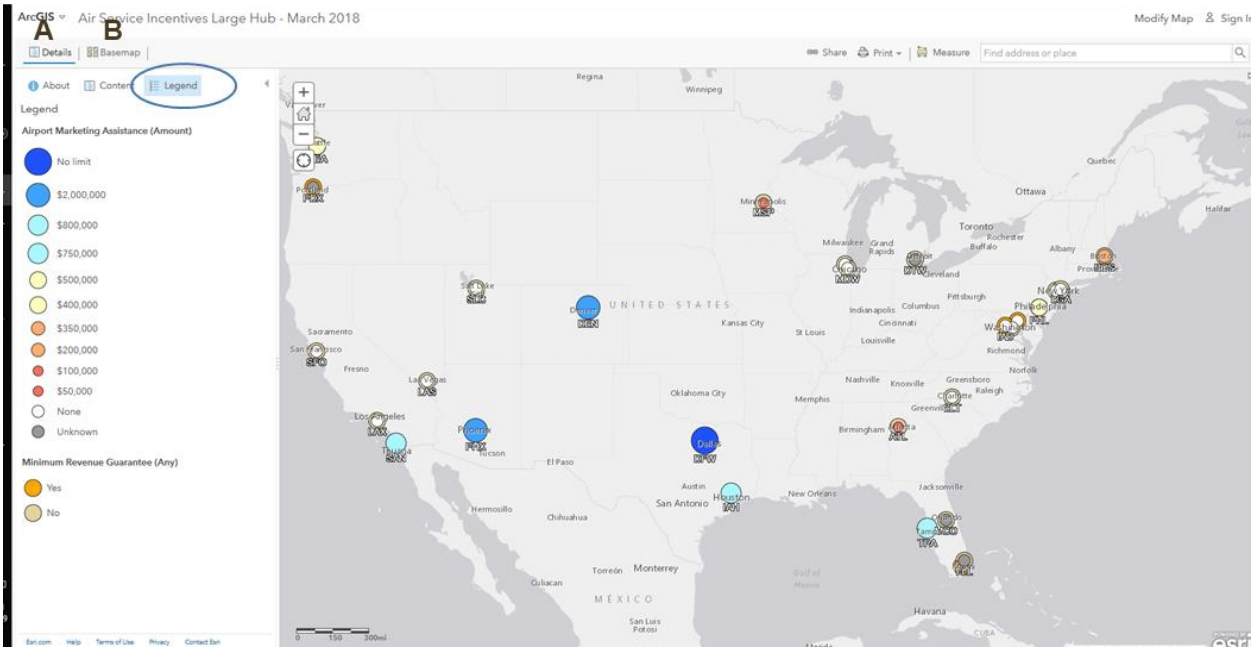


Exhibit 20 provides a fuller explanation of the incentive plan details shown in the map in Exhibit 19. As noted, this figure shows a screenshot from the large hub GIS database for air service incentive programs. Based on example selections from the "Content" window, the map shows the 30 large hub airports and labels (through the color and size of the airport's "dot") whether or not the airport has an airport-directed marketing assistance incentive, the dollar amount of the marketing assistance incentive (if the airport has one in place), and (based on a separate category selection from the "Content" window) whether or not the airport has a minimum revenue guarantee incentive of any kind in place. These two selections are those shown as selection examples in Exhibit 18, with Exhibit 20 reporting the results from that selection. For example, A1 indicates the large hub Denver (DEN), which has a marketing assistance incentive with a $2 million upper limit, while IAH (A2) has a marketing assistance incentive with an $800,000 upper limit. Example B shows Sky Harbor Phoenix (PHX), and the GIS map indicates that PHX does not have a marketing assistance incentive (the inner dot) and also has no minimum revenue guarantee incentive (the outer dot). In contrast, at Minneapolis (MSP) (example C), there is a marketing assistance incentive with a $100,000 limit, shown by the orange smaller inner dot, but MSP does not have a minimum revenue guarantee of any sort. Finally, example D indicates the call out box that will open if the dot for any airport on the map is clicked. This scrollable call out box contains all the database values for the associated airport, in this case Detroit DTW. The list of data elements that are shown in the airport call out boxes was described above and is shown in Exhibit 17.

When more than one incentive type or characteristic is selected for display (as is the case in the example illustrating the incentive selection process shown in Exhibit 18), the "dots" indicating the features of the incentive being displayed stack atop each other. For this reason, an airport's incentive feature that generates a large dot may obscure the display of the other incentive features chosen by the user. For example, in Exhibit 20, the large sized dots resulting from the

relatively large marketing assistance incentive budgets at DEN and IAH (examples A1 and A2) result in large "dots" for that incentive feature that completely obscure the information about the presence or absence of minimum revenue guarantees at those airports. Because the positioning of the "dots" is determined by the airport latitude and longitude coordinates that are included among the database elements, this stacking can be avoided by displaying incentive characteristics one at a time.

Exhibit 20. Screenshot from Air Service Incentives GIS Database Tool, Showing Examples of How Large Hub Airport Data Is Displayed

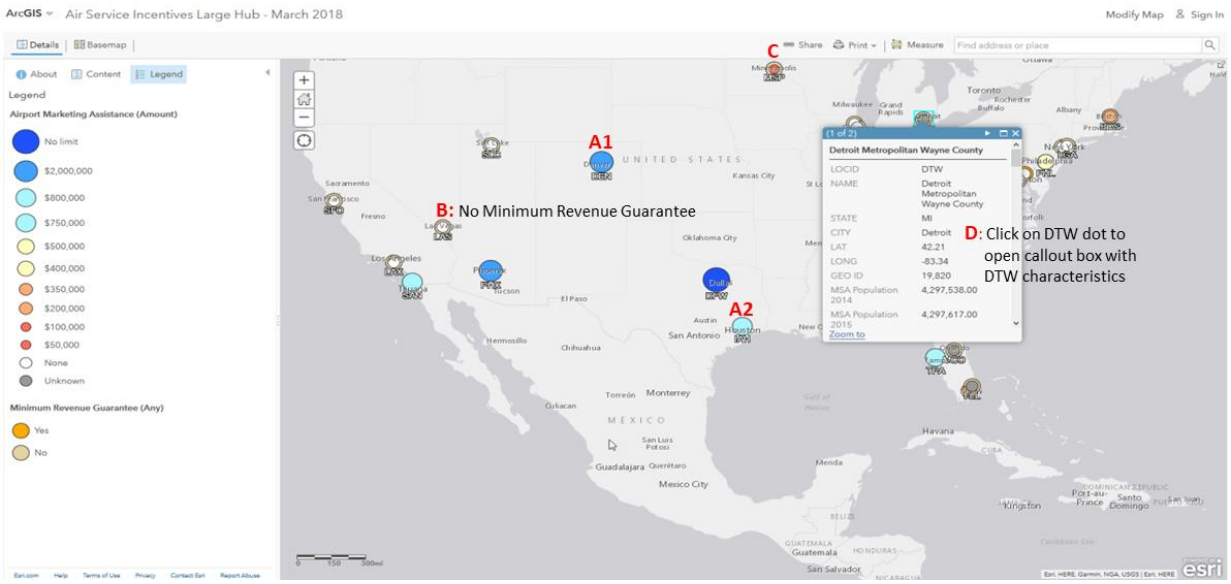
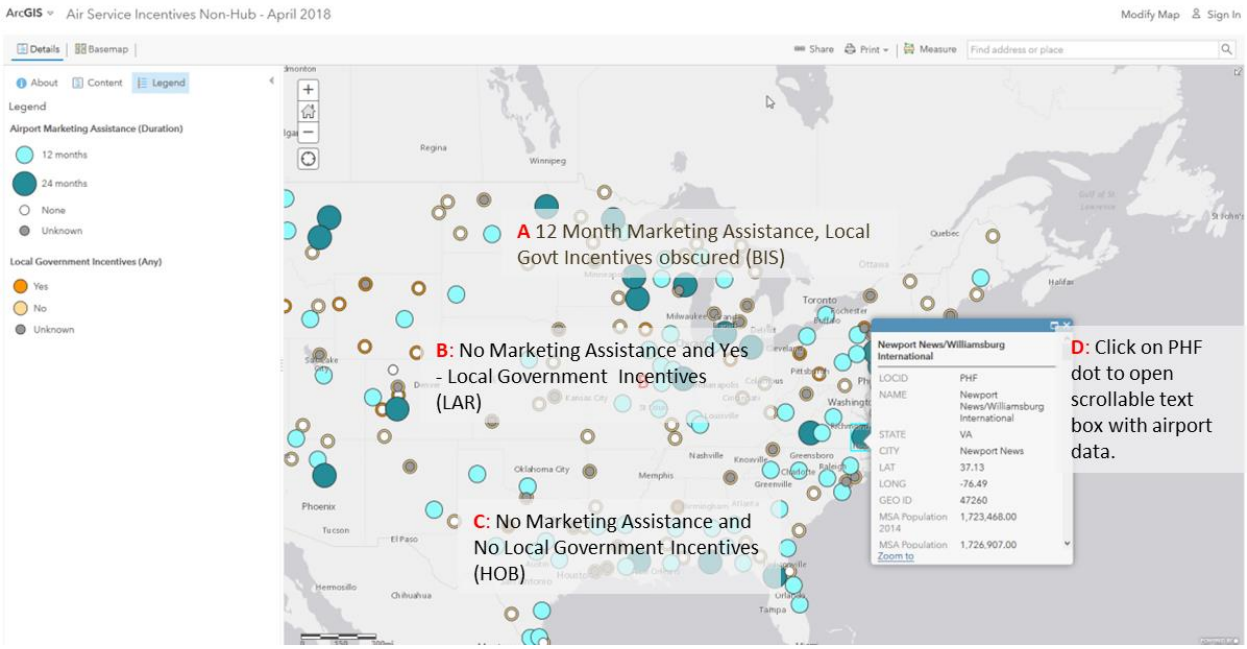


Exhibit 21 shows similar information taken from the GIS Database Tool for nonhub airports. For this example two types of incentive characteristics were selected for display: the time duration of any marketing assistance incentives offered by the airport (12 months, 24 months, or none for airports that do not offer incentives of this type), and whether or not the local government offered incentives of any kind for use of the airport. Since there are many more nonhub airports than large hubs, the map is much more densely packed with airport dots, and clearly some have incentives of these types and some do not.

Four example airports are shown in Exhibit 21 as explanations of the GIS tool's output. Example A shows Bismarck Airport (BIS) in North Dakota, represented by the light blue dot to the left of the label. The light blue dot indicates that BIS offered a 12 month duration marketing assistance incentive. A smaller dot indicating whether or not the Bismarck local government has offered any kinds of incentives is obscured by the marketing assistance indicator. Example B shows Laramie Regional Airport in Wyoming (LAR), represented by the dot just to the left of the label. This indicates that LAR does not offer a marketing assistance incentive (indicated by the white dot in the middle), and the Laramie local government does offer an incentive of some kind (indicated by the orange ring surrounding the white dot). Example C is Lea County Regional Airport (HOB) in New Mexico (represented by the dot to the left of the label), which does not offer marketing assistance incentives, and where the local government does not offer any community-directed incentives. Finally, Example D shows the call out box that appears when the

user clicks on the dot for Newport News/Williamsburg International Airport (PHF) in Virginia. The scrollable call out box contains the data for PHF that is used by the GIS Database Tool.

Exhibit 21. Screenshot from Air Service Incentives GIS Database Tool, Showing Examples of How Nonhub Airport Data Is Displayed



As mentioned above, there are five GIS Database Tools available to users, four that contain data for one of the four hub size groups and one that contains data for the entire set of airports. While it is relatively straightforward to keep these data up to date, doing so does require the dedication of some resources. These URLs are currently managed by the Center for Regional Development of Bowling Green State University, and there is no program currently in place to bring these data up to date periodically. The five GIS Database tools can be accessed at:

- All airports: https://arcg.is/1jm5fD
- Large hubs: https://arcg.is/0jWKfv
- Medium hubs: https://arcg.is/0XryLS
- Small hubs: https://arcg.is/1ue1nz
- Nonhubs: https://arcg.is/LXDL0

b. Characteristics of Air Service Incentive Programs in Use at U.S. Airports

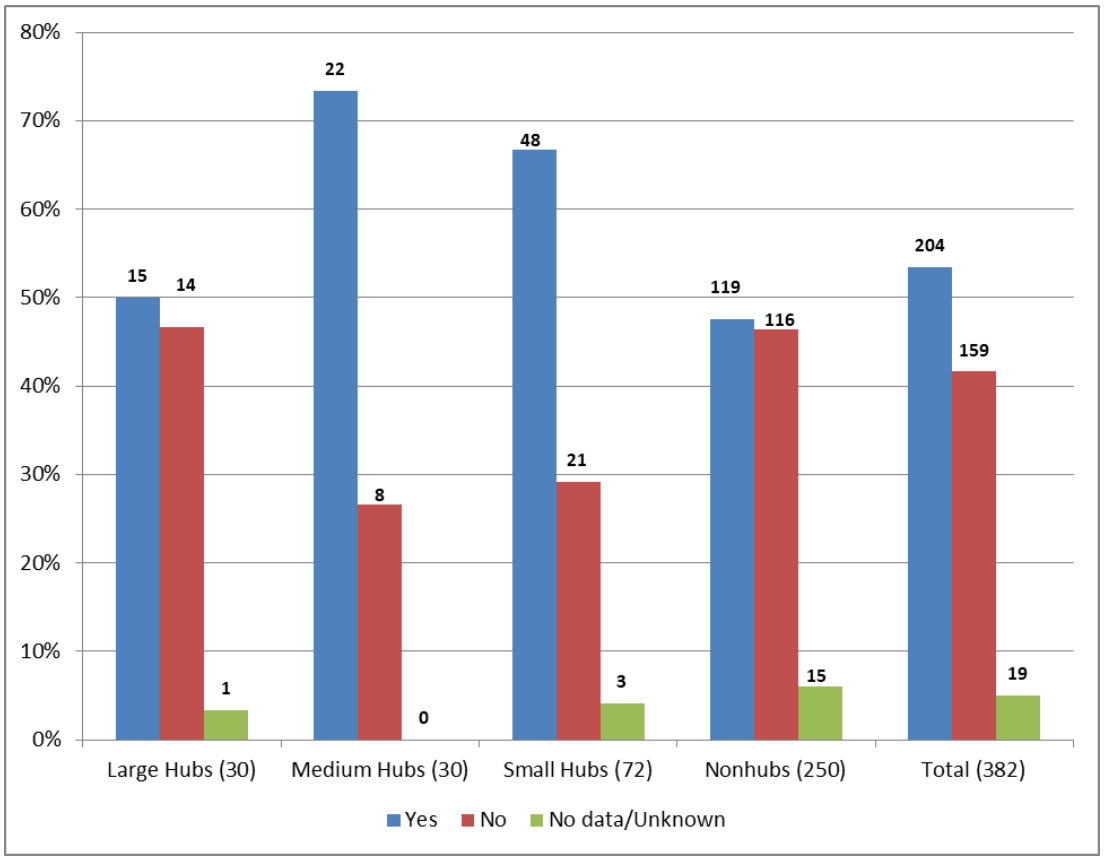
In this section, we use the airport incentive program data that is resident in the GIS air service incentives database to create a detailed picture of the use of air service incentives at U.S. airports. We present patterns of use for numerous program characteristics by large hub, medium hub, small hub, and nonhub airports (based on the 2017 FAA distribution of passenger airports into these size categories).

Exhibit 22 reports the use of marketing assistance in some form by these airports. As the table indicates, at present marketing assistance is more frequently used by medium hub (73 percent) and small hub (67 percent) airports than by large hubs and nonhub airports, where only around half of those airports offer some form of marketing assistance. These results are also shown graphically in Exhibit 23.

Exhibit 22. Use of Marketing Assistance Incentive Programs by U.S. Airports

	Large Hubs		Medium Hubs		Small Hubs		No nhubs		Total	
Yes	15	50%	22	73%	48	67%	119	48%	204	53%
No	14	47%	8	27%	21	29%	116	46%	159	42%
No data/Unknown	1	3%	0	0%	3	4%	15	6%	19	5%
Total	30		30		72		*250*		382	

Exhibit 23. Use of Marketing Assistance Incentive Programs by U.S. Airports



As indicated in Exhibit 24, while some airports offer relatively large overall amounts of marketing assistance to airlines, a wide majority of programs (155 out of 171 airports for which the program size is known) that provide marketing assistance offer $500,000 or less. Among airport marketing assistance programs that were described in sufficient detail,[9] large hub airports

[9] Not all airports had sufficient detail to determine a precise amount of their marketing incentives; hence the total number of airports in Exhibit 25 differs from the total numbers in Exhibits 22 and 24.

were more likely to have higher program limits, with 50 percent of this group (six out of 12) having limits greater than $500,000, compared to only 25 percent of medium hub airports (five out of 20), 11 percent (four out of 36) of small hub airports, and only one out of 103 nonhub airports. Conversely, smaller airports were more likely to have limits of $100,000 or less; 64 percent (23 out of 36) of small hub airports with known program limits and 76 percent (77 out of 103) of nonhub airports were below this level, compared to 10 percent of medium hubs (two out of 20) and 17 percent of large hubs (two out of 12).

Exhibit 24. Maximum Amounts of Marketing Assistance Offered or Provided to Airlines

	Large Hubs		Medium Hubs		Small Hubs		Nonhubs		Total	
Greater than $2,000,000	1	3%	0	0%	2	3%	1	0%	4	1%
$1,000,001 - $2,000,000	2	7%	0	0%	0	0%	0	0%	2	1%
$500,001 - $1,000,000	3	10%	5	17%	2	3%	0	0%	10	3%
$100,001 - $500,000	4	13%	13	43%	9	13%	25	10%	51	13%
$50,001 - $100,000	1	3%	1	3%	9	13%	27	11%	38	10%
$1 - $50,000	1	3%	1	3%	14	19%	50	20%	66	17%
No Marketing Assistance	14	47%	8	27%	21	29%	116	46%	159	42%
No data/Unknown	4	13%	2	7%	15	21%	31	12%	52	14%
Total	30		30		72		250		382	

As shown in Exhibit 25, the vast majority of airports offering marketing assistance to airlines do so with programs that have a maximum duration of 12 to 24 months, and none offer it for longer than 24 months (which is consistent with FAA guidelines).

Exhibit 25. Maximum Duration of Marketing Assistance Offered to Airlines

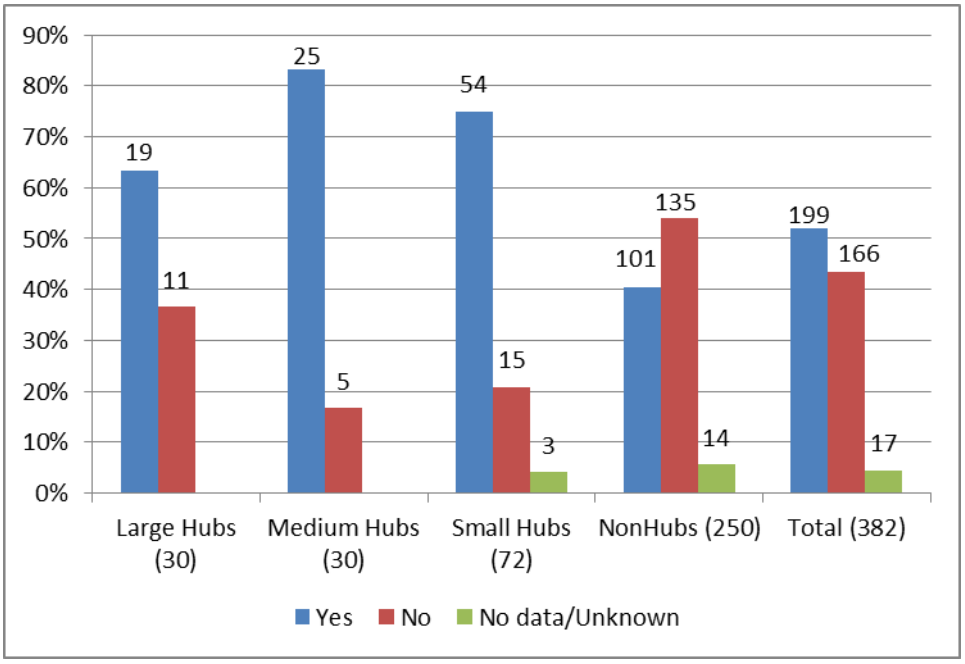
	Large Hubs		Medium Hubs		Small Hubs		Nonhubs		Total	
6 months	1	3%	0	0%	1	1%	0	0%	2	1%
12 months	3	10%	6	20%	23	32%	74	30%	106	28%
24 months	10	33%	16	53%	14	19%	22	9%	62	16%
Over 24 months	0	0%	0	0%	0	0%	0	0%	0	0%
No marketing assistance	14	47%	8	27%	21	29%	116	46%	159	42%
No data/Unknown	2	7%	0	0%	13	18%	38	15%	53	14%
Total	30		30		72		250		382	

As indicated in Exhibit 26, most large, medium, and small hub airports offer fee waivers as an incentive to airlines, with the most sizeable majorities among medium and small hub airports. However, a majority of nonhub airports do not offer fee waivers as incentives. These data are also shown graphically in Exhibit 27.

Exhibit 26. Fee Waivers Offered as Part of Air Service Incentive Programs

	Large Hubs		Medium Hubs		Small Hubs		Nonhubs		Total	
Yes	19	63%	25	83%	54	75%	101	40%	199	52%
No	11	37%	5	17%	15	21%	135	54%	166	43%
No data/Unknown	0	0%	0	0%	3	4%	14	6%	17	4%
Total	30		30		72		*250*		382	

Exhibit 27. Fee Waivers Offered as Part of Air Service Incentive Programs



As shown in Exhibit 28, most airports of all sizes that offer fee waivers include 100 percent fee waivers without caps in their incentive programs for airlines, with the most sizeable majorities among medium and small hub airports.

Exhibit 28. Structure of Fee Waivers Offered as Part of Air Service Incentive Programs

	Large Hubs		Medium Hubs		Small Hubs		Nonhubs		Total	
100% with no cap	12	40%	25	83%	40	56%	91	36%	168	44%
100% with cap	3	10%	0	0%	5	7%	4	2%	12	3%
Other	3	10%	0	0%	4	6%	5	2%	12	3%
None	11	37%	5	17%	15	21%	135	54%	166	43%
No data/Unknown	1	3%	0	0%	8	11%	15	6%	24	6%
Total	30		30		72		*250*		382	

There are some differences in the duration of the fee waiver incentives offered by airports within the different hub size groups. While the majority of large and medium hub airports offering fee waivers offer them for 24 months, among small hub airports these program durations are roughly

evenly split between durations of 12 months and durations of 24 months, and at nonhub airports the majority of fee waiver incentive offerings are for one year rather than 24 months. These differences are reported in Exhibit 29.

Exhibit 29. Duration of Fee Waiver Incentives Offered as Part of Air Service Incentive Programs

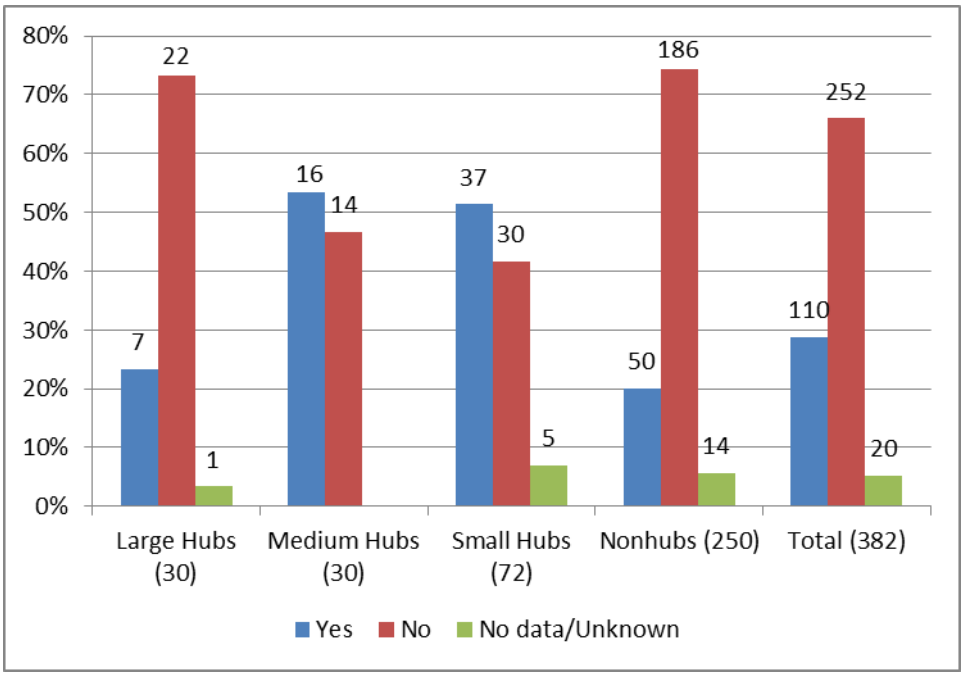
	Large Hubs		Medium Hubs		Small Hubs		Nonhubs		Total	
6 months	0	0%	0	0%	0	0%	7	3%	7	2%
12 months	5	17%	7	23%	23	32%	64	26%	99	26%
18 months	0	0%	2	7%	1	1%	1	0%	4	1%
24 months	13	43%	16	53%	24	33%	28	11%	81	21%
In perpetuity	0	0%	0	0%	0	0%	0	0%	0	0%
None	11	37%	5	17%	15	21%	135	54%	166	43%
No data/Unknown	1	3%	0	0%	9	13%	15	6%	25	7%
Total	30		30		72		250		382	

As shown in Exhibit 30, terminal rent rebates are offered to airlines as parts of air service incentive programs more frequently at medium and small hub airports than they are for large hubs. Just over half of medium and small hubs are known to offer incentives in this form, compared to around one quarter of large hubs and around one fifth of nonhub airports. These data are also presented graphically in Exhibit 31.

Exhibit 30. Terminal Rent Rebate Incentives Offered as Part of Air Service Incentive Programs

	Large Hubs		Medium Hubs		Small Hubs		Nonhubs		Total	
Yes	7	23%	16	53%	37	51%	50	20%	110	29%
No	22	73%	14	47%	30	42%	186	74%	252	66%
No data/Unknown	1	3%	0	0%	5	7%	14	6%	20	5%
Total	30		30		72		*250*		382	

Exhibit 31. Terminal Rent Rebate Incentives Offered as Part of Air Service Incentive Programs



The majority of airports that offer terminal rent rebates cover all terminal rents as part of the incentive, regardless of airport hub size, although overall, terminal rent rebates are a relatively less common form of incentive than other types. These characteristics are reported in Exhibit 32.

Exhibit 32. Structure of Terminal Rent Rebate Incentives Offered as Part of Air Service Incentive Programs

	Large Hubs		Medium Hubs		Small Hubs		Nonhubs		Total	
"All terminal rent covered"	6	20%	13	43%	25	35%	42	17%	86	20%
Fixed monetary amount	1	3%	1	3%	1	1%	1	0%	4	3%
Other	0	0%	1	3%	8	11%	5	2%	14	0%
None	22	73%	14	47%	30	42%	186	74%	252	73%
No data/Unknown	1	3%	1	3%	8	11%	16	6%	26	3%
Total	30		30		72		*250*		382	

As shown in Exhibit 33, the majority of large, medium, and small hub airports that offer terminal rent rebates and for which details regarding duration were available provide them for 24 months, while a majority of those offered by nonhub airports are provided for 12 months. Overall, the majority of airports of all sizes (or a bare minority in the case of medium hubs) either do not offer terminal rent rebates or not enough is known about them.

Exhibit 33. Duration of Terminal Rent Rebate Incentives Offered as Part of Air Service Incentive Programs

	Large Hubs		Medium Hubs		Small Hubs		Nonhubs		Total	
6 months	0	0%	0	0%	0	0%	5	2%	5	0%
12 months	3	10%	4	13%	12	17%	27	11%	46	10%
18 months	0	0%	2	7%	1	1%	1	0%	4	0%
24 months	4	13%	10	33%	18	25%	15	6%	47	13%
In perpetuity	0	0%	0	0%	0	0%	0	0%	0	0%
None	22	73%	14	47%	30	42%	186	74%	252	73%
No data/Unknown	1	3%	0	0%	11	15%	16	6%	28	3%
Total	30		30		72		250		382	

The majority of large and medium hub airports are not in regions or communities that develop incentive programs directed by community organizations such as Chambers of Commerce, Economic Development Councils (EDCs), or Convention and Visitors Bureaus (CVBs). At small hub airports, however, nearly half of the airports serve communities that provide incentive programs involving one or more of these community organizations, and this is true for just over half of the communities served by nonhub airports. These differences are reported in Exhibit 34, and are also presented graphically in Exhibit 35.

Exhibit 34. Involvement of Community Organizations in Air Service Incentive Programs

	Large Hubs		Medium Hubs		Small Hubs		Nonhubs		Total	
Yes	7	23%	8	27%	33	46%	132	53%	180	47%
No	23	77%	22	73%	39	54%	105	42%	189	49%
No data/Unknown	0	0%	0	0%	0	0%	13	5%	13	3%
Total	30		30		72		*250*		382	

Exhibit 35. Involvement of Community Organizations in Air Service Incentive Programs

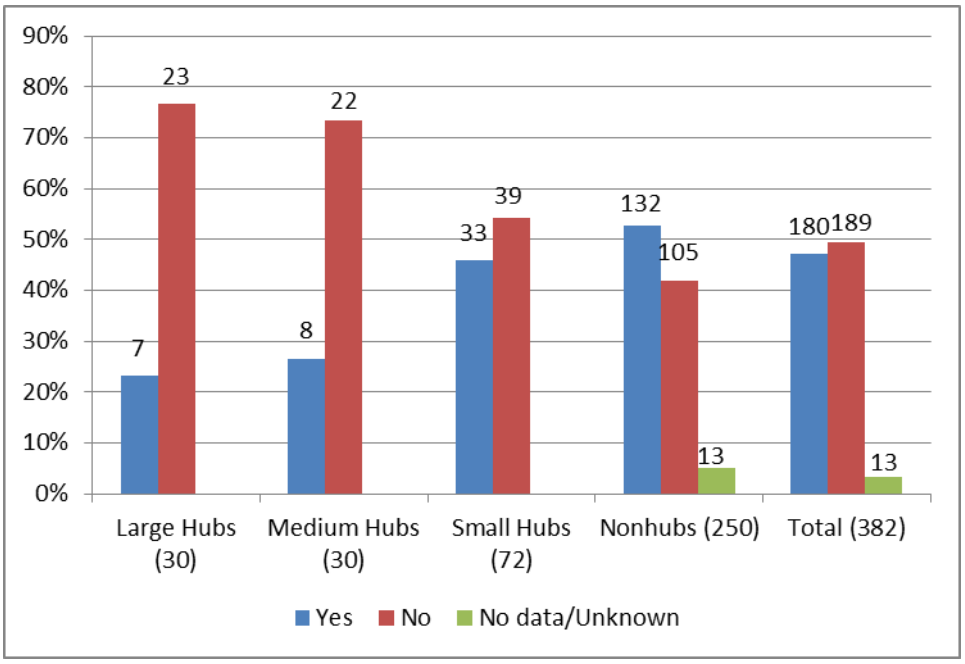
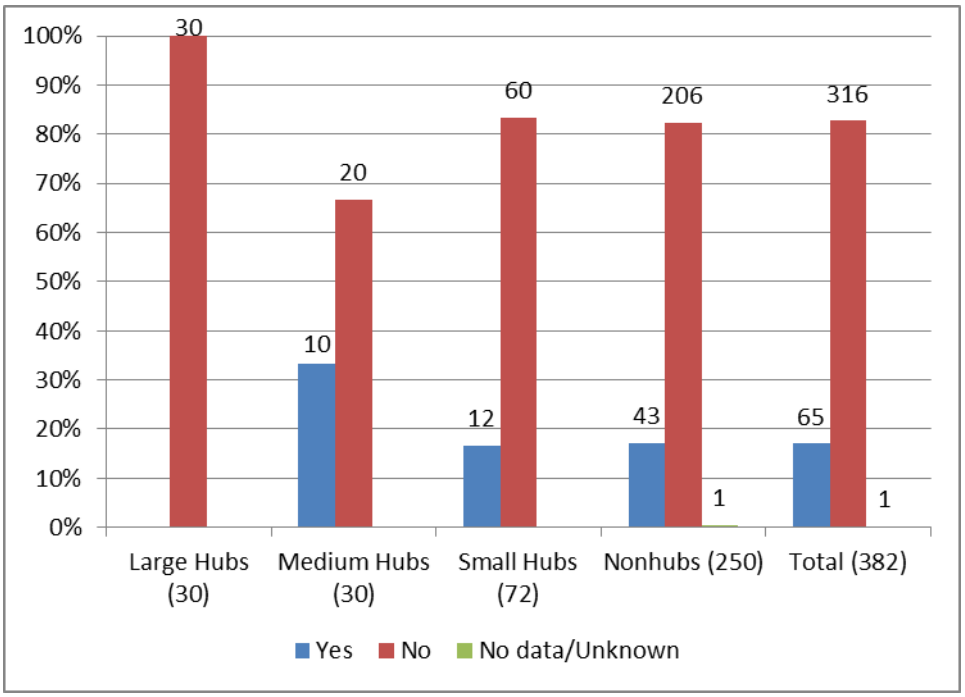


Exhibit 36 identifies the extent to which local or community Air Service Committees (ASCs) are involved in community-directed Air Service Incentive Programs. An Air Service Committee is a stand-alone organization or task force of community, business, and government leaders who meet regularly to discuss air service related topics, including air service incentive programs. The existence of an ASC in a community or region reflects a focused community interest in local air service issues, and also typically engages local organizations like Chambers of Commerce, EDCs, and CVBs. In some cases, an ASC may be the sole community organization addressing local air service issues. At large hubs, the Project Team found no ASC involvement in air service incentive issues, while one third of medium hub airports and one sixth of both small hub and nonhub airports have local ASCs involved in incentive programs. Exhibit 37 shows these results graphically.

Exhibit 36. Involvement of Air Service Committees in Community Groups Supporting Air Service Incentive Programs

	Large Hubs		Medium Hubs		Small Hubs		Nonhubs		Total	
Yes	0	0%	10	33%	12	17%	43	17%	65	17%
No	30	100%	20	67%	60	83%	206	82%	316	83%
No data/Unknown	0	0%	0	0%	0	0%	1	0%	1	0%
Total	30		30		72		*250*		382	

Exhibit 37. Involvement of Air Service Committees in Community Groups Supporting Air Service Incentive Programs

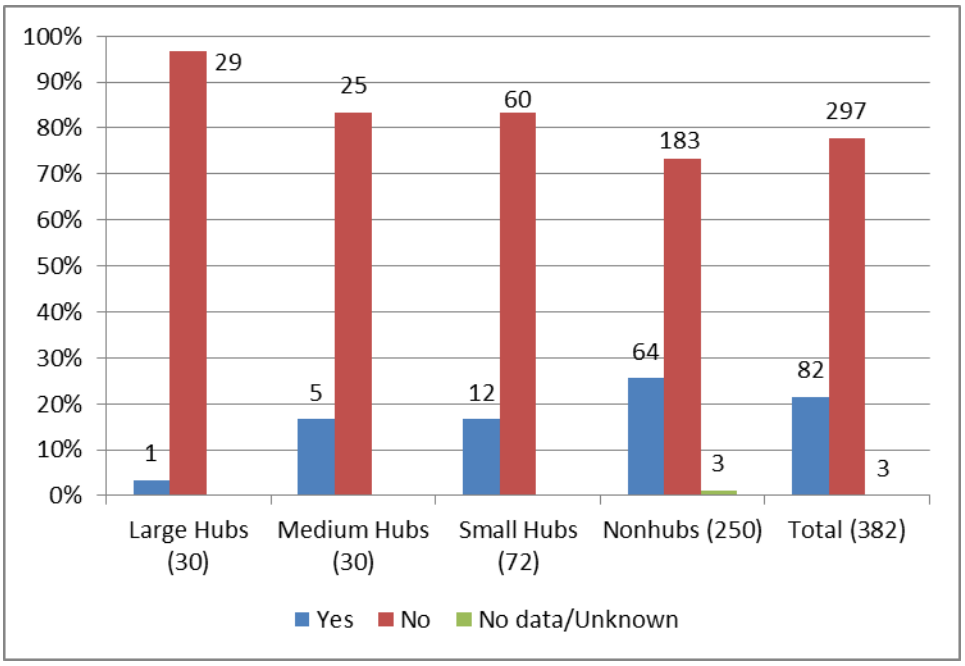


Exhibits 38 and 39 summarize the involvement of local governments in offering funding for Air Service Incentives. While only a minority of incentive programs include financial participation by local governments, the practice is more frequent at medium hub (17 percent), small hub (17 percent), and nonhub airports (26 percent) than at large hub airports (only one airport out of 30, or three percent).

Exhibit 38. Involvement of Local Governments in Funding or Supporting Air Service Incentive Programs

	Large Hubs		Medium Hubs		Small Hubs		Nonhubs		Total	
Yes	1	3%	5	17%	12	17%	64	26%	82	21%
No	29	97%	25	83%	60	83%	183	73%	297	78%
No data/Unknown	0	0%	0	0%	0	0%	3	1%	3	0%
Total	30		30		72		*250*		382	

Exhibit 39. Involvement of Local Governments in Funding or Supporting Air Service Incentive Programs

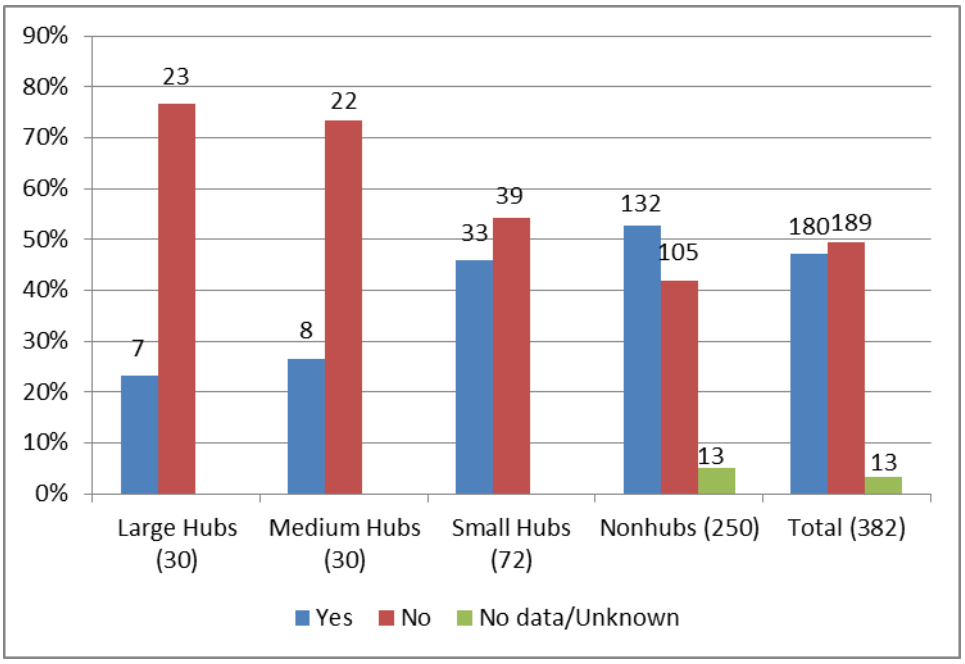


Exhibits 40 and 41 summarize the involvement of state governments in offering funding for Air Service Incentives. As with participation by local governments, only a minority of air service incentive programs include financial participation by state governments. However, in this case, the practice is more frequent for large hub airports (23 percent) than at medium hubs (13 percent), small hubs (11 percent) or nonhubs (five percent).

Exhibit 40. Involvement of State Governments in Supporting Air Service Incentive Programs

	Large Hubs		Medium Hubs		Small Hubs		Nonhubs		Total	
Yes	7	23%	4	13%	8	11%	12	5%	31	8%
No	23	77%	26	87%	64	89%	238	95%	351	92%
No data/Unknown	0	0%	0	0%	0	0%	0	0%	0	0%
Total	30		30		72		*250*		382	

Exhibit 41. Involvement of State Governments in Supporting Air Service Incentive Programs



Air Service Incentive Programs funded by local community organizations or by state and local governments also have differing components or provisions. Exhibit 42 summarizes the provision of marketing assistance to airlines by community organizations or through programs funded by state or local governments. The data distinguish between these kinds of incentives that have been offered by a local or state organization and awarded to one or more airlines, and those that are offered but have not yet been awarded to any particular airline. For any airport size grouping, the number of airports with community or state organizations that are offering marketing assistance incentives is the sum of these two (those who have awarded incentives and those who have offered but not yet awarded incentives). This practice occurs at a minority of airports, and occurs modestly more often at small hub and nonhub airports (36 percent and 26 percent respectively) compared to large and medium hubs (27 percent and 20 percent respectively). In addition, the Project Team found no cases where large or medium hub community organizations or governments offered marketing incentives but had not awarded them. For all airport size groupings, provision of marketing assistance by community organizations or governments occurs less frequently than does provision of marketing assistance to airlines by airports (Exhibit 22). These data on community-directed marketing assistance programs are shown graphically in Exhibit 43.

Exhibit 42. Provision of Marketing Assistance by Community Organizations or State/Local Governments as Part of Air Service Incentive Programs

	Large Hubs		Medium Hubs		Small Hubs		Nonhubs		Total	
Yes-Awarded	8	27%	6	20%	18	25%	49	20%	81	21%
Yes-Offered/Not Awarded	0	0%	0	0%	8	11%	16	6%	24	6%
No	22	73%	24	80%	46	64%	185	74%	277	73%
Total	30		30		72		*250*		382	

Exhibit 43. Provision of Marketing Assistance by Community Organizations or State/Local Governments as Part of Air Service Incentive Programs

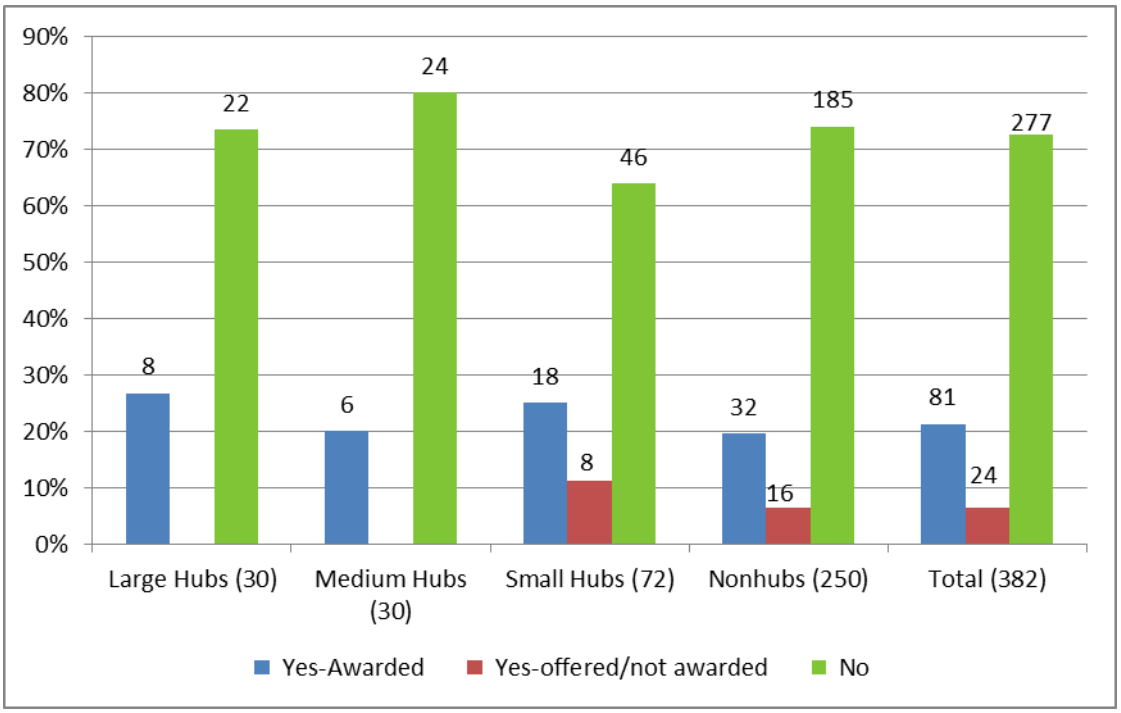


Exhibit 44 presents greater detail on the marketing assistance funding made available by community organizations or state/local governments. While most airports do not have community or state/local government funded marketing assistance available, of these that do, most make $500,000 or less available, with a few offering greater amounts.

Exhibit 44. Maximum Amount of Marketing Assistance Made Available by Communities or State/Local Governments as Part of Air Service Incentive Programs

	Large Hubs		Medium Hubs		Small Hubs		Nonhubs		Total	
Over $1 million	0	0%	1	3%	3	4%	2	1%	6	2%
$750,000 to $999,999	1	3%	0	0%	2	3%	1	0%	4	1%
$500,000 to $749,999	1	3%	2	7%	1	1%	2	1%	6	2%
$250,000 to $499,999	1	3%	2	7%	3	4%	13	5%	19	5%
Less than $250,000	1	3%	0	0%	13	18%	45	18%	59	15%
None	22	73%	24	80%	46	64%	185	74%	277	73%
No data/Unknown	4	13%	1	3%	4	6%	2	1%	11	3%
Total	30		30		72		250		382	

Exhibits 45 and 46 report the provision of airline revenue guarantees by community organizations or through programs funded by state or local governments. The data distinguish between these kinds of incentives that have been offered by a local or state organization and awarded to one or more airlines, and those that are offered but have not yet been awarded to any particular airline. For any airport size grouping the number of airports with community or state organizations that are offering revenue guarantee incentives is the sum of these two (those who have awarded incentives and those who have offered but not yet awarded incentives). This practice occurs at a minority of airports, and occurs slightly more often at small hub and nonhub airports (46 percent and 39 percent, respectively) than at large and medium hubs (10 percent and 30 percent, respectively). As was the case with community and government marketing incentives, the Project Team found no cases where large or medium hub community organizations or governments offered minimum revenue guarantees but had not awarded them.

Exhibit 45. Provision of Revenue Guarantees by Communities or State/Local Governments as Part of Air Service Incentive Programs

	Large Hubs		Medium Hubs		Small Hubs		Nonhubs		Total	
Yes-Awarded	3	10%	9	30%	18	25%	32	13%	62	16%
Yes-Offered/Not Awarded	0	0%	0	0%	15	21%	64	26%	79	21%
No	27	90%	21	70%	39	54%	154	62%	241	63%
Total	30		30		72		*250*		382	

Exhibit 46. Provision of Revenue Guarantees by Communities or State/Local Governments as Part of Air Service Incentive Programs

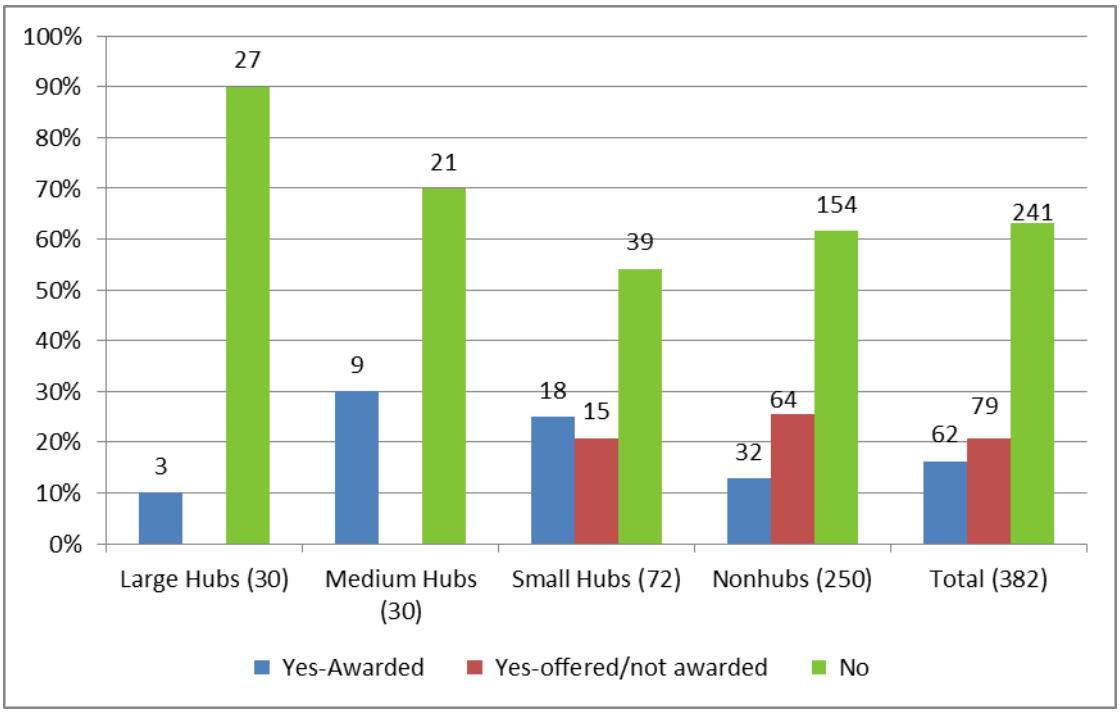


Exhibit 47 presents greater detail on the revenue guarantee funding made available by non-airport organizations. While most airports do not have community or state/local government funded revenue guarantees available, of these that do, the maximum amounts offered vary widely. Maximum revenue guarantees offered by community organizations and governments for large hub airports exceed $1,000,000 (although 90 percent of large hubs do not get this type of community or governmental support). Most medium hub airports that receive this type of support also see maximum guarantee amounts exceeding $1,000,000, but revenue guarantee support provided by community organizations and governments served by small hubs is split fairly evenly between maximum support in excess of $1,000,000 and maximum support less than $1,000,000. At nonhubs, amounts less than $1,000,000 are more common.

Exhibit 47. Maximum Amount of Revenue Guarantees Provided or Offered by Community Organizations or State/Local Governments as Part of Air Service Incentive Programs

	Large Hubs		Medium Hubs		Small Hubs		Nonhubs		Total	
Over $5 million	1	3%	3	10%	3	4%	0	0%	7	2%
$3 million to $5 million	1	3%	0	0%	4	6%	1	0%	6	2%
$1 million to $2.99 million	1	3%	2	7%	8	11%	24	10%	35	9%
$500,000 to $999,999	0	0%	2	7%	12	17%	49	20%	63	16%
Less than $500,000	0	0%	0	0%	4	6%	21	8%	25	7%
None	27	90%	21	70%	39	54%	154	62%	241	63%
No data/Unknown	0	0%	2	7%	2	3%	1	0%	5	1%
Total	30		30		72		250		382	

Finally, Exhibit 48 summarizes the extent to which small hub and nonhub airports have been recent (since 2012) recipients of Small Community Air Service Development Program (SCASDP) support for new air service (which in some cases has not yet been successfully disbursed). Since 2012, 35 percent of small hub airports received and made use of an SCASDP grant (25 of the 72 small hubs), while over half of nonhub airports (141 of 250, or 56 percent) have received SCASDP grants in that time. (Large hub and medium hub airports are not eligible for SCASDP grants.)

Exhibit 48. Small Hub Airport Use of Small Community Air Service Development Program (SCASDP) Funding

	Large Hubs	Medium Hubs	Small Hubs		Nonhubs		Total	
Yes	Not Eligible for SCASDP	Not Eligible for SCASDP	25	35%	141	56%	166	52%
No			47	65%	109	44%	156	48%
No data/Unknown			0	0%	0	0%	0	0%
Total			72		*250*		322	

c. International Experience with Air Service Incentive Programs

Differences between U.S. regulations and guidelines and those in foreign countries or alliances must be kept in mind when reviewing the types of incentives offered in foreign incentive programs. A survey of airport air service incentive programs in Europe (Malina, Albers, and Kroll, 2012) presents a comprehensive look at the use of these programs across the European Union. The authors note that while airports had traditionally regarded themselves as "passive providers of infrastructure" that did not actively promote their services, they have in recent decades discovered both the need and the means for promoting themselves, "encouraging airlines and passengers to make use of their facilities." This transformation was engendered in part by budgetary challenges that left airports with less public sector support than in the past. Coupled with this institutional change was the growing awareness of the value of expanded route networks for passenger and freight traffic for regional economic development. These motivations parallel changes and forces that have affected U.S. airports and their uses of air service incentive programs.

The European Commission issued guidelines on aid to airlines by airports in 2005, and these were revised in 2011. The impetus for the development of guidelines was the controversy around a bilateral agreement between the airline Ryanair and Charleroi Airport (outside of Brussels), in which airport charges were reduced and financial aid provided to Ryanair in exchange for the airline's agreement to base aircraft at Charleroi. The guidelines apply to incentives offered by airports and to incentives offered by public authorities or governments in cases where public money is involved. As in the United States, the incentives offered by European airports or governments with public money must be transparent and non-discriminating, and are limited in duration, so airline services that may have been initiated with incentive subsidies of some type must be able to sustain themselves economically once the incentives end. The EU-regulated incentives examined by the research (Malina, Albers, and Kroll, 2012) were limited to three years in duration, and were limited to airports with less than five million annual enplanements,

although larger airports could also provide incentives under specific circumstances. Privately owned airports had greater freedom to design and implement incentives so long as public funds were not allowed.

The researchers assessed the use of incentives by the 200 largest EU airports in 2009. They found that 66, or one third of the airports examined had introduced "official" non-discriminating incentives using public funds. Another 33 airports had entered into bilateral agreements with specific airlines, and another 26 airports had routes that were covered under bilateral agreements between individual airports and a government body or jurisdiction. Thus, in 2009, 125, or 62.5 percent of the 200 largest EU airports offered at least some air service influenced by some form of incentive program. Airport usage of incentive programs also differed across countries.

Other recent studies of European airport behavior with respect to air service incentives have focused on theoretical or economic explanations for airports and regional authorities providing these incentives within the broader context of airline route and service decision making. These studies include Allroggen, Malina, and Lenz (2013), which examined types of targeted incentives that airports have used to encourage growth in traffic or routes, and Sanchez (2015), which examines the patterns in the use of incentives by regional authorities in Spain to promote greater air service at regional airports.

The Project Team has identified recent examples of incentives offered by non-U.S. airports and compared their provisions to the requirements that U.S. airports are subject to. These examples are reported below in Exhibit 49. In addition to incentive types and characteristics that are offered by U.S. airports or communities supporting airports (such as landing fee waivers, marketing support, revenue guarantees), foreign airports offer unique programs such as incentives for airlines that increase the number of passengers using the airport, airlines that meet load factor thresholds, and airlines that meet specific aircraft performance criteria. The exhibit summarizes a number of incentive programs offered by foreign airports.[10] It is important to note that some aspects of the incentives used in the EU, such as passenger incentives, would not be acceptable in the U.S. Because of this, it is very important that airport managers and sponsors in the U.S. have a solid grounding in the statutes that are applicable to the development and structure of air service incentives, and of FAA's requirements and policies regarding air service incentives, which are based on these statutes. The FAA's role and perspective on these incentives are discussed in the next section.

[10] The incentives shown in Exhibit 49 are not an exhaustive list of the types of incentives used by non-U.S. airports.

Exhibit 49. Examples of Foreign Airport Incentive Programs

Region	Airport	Incentive Type	Incentive Type Novel to U.S. Airports*
Europe	Brussels Airport (BRU)	Per-passenger incentive for service to new destination	
		Per-passenger incentive for airlines that experience passenger growth	✓
	Prague Airport (PRG)	Landing charge discount for new routes (by length of haul)	
		Lease discount for first year of lease of commercial premises	
	Athens International Airport (ATH)	Per-passenger incentive for airlines that experience increase in transfer passengers	✓
		Per-passenger incentive for airlines that meet load factor threshold	✓
	Vienna International Airport (VIE)	"Growth Incentives" for destinations/frequencies	
		Additional high frequency incentive	
		Transfer incentive for transfer passengers	✓
		Volume incentive for generating passenger volume for VIE based airlines	✓
	Frankfurt International Airport (FRA)	Incentives for adding intercontinental services	
		Incentives for adding continental services	
		Incentives for Ground Based Augmentation System equipage to enable precision approaches	✓
	Milan Malpensa Airport (MXP)	Long haul incentives for specific markets with size of incentive depending on number of new flights added in the market	
		Short/medium haul incentive, with amounts based on departing passengers/seats offered	
		Incentives to support off season (winter) flights	
		Cargo incentives for new long haul services	
Asia	Singapore Changi Airport (SIN)	Landing fee rebate for new long-haul service	
		Passenger service charge rebate for transfer and transit passengers	✓
	Chubu Centrair International Airport (NGO)	Landing fee discount based on aircraft size and destination	
	Four Thai airports of Thailand Public Company Limited	Landing fee discounts based on routes serviced (new > existing) and frequency	
North America	Montreal-Pierre Elliott Trudeau International Airport (YUL)	Landing fee rebate for service to "priority" destinations	
		Promotional support to match airline's investment	
	Various Mexican airports operated by Grupo Aeroportuario Del Pacifico (GAP)	Landing fee waivers	
		Airport user fee waivers	

* Incentive type may be novel to U.S. airports because it is prohibited by statutes and FAA regulations regarding uses of airport funds, but could be offered in community-directed incentive programs.

4. FAA Role and Perspectives Regarding Air Service Incentives

FAA Incentive Guidebook

In its *Air Carrier Incentive Guidebook*, the FAA provides four steps that airports can take when establishing an incentive program (FAA 2010). They are:

- Understand the relevant FAA policies
- Identify the goals of the program
- Establish a program timeline
- Structure the program effectively

In the U.S., federally obligated airports must comply with the FAA's *Policy and Procedures Concerning the Use of Airport Revenue* (Revenue Use Policy), FAA's *Policy Regarding Airport Rates and Charges* (Rates and Charges Policy), Airport Improvement Program (AIP) grant assurances, and 49 U.S.C. § 41713 (Preemption over Prices, Routes, and Service) when administering an incentive program (FAA 1999). In addition, public sponsors of these airports must comply with airport grant assurances (FAA 2014).

The FAA notes that the 2010 Air Carrier Incentive Program Guidebook was intended as general guidance on air service incentives and does not necessarily represent statements of regulation or law, and may be subject to legal interpretation. The approach taken by FAA in the development and interpretation of these guidelines was based on policies as expressed in FAA's Policy and Procedures Concerning the Use of Airport Revenue, February 16, 1999, (64 Federal Register 7696) and Airport Sponsor Grant Assurances. For further clarification contact FAA's Office of Airport Compliance and Management Analysis. Of particular importance are grant assurances 22 and 23, which respectively address the requirements for economic nondiscrimination with regard to access to the airport and its facilities by potential users, and the granting of exclusive rights to individual airport users or types of user, and grant assurance 25, which limits the uses of airport aeronautical revenues.

According to the guidebook, airports must adhere to the following requirements when offering incentives to airlines:

- Airport revenue may be used for incentive programs that are designed to:
    - Promote competition through a new entrant
    - Increase air service to a destination currently served, through increased flight frequency or through upgauging (subject to restrictions)
    - Raise public and industry awareness of airport facilities and services
    - Pay for a share of promotional expenses designed to increase travel using the airport
- Airport revenue may not be used for:
    - Destination or tourism marketing
    - General economic development/marketing not related to the airport
    - Direct subsidies to airlines

- Guarantees of passenger revenue, ticket sales or seats filled
- Influencing ticket prices

Airport-administered incentive programs must be non-discriminatory and available to all "similarly situated" airlines that provide the specified service, although being "similarly situated" may not always be easily defined. Programs must only target a new service, although they may provide different incentives for proposed service to different destinations. Airports may not:

- Target certain types of airlines (e.g., low cost airlines) or particular airlines
- Target certain aircraft types (e.g., aircraft with a certain number of seats)
- Target upgauging as the specific goal of the program

Incentive levels may vary based on the category of new service offered but are subject to maximum time limits. The program itself must have a time limit when established (i.e., may not be an indefinite incentive for any airline interested in testing a given market) in addition to the time limit for the incentive for each new entrant. Entrants may be staggered within the longer program time period and programs may include time limits lower than the FAA's allowed limit. Time limits are imposed because the purpose of the incentive program is to test the viability of discrete markets, not to serve as a continuing subsidy for air service. The time limits are as follows:

- Up to one year, if the incentive is restricted to new entrants
- Up to two years, if the incentive is offered to both incumbents and new entrants

Acceptable incentives that use airport revenues include waiving or reducing landing fees, rental fees or fuel flowage fees; and advertising the new service provided the airport is featured prominently in the advertising. Reductions in the costs of fuel, interest, taxes, or PFCs are all considered subsidies and are forbidden. However, the airport sponsor or other taxing authority may have special taxes in the taxing district whose revenues do not directly go to the airport, and these may be used for subsidies providing that they cannot be considered airport revenue and that any subsidies are applied in a nondiscriminatory way. Independent groups are also allowed to offer nondiscriminatory subsidies as long as the airport itself is not a party to the agreement, although being party to the agreement is not sufficient for determining whether an offering of subsidy is nondiscriminatory.

The cost of providing incentives may not be included in the rate base for airlines not participating in the incentive program without their express permission. Similarly, airports cannot tie incentive levels to ticket price, number of seats, or passenger revenue.

FAA Airport Compliance Office Perspectives on Air Service Incentive Programs

As part of the research for this project, the project team interviewed senior compliance managers in the FAA Office of Airport Compliance and Management Analysis (ACO) and senior members of the FAA Office of the Chief Council about Air Service Incentives and Incentive Programs. The following is a record of this interview. The format is based on the questionnaire used to guide the discussion with the project team.

General Questions/Issues regarding Air Service Incentives and Incentive Programs

What are the general principles that guide or serve as the foundation for FAA's perspective on the design and use of air service incentives by airports?

The FAA determines its perspective on air service incentives using a few specific principles and policies. These principles include that airports must not discriminate among air carriers, and that airport revenue must be used in a sustainable fashion, and in a fashion consistent with FAA revenue use policies. In general, airport incentive programs can only be used to support new service, which FAA defines as nonstop service to a new destination, a new entrant carrier to the airport, or additional frequencies to a destination that is already served.[11] However, since 2011, the FAA has also permitted incentive provisions that would encourage aircraft upgauging.

What would be the best way to explain or characterize to an airport (or to community representatives who are interested in promoting air service at their local airport) the reasons behind FAA's approach to assessing airport uses of air service incentive programs?

The FAA's approach to air service development incentive programs is based on statutes and existing policies. Air service incentives should help an airport initiate new service over a limited time frame and should not support existing air service at the airport or subsidize any service. As a result, subsidies (such as revenue guarantee agreements) are not permitted as a part of air service development incentives that are supported by airport funds.

The U.S. Department of Transportation (DOT) administers two air service subsidy programs: the Essential Air Service (EAS) program[12] and the Small Community Air Service Development Program (SCASDP).[13] These are different from community-led air service incentive programs and fall under separate guidance from DOT, although SCASDP grants may provide funding for community-directed support of specific new routes.

How has the use and design of incentive programs by airports changed since the publication of the FAA Guidebook?

Since the publication of the 2010 guidebook, air service incentive programs have become more widespread among U.S. airports. Concurrent with this trend, issues have arisen within certain programs. Some programs have not been fully transparent to the FAA, and may involve

[11] FAA, *Air Carrier Incentive Program Guidebook: A reference for Airport Sponsors,* 2010.
[12] The Essential Air Service program exists to guarantee that small communities that were served by certificated air carriers before airline deregulation maintain a minimal level of scheduled air service. The United States Department of Transportation is mandated to provide eligible EAS communities with access to the National Air Transportation System. This is generally accomplished by subsidizing two round trips a day with 30- to 50-seat aircraft, or additional frequencies with aircraft with 9-seat or fewer, usually to a large or medium hub airport. https://www.transportation.gov/policy/aviation-policy/small-community-rural-air-service/essential-air-service
[13] The Small Community Air Service Development Program is a DOT-administered grant program designed to help small communities address air service and airfare issues. https://www.transportation.gov/policy/aviation-policy/small-community-rural-air-service/SCASDP

preferential treatment towards some operators, violating the statutory non-discrimination requirements and FAA policy.
The FAA answers questions and provides guidance to airports and communities around air service incentives, and the FAA may provide guidance or comments on legal concerns surrounding a new incentive program, but it does not formally approve or reject an incentive program.

Has the airport community made effective use of the FAA Guidebook?

Use of the FAA Guidebook may vary among airports. Some airports and industry stakeholders have requested specific changes to the guidebook or regulatory reform to change FAA regulations around incentive programs, but as of 2019 the 2010 iteration continues to be an accurate and up-to-date source for FAA guidance on incentives. Since 2010 FAA guidance has been extended to include approval of incentives that encourage "upgauging," or the use of larger aircraft at an airport. This is based on FAA's agreement that under certain conditions enabling additional passenger travel by using larger aircraft is a form of "new service" that can be supported through permissible air service incentives.[14]

The FAA's Oversight Process for Air Service Incentives

When should airports contact FAA about planned features of a new incentive program or offering? (That is, in what circumstances? What aspects of a new program or offering could merit a review or "going over" by FAA?)

Airports are welcome to discuss specific questions on incentive programs with the FAA, and the FAA is open to considering new approaches to air service incentives. New approaches to incentive programs may lead to specific FAA guidance around those approaches, as occurred when an airport approached FAA regarding incentives related to aircraft upgauging. The FAA will point out aspects of an incentive program that are not in compliance with its policies and the governing statutes. However, the FAA does not approve specific programs or types of programs.

How should airports contact FAA with questions about planned features of a new incentive program or offering or other air service incentive program concerns?

Airports may call the FAA Office of Airport Compliance at (202) 267-3085 or use the email contacts available at the Office of Airport Compliance webpages at https://www.faa.gov/airports/airport_compliance/.

How long should airports allow for FAA to reply to an airport inquiry about the features of a new incentive program or offering?

Each program is different, so the FAA does not have a standard review time. A more complex program will take longer to review than a common or straightforward program.

[14] Policy and Procedures Concerning the Use of Airport Revenue: Petition of the Clark County Department of Aviation to Use a Weight-Based Air Service Incentive Program. 77 Fed. Reg. 68 (April 9, 2012). *Federal Register: The Daily Journal of the United States*. Web. 9 April 2012.

Under what circumstances would an FAA audit of an airport's incentive program or incentive program features arise? (e.g., as a self-contained audit, or as part of a broader FAA audit of an airport's finances or revenues?) And what would prompt such an audit (e.g., a formal complaint by an air carrier, or would FAA undertake such an audit on its own based on press reports, etc.)?

Per congressional mandate, the FAA conducts financial audits of two to four airports a year. This involves a large and multi-faceted financial audit of which incentive programs, including marketing expenses, are generally a component. The selection of airports for financial audits is driven by FAA internal criteria. The FAA does not generally perform standalone audits of an airport's incentive program.

If FAA audits an airport's incentive program (as part of a broader financial audit), does the agency also consider the incentive programs at airports with whom the audited airport may be competing for air service?

No; an FAA audit of an airport is separate from the relationship between that and other airports.

Does FAA maintain a database or list of enforcement cases or audits of air service incentives programs and the results of those cases?

Yes; the FAA keeps track of airport financial audits, which include examinations of any incentive programs.

Compliance Issues Related to Community Support for and Involvement in Air Service Incentives

How should airports sponsored by municipalities manage potential conflicts between provisions of airport-funded incentives to airlines and the incentive programs that the municipality itself may support with funds from the consolidated municipal budget? Are there acceptable ways by which such programs can be coordinated between the airport and its sponsoring municipality?

Airports must keep a clear distinction between airport-led and municipal programs. This includes separating municipal revenues from airport revenues as well as not participating in municipal decision making around granting incentives to airlines. Airports may work with municipal governments to discuss needs and provide expertise, but must remain separate from both finances and decision making.

Municipal and community funds used to support airport incentive programs must follow the FAA non-discrimination policy.

What is the role of communities (or interested parties within a community) for air service incentive programs (a) acting as stand-alone sponsors of incentives, or (b) acting in collaboration with an airport to design or negotiate incentives? Are these roles/restrictions any different in the case of SCASDP grants than any other form of air service incentive?

The rules that apply to municipal governments also apply to community-led air service incentive programs. Airports may work with community organizations to discuss needs and provide expertise, but airports and airport managers may contribute to the funding and decision-making for community-sponsored incentive programs.

Airports may not use airport funds to support community activities, including activities that ultimately benefit the airport. Airports may not use their funds to market a destination, but they may use them to market the airport itself.

What is the role of the FAA in terms of oversight of air service incentive programs that are sponsored by community (non-airport) organizations?

While the FAA has no oversight role for community-run and community-funded air service development incentive activities, there are limits on the ways in which airport management and staff can take part in these community activities, as discussed above.

Oversight and Incentive Program Features

What flexibility do airports have under the FAA guidelines to design incentives for less than daily service or to target particular destinations (understanding they cannot target specific airlines) with their incentive programs?

Airports may create targeted incentives in order to promote certain types of service as long as they do not target (explicitly or implicitly) specific airlines or last for more than two years. In such examples the potential for unjust discrimination among airport users remains a risk because identifying particular destinations brings the perspective of individual airlines into play, and declining to provide incentives for an airline's new service to (say) New York because it is not the desired target—"Boston"—could be unjustly discriminatory.

Are there areas or aspects of air service incentives in which you have found airports most likely to push the boundaries (perhaps unintentionally)? What are the risks you see in these tendencies?

Airports must be clear about maintaining a two year limit on air service incentives, and must ensure that they do not provide subsidies to airlines.

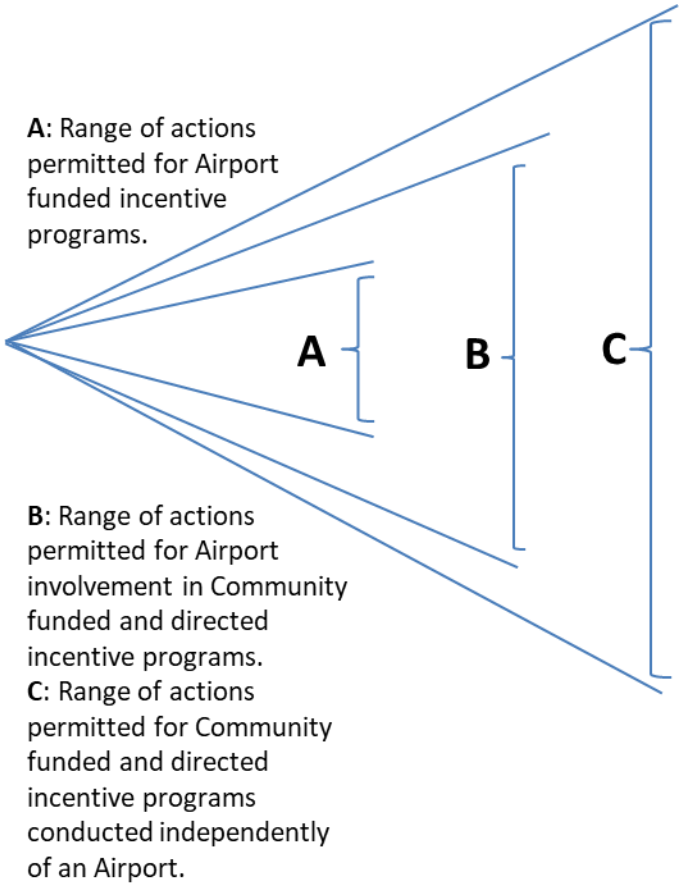
Are there opportunities for innovation or modification in the area of air service incentives that could arise from, or be helped by, the current project?

The FAA is always working to better understand airport use of service incentives, and hopes to learn more about recent developments in this area from the project research. In particular, the FAA is looking into minimum revenue guarantees to evaluate their design, use, funding, and management.

A prominent topic in the discussion with FAA managers was the constraints affecting airport managers and the use of airport funds for air service incentives. These constraints, described in the FAA Guidance on incentives, stem from the grant assurances that limit the uses of airport

funds for incentives and other purposes. These constraints are in contrast to the greater freedom and range of action available to community organizations that may wish to design and fund air service incentives to promote their community's air passenger services. Airport managers may work with community organizations by providing information that can contribute to these community air service incentive efforts, but airport managers may not be involved in community organization decision-making and funding for these incentive offerings. Exhibit 50 provides a figurative depiction of these different ranges of action for different incentive program sponsors.

Exhibit 50. Permitted Incentives Based on Sponsor and Funding Source



5. Airline Perspectives on Airports and Air Service Incentives

Introduction

Given that the ultimate purpose of an airport's air service incentive program is to attract new service from airlines, the project team pursued interviews with a range of airlines to obtain their perspectives on U.S. air service incentive programs.

Although research on airlines' perspectives was planned for the project from the outset, the Project Panel and Project Team agreed that interviews with a sample of airline representatives would provide greater insights into airlines' attitudes toward air service incentives. It was agreed that this airline perspective would be especially valuable for airports in order to better understand how incentives are perceived on the "other side of the negotiating table." However, airports and communities interested in offering incentives to support local services should remain alert to the implications of the economic deregulation of passenger aviation for the degree to which public bodies may influence airline decision making.

We interviewed senior managers from seven airlines representing a range of network, low cost, and ultra-low cost airlines from the U.S. and Europe providing domestic and/or international service in U.S. markets. The characteristics of these seven airlines are provided in Exhibit 51. To protect the confidentiality of the airlines interviewed, a reference "number" is used instead of their actual names. The large network and low cost airlines we interviewed were more likely to serve large markets with frequent air service (i.e., at least one daily flight). Conversely, smaller low cost and ultra-low cost airlines were more likely to serve smaller markets with less-than-daily flights. Some of these smaller markets exhibit a strong seasonal component and are only served part of the year.

Exhibit 51. Characteristics of Airline Interview Subjects

Airline Number	Airline Type	Airline Headquarters	Typical Flight Frequencies
1	**Network**	U.S.	Daily
2	**Network**	Europe	Daily
3	**Low cost**	U.S.	Daily
4	**Ultra-Low cost**	U.S.	Less than daily
5	**Ultra-low cost**	U.S.	Less than daily, often during peak seasons only
6	**Low cost**	Europe	Less than daily
7	**Low cost**	Europe	Less than daily, often during peak seasons only

Approach to Airline Interviews

As part of each interview, we asked questions that gathered information about:

- How the airline evaluates airport incentives
  - Which incentives are most valuable
  - Whether incentives are included in the airlines' route profitability models
  - Whether the value of incentives varies by the size of airport, source of funding, and whether the airline already has service at the airport
- How the airline interacts with airports regarding incentives and discussions around potential new service
  - How the airline initially makes contacts with airports about incentive programs
  - How the airline interacts with airports in terms of proposing ideas for incentives
  - Whether there is a standard incentive package the airline expects from any airport seeking new service
  - What the airline looks for when airports are promoting new service
  - What the airline wishes airports would do differently when promoting new service
- Any particular challenges associated with designing incentive programs for airlines that want to provide less-than-daily service
- How incentive programs offered by non-U.S. airports differ from those offered by U.S. airports and whether there are incentives airlines wish could be offered in the U.S.
- Whether the importance of incentives for the airline has increased or decreased over time

An interview script for an international low cost airline that typically offers less-than-daily service is shown in Exhibit 52.

Exhibit 52. Sample Script for Airline Interview

SAMPLE INTERVIEW SCRIPT FOR EUROPEAN LOW COST AIRLINE

1. Introductions
    a. Describe ACRP project and team members
    b. Learn what scope is for [interview subject] and how he/she and the airline interact with airports
2. Incentive Questions
    a. How does your airline initially meet with airports in the context of air service incentive plans? (e.g., direct contacts, route conferences, other?)
    b. How does your airline evaluate airport incentives in the context of deciding which new markets to fly in?
    c. Are certain types of incentives more attractive to your airline than others? (if so, which ones and why, and what makes other types of incentives less attractive?)
    d. Are there incentives that might be more attractive to your airline than they might be for carriers with other business models, such as the larger U.S. and European network carriers?
    e. Do U.S. airport incentives generally work with your airline's business model of less-than-daily service?
    f. Does your airline evaluate incentives differently or look for different types of incentives depending on the size of the airport?
    g. Does the source of the funding play a role in how your airline evaluates an incentive program (airport directed vs. community generated)?
    h. Does your airline evaluate incentives differently if the airport is an airport that your airline already serves (but the airport is seeking a new route) compared to incentives offered by an airport that your airline does not yet serve?
    i. How do the incentive programs offered by non-U.S. airports differ from those offered by U.S. airports?
    j. Is there a "standard" incentive package that your airline expects from any airport seeking new service? (as an example, are landing fee waivers or some other specific incentives a minimum expectation for any incentive plan to be acceptable?)
    k. Has the importance of incentives in your airline's route decision-making increased/decreased over time?
    l. If you could ask for "anything" in terms of incentives – those that are allowed or not allowed by FAA or other regulators– what would be on your wish list? Are there any incentives that an airport could offer that you would take note of (in other words, if an airport were to advocate to FAA for certain types of incentives, what should those be?)
    m. Do you ever propose incentive terms to airports (in general, not just ideas that may be FAA sensitive), or does all the proposing run from airports to airlines?
    n. Do you include incentives in your route profitability models?
    o. What do you look for when airports are "pitching" new service to you?
    p. Is there anything you wish airports would do differently when "pitching" service to you?
    q. What can airports do better when they are approaching you or other carriers with proposals for of air service initiatives?

Analysis of Airline Interviews

From the interviews, we determined that airlines valued incentives differently. In general, the incentives that were most valuable to a particular airline were those that aligned well with the airline's business model and growth strategy.

The majority of airlines valued marketing dollars, although the international network airline (Airline 2) noted that the type of marketing dollars matters: "Best are unrestricted funds, then matching dollars; then in-kind services and support; the [worst] are banners around the airport." One of the U.S. ultra-low cost airlines (Airline 4) also noted that additional marketing funds would be part of its wish list, as the funds would "help us get over the hurdle of establishing our brand in new geographies. Even matching marketing money is great, although that requires a marketing budget on our end." The other ultra-low cost U.S. airline (Airline 5) was less positive about marketing funds for smaller airports, in part because "word of mouth has been pretty powerful," particularly when the airline was the only one providing non-stop service to a market. This airline did view marketing dollars as more valuable for "more important, larger markets."

The majority of airlines also valued cost-reduction incentives such as landing fee waivers, although these and other cost-reduction incentives were often viewed "as the cost of admission" (as characterized by Airline 1) for all but the most-in-demand markets (such as major U.S. international gateway airports). Multiple airlines (Airlines 2, 5, and 7) mentioned the value of and/or desire to have incentives that lowered ground-handling costs.

Cost-reduction incentives are typically "not the primary driver" in whether an airline offers a new route but are often a "tie-breaker" (as noted by Airlines 1, 3, and 7). The majority of airlines noted that when they are deciding where to offer or expand service, they do not include incentives in their network profitability forecasting models and/or they run two scenarios: one with the incentives in years one and two and one without the incentives in the initial years. According to Airline 1, this approach helps the airline ensure that the route is likely to be profitable when the incentives go away, i.e., the "longevity of market is a key factor; we're not interested in putting something in a market for one to two years."

Cost-reduction measures were most important for one of the ultra-low cost U.S. airlines (Airline 5), which places a high value on the long-term rate structure and less emphasis on marketing support. This airline has historically been successful in negotiating reductions in operating costs for more than two years with airports. The focus on cost-reduction incentives can be seen as one of the items on the wish list of incentives Airline 5 would like to see offered by airports:

> *We would ask that an airport **pay** us to fly there. That could be accomplished through revenue sharing or a separate incentives account they create for this purpose. Some of the thought process and justification behind this: Even if an airport incentive plan waives certain airport costs for up to two years, the airport is still receiving additional revenue from our incremental, new passengers via concessions, parking, rental cars, PFC collections, etc. Would it be so bad for them to share in the incremental, new passenger-generated revenues if it led to more flights, more passengers, more aeronautical and non-aeronautical*

revenues? The other request would be that the airport cover the airline's ground handling costs for a given period of time or even indefinitely.

Revenue guarantees were viewed with caution by some airlines, and considered very positively by other airlines. The large domestic U.S. network airline (Airline 1) noted that "Given the option of having revenue guarantees/sharing versus marketing dollars, I'd rather have marketing dollars. Risk sharing protects a carrier in year one, but if you don't tell customers about the new service, years two and three (and beyond) are not very successful." Similarly, one of the ultra-low cost U.S. airlines (Airline 5) noted that "we're also not big fans of revenue guarantees. We have entered into some agreements over the past few years … [but] when the funds run out, service goes away, and that is not good for image/the community/anyone. If the route could be viable let's serve for the right reason, not because there is a lot of money on table." The other ultra-low cost U.S. airline (Airline 4) also noted that "we haven't done minimum revenue guarantees - whether SCASDP or otherwise—in a while. When we did, we wanted to see the business community behind it. It's very easy for a carrier [like us] to drop fares in a market, and competitors may or may not match. So we're wary of going into a market where we deliver benefits of lower fares and the business community with miles on other carriers enjoys lower fares on a legacy carrier. When legacy carriers don't match, it makes it easier for us to do business; but when they do match we want to make sure people support us and have an incentive to book on our carrier vs. enjoy the newly reduced fares on the existing incumbent."

Conversely, the large domestic low cost airline (Airline 3) noted that "revenue guarantees help our decision if it takes risk off the table and you promise the first two years that we will get the same kind of returns we'd get from a different location and give [the small airport] time to get customers in the city to know they can fly [our brand]." Similarly, one of the low cost European airlines (Airline 7) noted that "It would be good if someone else could take risk … and can guarantee a certain level of revenue." Finally, the large network airline in Europe (Airline 2) ranked revenue guarantees as their most preferred incentive.

From a network planning perspective, risk-sharing agreements are the most beneficial because by nature they help mitigate some of the risk we have. We are deploying big assets into markets that are not rock solid winners for us. Cost abatement programs are very helpful but typically, user charges are a small portion of the costs that we incur on flying routes. So while it is helpful to have cost abatement, it's a small proportion of our costs and ultimately [the cost abatements] are not going to make a difference as to whether or not we fly; however, risk sharing might.

Some airlines noted that there are different approaches and restrictions related to incentives outside the U.S., but there were different assessments of the relative value of the different approaches. For example, one of the European low cost airlines (Airline 6) stated that "Europe is a more business-minded environment" and that European airports generally have more flexibility than U.S. airports to customize incentives for particular airline business models. In contrast, the European network carrier (Airline 2) stated, "Typically in the rest of world it's a much more about us having to find a way into these places and gain access to airports in places like Asia…airports in the U.S. and cities and convention and visitors bureaus in the U.S. and businesses around them are all very conscious of the value a nonstop connection…brings to their

city and they are willing to pay for that connection. This is not the case in the rest of world. Typically I haven't seen anything in the rest of world that is more helpful than what we get with U.S. airports."

A type of incentive that was most popular among airlines, and one that stimulated new traffic, were incentives tied to new enplanements. As described by one of the U.S. ultra-low cost airlines (Airline 4):

> *The incentives we like the most are incentive agreements ... that recognize that new entrants stimulate traffic and that incentives should target that stimulated traffic. A great example is [an airport in the mid-Atlantic states]. … They start with a baseline of enplanements. Those carriers that generate year-over-year increases in enplanements get money back. [The airport] no longer has that incentive program, but it was in place for two years. … Very few incentives are like that; our point is that incentives ought to recognize who is generating incremental traffic and find ways to reward carriers—incentives can't be biased towards one carrier, but a carrier that generates new traffic ought to be favored over an airline that doesn't.*

One of the international low cost airlines (Airline 6) also noted this type of incentive aligns well with its business model*:*

> *[Another airport] gives a refund tied to cost per enplanement (CPE) that applies for international routes [regardless] of whether they are currently served or not served (prior to a new carrier's entry). [The airport] will refund a CPE up to $X and ours is [about 70 percent of that] … so this is a very attractive incentive for us.*

We also asked the airlines about their experiences with airport staff and consultants when airports were making their initial pitches for the new services that incentive programs would help to support. In particular, we asked whether the airports provide the airlines with useful information and data about proposed new markets and types of service, such as estimates of market demand and potential for future airline revenues. In most cases, the airlines said that while they expected airports to present data on regional demographics and economics that would drive projected demand, they observed that this type of data was readily available to their own market and network analysts.

What some airlines said was more valuable was the more qualitative regional information that an airport or community could provide about its markets. These might include coming changes and developments in the airport's community or region of service that could also affect demand such as the courting of a new business prospect.

While airlines monitor regional developments to the extent they can, an airport's more intimate understanding of regional factors could add further value to the standard mutually understood quantitative data and analyses. This type of local insight and its value was of particular interest to the smaller airlines we interviewed.

In summary, our airline interviews revealed that incentives are valued differently across airlines, and that the incentives which are most valuable to a particular airline are those that support the airline's business model.

Marketing funds and cost reduction incentives such as waivers of rents and landing fees were generally viewed positively by airlines, although the degree of interest in these incentives did vary somewhat. Based on our interviews, ultra-low cost carriers particularly seem to value cost reduction incentives, although the overall long-term cost of operating at an airport may play an even more significant role. In general, marketing funds and rent/landing fee waivers appear to be expected and part of the "price of admission."

The verdict among airlines was more split for revenue guarantees, with several airlines (of varying business models) ranking these as unimportant, while other carriers are more receptive to revenue guarantees as a form of risk reduction or risk sharing. However, an area in which the airlines we interviewed were fairly consistent is that they need to believe that a route can succeed without a revenue guarantee in order to start service. For the airline, the revenue guarantee is there to reduce financial risk, given the inherent uncertainty in forecasts.

In all cases, airlines noted that they were open with airports about what incentives the airline would need to provide or expand service. In some cases, negotiations could focus on published incentive terms, although in the case of airlines with less-than-daily frequencies, as Airline 5 noted, "we had to [work with] the airports on the overall rate structures to accommodate an airline that offers less than daily service … and these airports would offer us unique incentives to help us get established there."[15]

[15] It is important to note that there may be aspects of the types and structures that airlines would prefer to see offered by airports that cannot be agreed to by airports and even by communities offering incentives, because of the grant assurance requirement that airports be available for public use on reasonable terms and without unjust discrimination among users, including commercial users offering services to the public at the airport.

6. Case Studies of Airports, Communities, and Air Service Incentive Programs

a. Objectives of the Case Study Analysis

While the GIS database of air service incentive program characteristics for programs in use by U.S. airports makes recent airport and program data available for nearly all U.S. commercial service airports, it is not feasible to conduct detailed program examinations and interviews for all these airports. Therefore, for the case study analysis the Project Team selected a representative group of U.S. airports and communities for more detailed investigation and analysis.

The following sections describe the process used to identify this representative group of airports and communities (using input from the project panel) and then present an analysis of the interview results. The case studies presented below were developed using a variety of data sources including media accounts, airport press releases, and interviews with airport and community officials. Interviewees were granted anonymity to ensure candidness in the conversation. The case studies focus on themes that emerged from each interview and were triangulated with other sources of data including media accounts, airport press releases, SCASDP grant applications or information from an airport's incentive program.

b. Airport Selection Methodology

The Project Team gathered information on existing airport and community incentive programs to build the air service incentive database. The team used the information gathered from the air service incentive database to identify a representative set of airports and communities for possible further examination. This preliminary list of airports and communities identified for interviews was also assessed by the Project Panel, and guidance from the panel was also used in the final case study selection process.

The selected airports and communities were contacted to determine their interest in participating in interviews and other interactions to expand the Project Team's understanding of:

- The uses of air service incentive programs
- The way they were being deployed by these representative airports and communities
- How the performance of these programs could be assessed to improve their future use by the airport community to build and maintain air service

To select the list of case study candidates and to ensure that the set of airports is representative of the involvement of U.S. airports and communities in air service incentive programs, the Project Team relied on several primary and secondary criteria. The criteria listed below were selected by the Project Team with input and feedback from the Project Panel.

Primary Criteria

FAA Hub Classification

The FAA hub classification was used to ensure that perspectives from airports of all sizes were represented in the case studies, since the size of the airport can influence the type of incentives offered to air carriers. For example, some large hub airports tend to provide fee waivers and marketing assistance incentives to attract international service due to their ability to fund incentives through their own funding sources, although other large hubs are major international gateways and do not need to offer incentives. These airport-directed incentives are sometimes supplemented by community-directed incentives for particular targeted routes.

While many small hub and nonhub airports also offer fee waivers and marketing assistance, they are often more limited in scope because of their more modest revenue streams. Therefore, many small hub and nonhub airports also rely on community-directed incentives such as minimum revenue guarantees (MRGs) funded through some combination of local government funding, business contributions or federal programs such as the Small Community Air Service Development Program (SCASDP). Small hub and nonhub airports are also generally more focused on domestic service than large hub airports, which tend to focus on expanding their portfolio of international destinations.

In recognition of these factors, the Project Team selected cases from large hub, medium hub, small hub, and nonhub airports to account for the different considerations airports of different sizes face in deciding how to develop incentive programs.

Airport-Directed versus Community-Directed Air Service Incentive Programs

The collection of data on incentive programs in Task 4 revealed the wide range of arrangements used by airports to build and maintain air service. Despite significant differences in the specific types of incentives and amounts used, the incentives all fall into two distinct categories: airport-directed and community-directed incentives.

Airport-directed incentive programs are paid from airport funds and directed by airport officials; they typically rely on fee waivers, terminal rent waivers, and marketing assistance to air carriers within the limitations of Federal Aviation Administration (FAA) grant assurances and revenue use policy.

Community-directed incentive programs are coordinated and funded by a community organization other than the airport and can provide direct subsidies through MRGs, guaranteed ticket purchases, marketing assistance, start-up cost offsets directly to air carriers, or other forms of subsidy.

The project team’s examination of industry practice regarding air service incentives showed that, while some airports offered only airport-directed incentive programs, others offered programs with components directed by both the airport and the community served by the airport, often in close collaboration. In order to understand airport choices from the wide-range of incentive programs potentially available to them, the Project Team selected a sample of airports from each

of these groups. The Project Team found no examples of airports with service that was supported by community-directed incentives alone.

Type of Air Service Being Retained or Attracted (Domestic versus International)

In addition to the size of the airport and the type of incentive program, the kind of air service an airport or community is trying to attract is an important criterion for assessing incentive programs. Often, airports and communities have different incentive packages for domestic and international service. For example, many airports and communities seeking international service focus on providing marketing assistance to promote the new service both in the community and abroad. In addition, international service may be significantly different from domestic service in terms of the potential economic impact on the community, which may justify incentive packages of a different magnitude. Therefore, the Project Team felt it was essential to select cases of airport or community incentive programs focused only on domestic service, only on international service and on both types of service.

Secondary Criteria

Specific Types of Incentive Mechanisms Being Offered

Across the United States, airports and communities rely on a wide range of incentive mechanisms to attract and retain air service. Common incentive approaches include fee waivers, terminal rent waivers, baggage handling services, marketing assistance, MRGs, and travel banks. Different airports and different communities often offer similar types of incentives, but they vary quite drastically on the amount and duration of the incentives they offer to air carriers. Many airports and communities are innovative not only in the types of incentives employed, but also in the way they bundle incentives. The cases selected by the Project Team include a variety of incentive packages that vary by type, duration, amount, and bundling with other incentives.

Type(s) of Carriers Being Recruited

In addition to selecting cases representing different types of service (domestic and/or international) that an airport and/or community is trying to attract, it is important to include a variety of cases that capture the wide range of air carriers targeted by airports and communities.

For example, many medium and small hub airports and their communities have focused their efforts to attract international service from European low cost carriers such as, Condor, Norwegian, and WOW Air. In many cases, these types of carriers operate new technology aircraft such as the Boeing 787, Airbus A321neo, or Boeing 737 MAX. These aircraft are smaller, but more efficient than traditional long-haul aircraft, and can therefore make these relatively smaller markets commercially viable for the carrier. In many respects, these new aircraft types can be game-changers at medium and small hubs. By offering seat mile costs lower than traditional large widebody aircraft, these aircraft permit direct service in new markets where such service was previously not economically viable. They broke the previous mold which dictated that large size aircraft (starting with the 747 in the early 1970s) were required in order to generate low costs per seat-mile.

Domestically, many large- to medium-sized communities are focused on increasing service on relatively long-haul routes on larger network carriers while many smaller communities are focused on attracting service to network carrier hubs with regional carriers, service to important business markets on charter airlines, or service to vacation destinations with ultra-low cost carriers. The Project Team selected cases to represent airline service of a range of size and type.

SCASDP Grant Success (for Small and Nonhubs)

Many small hub and nonhub airports rely on community-directed incentive programs to attract air service. Often, small communities simply cannot raise the amount of money needed to sufficiently offset the risk to air carriers of starting service to a new, unproven market. The Small Community Air Service Development Program (SCASDP) provides federal funds to supplement community-directed incentive programs at small and nonhub airports.

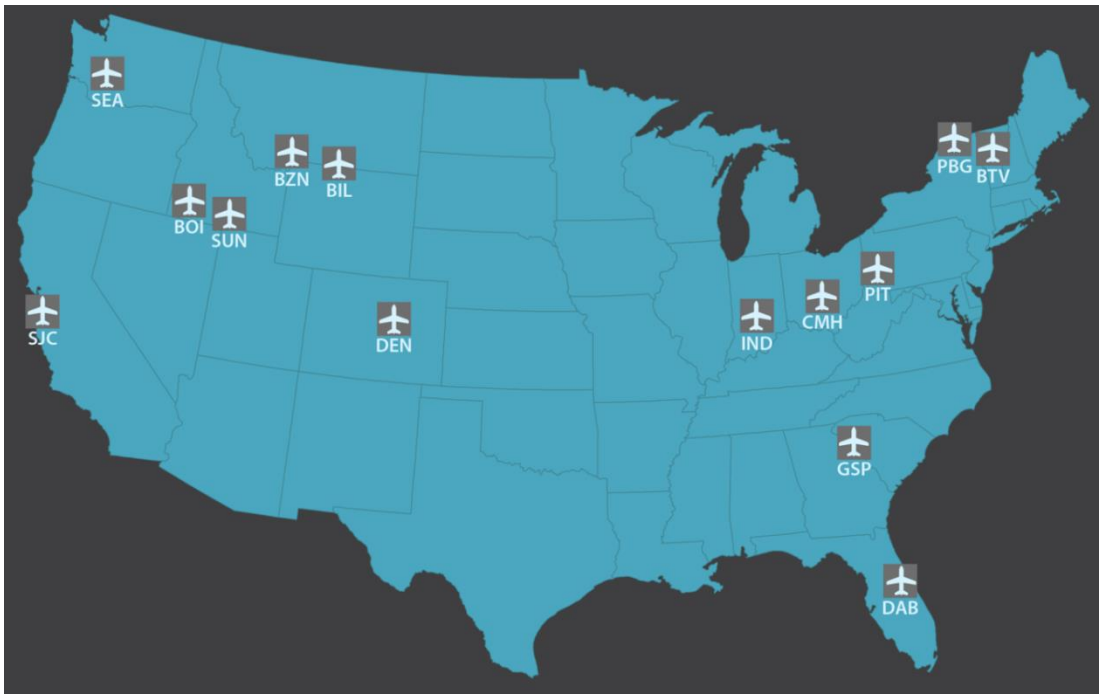
The Project Team attempted to include cases from small hub and nonhub airports that received SCASDP awards and those that did not. Additionally, the Project Team selected examples in which the SCASDP grant was successful and helped to attract air service as well as cases where, even with the SCASDP grant, an air carrier did not start the targeted new service.[16]

Geographic Location of Airport

The Project Team also worked to select a geographically diverse set of airports and communities to determine if the type and effectiveness of incentives offered by airports varied regionally. Additionally, the Project Team attempted to select cases where air service and incentives offered may have been affected by an airport's proximity to competing airports. This geographic distribution is shown in Exhibit 53.

[16] For more information about SCASDP, see Mills, R.W and N. Kalaf-Hughes 2018 and GAO 2019.

Exhibit 53. Map of Case Study Airports



c. Case Study Airports

After working with the Project Panel and assessing the interest in project participation from a larger set of candidate case study airports,[17] the project team identified a final set of 14 case study airports for in-person interviews and focus groups. The final set of case study airports is presented in map form above and in table form in Exhibit 54 below.

Exhibit 54 summarizes these case study airports by hub size, the organization sponsoring the airport's incentive program, and the geographic scope involved in the program (domestic or international).

[17] During the initial process of reaching out to airports, some of the airports that were initially approached declined to participate, and seven others did not respond to initial inquiries.

Exhibit 54. Case Study Airports

Geographic Scope	Incentive Sponsor	Hub Size			
		Large	***Medium***	***Small***	***Nonhub***
Domestic Service Only	*Airport-Directed*				
	Community-Directed	Team research did not identify any airports that had ONLY Community-Directed Incentive Programs			
	Airport/Community			BOI BZN GSP	BIL SUN
International Service Only	*Airport-Directed*				
	Community-Directed	Team research did not identify any airports that had ONLY Community-Directed Incentive Programs			
	Airport/Community				
Domestic and International Service	*Airport-Directed*	SEA	SJC		
	Community-Directed	Team research did not identify any airports that had ONLY Community-Directed Incentive Programs			
	Airport/Community	DEN	IND CMH PIT	BTV	DAB PBG

Note: Shaded cells indicate categories where the project team's research did not identify any airports with incentives that fit that combination of service type, incentive type and hub size.

The 14 airports making up the case study roster were considered as case study candidates (along with several other airports) based on their fit to the selection criteria described above. The following summary indicates how these airports matched up against these criteria.[18] It is important to note that for this study neither the selection of case study airports nor the case study details about incentive program provisions and features that are presented for each airport have FAA "approval" or any other input from FAA.

As the airport community is all too aware, air service offerings change rapidly, and there will likely have been many changes—new services offered and existing services pulled back—since these case study results were identified and reported.

[18] Case study airports were selected in the fall of 2017, so some of the information regarding specific airline service at these airports has changed since that point. The information presented here reflects the information and considerations that were used as part of the case study selection process. Hub sizes are based on FAA Calendar Year 2017 rankings.

Large Hub Airports

Airport-Directed Incentives for Domestic and International Service

Seattle-Tacoma International Airport (SEA)

- Primary Justification: One of the few large hub airports offering airport-based domestic incentives; one of the only examples of an incentive program for regional air service (landing and ticket counter fee waiver for 24 months and $25,000 in marketing funds for new service to unserved destinations in Washington, Oregon, and Idaho).
- Secondary Justification: Recent battleground between Delta and Alaska for market share in the Seattle area

Airport-Directed and Community-Directed Incentives for Domestic and International Service

Denver International Airport (DEN)

- Primary Justification: Aggressive airport-directed incentives for international service including both marketing assistance ($1 million for North and Central America; $2 million for South America, Europe, Asia, Africa, and Middle East) and landing fee waivers ($20 per enplanement for North and Central America up to $1 million and $30 per enplanement for South America, Europe, Asia, Africa, and Middle East up to $4 million).
- Secondary Justification: Recent success with new service on Edelweiss (Zurich), Copa Airlines (Panama City), and Norwegian (London/Paris), among other long-haul destinations; hub for United Airlines; also offered community incentives via the Colorado Economic Development Commission, Metro Denver Economic Development Commission, and Visit Denver.

Medium Hub Airports

Airport and Community-Directed Incentives for Domestic & International Service

Columbus International Airport (CMH)

- Primary Justification: Aggressive and well-organized community-directed incentive program including $1.7 million MRG from City of Columbus, Franklin County, and Columbus 2020 for Southwest Airlines to Oakland.
- Secondary Justification: Fast growing city without a major airline hub.

Indianapolis International Airport (IND)

- Primary Justification: Aggressive community-directed incentive program for both domestic and international service including a $1.5 million MRG for United Airlines service to San Francisco and a $5.5 million subsidy for Delta Air Lines service to Paris from the Indiana Economic Development Corporation. Also, the airport has a contractual relationship with the Indianapolis Chamber to organize community-directed air service efforts.

- Secondary Justification: Community-directed incentives are supplemented with airport-directed incentives including marketing and fee waivers; recent announcement of aggressive airport-directed incentive program for international service ($400,000 in marketing assistance).

Pittsburgh International Airport (PIT)

- Primary Justification: Aggressive community-directed incentive program for international service including a high-profile $9 million MRG from the Allegheny Conference and state of Pennsylvania for Delta service to Paris, $500,000 in marketing funding from the state of Pennsylvania for Condor to Frankfurt, and $800,000 in marketing from the state of Pennsylvania for WOW to Reykjavik.[19]
- Secondary Justifications: Community-directed incentive program supplemented with marketing assistance and fee waivers from the airport authority; revitalization of service following end of US Airways hub; interesting domestic incentive programs including OneJet partnership.

Norman Y. Mineta San Jose International Airport (SJC)

- Primary Justification: Aggressive airport-directed incentive program for both domestic and international service. Successful record of using incentives to attract air service.
- Secondary Justification: Illustrate competitive factors in use of incentives as SJC is located in similar catchment areas to SFO and OAK. Highlight role of economic growth and success in ability to attract new air service.

Small Hub Airports

Airport-Directed and Community-Directed Incentives for Domestic Service

Boise Airport (BOI)

- Primary Justification: Aggressive community-directed incentive program including MRGs and marketing assistance from Boise Metro Chamber, Boise Valley Economic Partnership, Boise CVB, and state tourism agency; won SCASDP grant in 2014 for $700,000 for service to Atlanta which has not been successful in attracting a nonstop flight.
- Secondary Justification: Community-directed incentives are supplemented with airport-directed incentives including marketing assistance ($50,000 for new destinations) and fee waivers (up to $100,000 of landing fees and terminal rent); while not successful in securing Atlanta service, airport has added service to DFW on American Airlines.

Bozeman Yellowstone International Airport (BZN)

- Primary Justification: Aggressive community-directed incentive program including MRGs and marketing assistance from Bozeman CVB, Big Sky CVB, Big Sky Resort, Yellowstone Club, Korman Marketing Group, Gallatin Foundation, Inc. Secured service

[19] Subsequent to case study selection, Delta terminated its Pittsburgh-Paris nonstop service as of September 2018. WOW ended Pittsburgh-Reykjavik service as of January 2019, and ceased operations entirely in March.

to DFW on American Airlines using $650,000 revenue guarantee and $100,000 in marketing from SCASDP and $210,000 in marketing assistance from local community.
- Secondary Justification: Community-directed incentives are supplemented by airport-directed incentive of $30,000 landing fee waiver. Competition from nearby airports including Jackson Hole and Billings; secured service to EWR on United Airlines in 2012 using $950,000 SCASDP grant matched with $688,000 in local community funds; United service to EWR is now sustainable without incentives.

Greenville-Spartanburg International Airport (GSP)

- Primary Justification: Aggressive and high profile airport-directed incentive program including fee waivers (landing fees at 100 percent for 24 months), marketing assistance ($800,000 for Southwest for multiple routes), and credits for terminal renovations ($1 million for Southwest for multiple routes).
- Secondary Justification: Airport-directed incentive program supplemented with community-directed incentive program including $3.8 million in marketing assistance from a variety of partners including the South Carolina Parks, Recreation, and Tourism Department.

Burlington International Airport (BTV)

- Primary Justification: Explore how competition for transborder international traffic affects the use of incentives.
- Secondary Justification: Provides a case study of how smaller airports can partner with larger airports to develop larger incentive packages and matches for SCASDP grants.

Nonhub Airports

Airport-Directed and Community-Directed Incentives for Domestic Service

Billings Logan International Airport (BIL)

- Primary Justification: Aggressive community-directed incentive program including MRGs and marketing assistance from City of Billings, Tourism Business Improvement District, Big Sky Economic Development, and Billings Chamber of Commerce. Secured American Airlines service to DFW using $1.25 million MRG ($650,000 from SCASDP and $600,000 from local community) and $100,000 in marketing support from SCASDP.
- Secondary Justification: Community-directed incentives are supplemented by airport-directed incentive of 100 percent of landing fee waivers; competition from nearby airports including Jackson Hole and Bozeman.

Friedman Memorial Airport (SUN, Sun Valley, ID)

- Primary Justification: Well organized and aggressive community-directed incentive program including MRGs and marketing assistance. Fly Sun Valley Alliance has successfully attracted service to LAX and SEA on Alaska Airlines[20] and DEN and SFO

[20] Alaska Airlines ended its SUN-LAX service in November 2018. However, United and Delta now fly this route.

on United Airlines using MRGs and marketing assistance funded by SCASDP grants and one percent local tax for air service.

- Secondary Justification: Community-directed incentives are supplemented by airport-directed incentives including marketing assistance ($10,000 for new entrants and destinations) and fee waivers (100 percent of landing fees for 12 months); competition with BOI; very sophisticated community air service organization that could serve as a model for other cities.

Airport and Community-Directed Incentive Programs for Domestic & International Service

Daytona Beach International Airport (DAB)

- Primary Justification: Aggressive airport-directed incentive program for domestic service including marketing assistance ($200,000 for 24 months for new entrants and inclusion in general airport advertising), fee waivers (100 percent of landing fees for 12 months, terminal rent waiver, utility credit) and facility renovation credit of $25,000.
- Secondary Justification: Airport-directed incentives are supplemented with very aggressive community-directed incentive program including $300,000 MRG from county and $400,000 in new destination city marketing from CVB; airport and community incentives are advertised jointly on airport materials; added service to JFK on JetBlue using $250,000 ticket bank and $400,000 in marketing and fee waivers.[21]

Plattsburgh International Airport (PBG, Plattsburgh, NY))

- Primary Justification: Explore how competition for international traffic affects the use of incentives.
- Secondary Justification: Active Chamber of Commerce engaged in selling airlines on the business and tourism justification for enhanced air service.

d. Protocols and Procedures for Case Study Interviews and Focus Groups

Airport-Directed ASIPs

Below are general questions that the Project Team asked of staff at each case study airport. Importantly, each interview protocol was tailored for each airport's unique Air Service Incentive Program (ASIP). These questions provided a framework for initiating discussion with individual airports but they were not intended to limit the flow of discussion.

- Please describe your current air service incentive program.
- What was the impetus for creating the ASIP and how has it evolved over time?
- Please describe the process involved in deciding which incentives, amounts, duration, etc. would comprise the ASIP.

[21] JetBlue terminated its DAB-JFK service in January 2019.

- What type of service is your community currently pursuing and how was that decision made?
- *For airports providing marketing assistance:* For your marketing incentive, do you rely on an outside firm or your own expertise to assist in marketing the new service? Do you work cooperatively with the air carrier on marketing? Have there been instances where carriers have declined marketing assistance?
- What is the source of funds to support the ASIP? Have you found it difficult to sustain the ASIP given this funding source?
- Have other air carriers without incentivized routes at your airport complained about the ASIP?
- What successes have you had related to attracting or retaining service with your ASIP? Any examples of instances when the ASIP was a contributing factor in losing out on existing or potential new service?
- What challenges have you faced with your ASIP? Have you considered changing/dropping your ASIP?
- Does your airport routinely benchmark its ASIP against other airports within your region, state, hub classification, or other peer group? If so, how do you obtain this information?
- Have you received feedback on your ASIP from air carriers during air service development conferences, etc.?
- *For small/nonhubs:* Have you leveraged your existing ASIP to apply for a SCASDP grant?

Community-Directed ASIPs

Below are general questions that the Project Team asked of community organizations that have designed and/or sponsored air service incentives at individual airports. Importantly, each interview protocol was tailored for each community's unique circumstances and its community-directed Air Service Incentive Program (ASIP). These questions provided a framework for initiating discussion with community organizations but were not intended to limit the flow of discussion.

- Please describe your current air service incentive program (ASIP).
- What was the impetus for creating the ASIP and how has it evolved over time?
- What type of service is your community currently pursuing and how was that decision made?
- How was the decision made to engage the broader community in establishing an ASIP? When did this decision occur?
- What organization or individual was most responsible for organizing the community's effort to develop an ASIP?
- How involved is the airport manager or air service director in coordinating or assisting in your community ASD effort?
- Does your community have an air service task force or other dedicated group to coordinate your air service efforts?
- Was there a community conversation about the type of incentives (marketing, MRG, travel bank, etc.) that would be offered? Were there divergent opinions on the types of incentives to be offered?

- How has your community tried to manage the perception that incentives, particularly MRGs, represent a "handout" to air carriers?
- What successes have you had related to attracting or retaining service with your ASIP? Any examples of instances when the ASIP was a contributing factor in losing out on existing or potential new service?
- What challenges have you faced with your ASIP? Have you considered changing/dropping your ASIP?
- *For small/nonhubs:* Has your community leveraged its resources to apply for a SCASDP grant?
- Does your community routinely benchmark its ASIP against other communities within your region, state, hub classification, or other peer group? If so, how do you obtain this information?
- Have you received feedback on your ASIP from air carriers during air service development conferences, etc.?

e. Airport Air Service Incentive Program Case Studies

Denver International Airport (DEN)

KEY ATTRIBUTES

Hub Designation: Large Hub
Airport Governance: City and County of Denver Department of Aviation
Enplanements (2018): 31,363,573 (+5.21% from 2017)
Sample of Recent Flight Announcements:[22]

- *May 2019* – Daily, year-round nonstop service to Frankfurt (FRA) on United Airlines
- *March 2019* – Twice weekly seasonal nonstop service to Grand Cayman (GCM) on Cayman Airways Limited
- *June 2018* – Twice weekly seasonal nonstop service to Zurich (ZRH) on Edelweiss
- *April 2018* – Twice weekly nonstop service to Paris (CDG) on Norwegian
- *March 2018* – Daily, nonstop seasonal service to London/Heathrow (LHR) on United Airlines
- *December 2017* – Nonstop service to Panama City (PTY) four times a week on Copa Airlines
- *September 2017* – Twice weekly nonstop service to London/Gatwick (LGW) on Norwegian (increased to three times per week in November)

Airport Incentives Offered:

- *Domestic Air Service Refund* – Unserved destinations receive a $5 refund per enplanement up to $250,000 over two years. New entrants do not receive a refund per enplanement (unless they are serving a previously unserved destination).

[22] For all case study airports, flights gained are as of second quarter 2019 and represent examples, but not the complete list, of flights added at these airports. Frequencies are those included in the original announcement of the service launch; frequencies, seasonality and overall service may have changed since the original announcement.

- *Domestic Air Service Marketing* – Airlines opening service to unserved destinations earn $250,000 for more than five weekly frequencies, $125,000 for three to four weekly frequencies, $25,000 for one to two weekly frequencies, and $10,000 for less than one weekly frequency. New entrants earn $500,000 for five to seven weekly frequencies, $250,000 for three to four weekly frequencies, $100,000 for one to two weekly frequencies and $25,000 for less than one weekly frequency.
- *International Air Service Refund for North and Central America* – Airlines earn $20 per enplaned passenger up to $1 million over two years.
- *International Air Service Marketing Incentives for North and Central America* – Airlines earn $1 million for more than five weekly frequencies, $500,000 for three to four weekly frequencies, $100,000 for one to two weekly frequencies, and $25,000 for less than one weekly frequency.
- *International Air Service Marketing Incentives for South America, Europe, Asia, Middle East, Africa, and Oceania*: Airlines earn $30 per enplaned passenger up to $4 million over two years.
- *International Air Service Marketing Incentives for South America, Europe, Asia, Middle East, Africa, and Oceania*: The airport provides $2 million in funds for more than five new weekly frequencies, $1 million for three to four weekly frequencies, $500,000 for flights with one to two weekly frequencies, and $250,000 for flights with less than one weekly frequency.
- *Maximum Incentive Amounts*: $500,000 for unserved domestic destination; $500,000 for new domestic entrant; $2 million for North and Central America; $6 million for South America, Europe, Asia, Middle East, Africa, and Oceania.

BACKGROUND

Air service officials at Denver International Airport use incentives that encourage airlines to serve more passengers by linking incentive payments to enplanements. One airline recently examined local businesses' willingness to follow through on pledges to purchase tickets to international destinations. In addition, airport leaders expressed frustration regarding some airlines' lack of follow through to use funds offered by community organizations.

ENPLANEMENT INCENTIVES

A key element of Denver's air service incentive package is its policy of reimbursing airlines by the number of enplanements they report for each flight up to a certain limit. Airport officials note that the plan provides a natural way to not only encourage airlines to add Denver service, but also incentivize expansion once they arrive. "More capacity leads to more travel assets," a senior airport official said. "It is capped at what the airline spends to operate. We found it as a way to encourage more capacity growth." Leaders said that airlines flying international routes have bolstered the size of their aircraft in order to take advantage of the program.

AIRLINE INVESTIGATES COMMUNITY FOLLOW THROUGH

Airport officials were surprised with the fact an international carrier tracked whether businesses that had promised to fly on the route actually purchased tickets. As part of Denver's lobbying campaign for service to a foreign destination, the airport obtained 40 letters of support from area businesses pledging to use the service, with some letters outlining the volume of past and/or future anticipated trips. However, after the service was initiated, the airline tracked whether the

firms that had submitted letters actually flew on the route. The airline told airport officials that the businesses were not purchasing tickets.

The promises were not legally binding, and the flight is otherwise doing well, so airport leaders depicted the incident more as a cautionary tale from a high-performing flight than as a major problem. Nevertheless, the businesses' decisions to not purchase tickets for the flight startled officials and may have affected the business community's credibility with the airline.

SOME CARRIERS LEAVE MONEY ON THE TABLE

Air service leaders expressed frustration by what they felt to be a lack of airline follow through to effectively use funds appropriated to them as incentives. Some community funds that were offered by the CVB and EDCs have expired and gone unused. In addition, one large domestic carrier has not participated in the program at all. "I think it is administrative," one air service professional reasoned. "[The incentives] put the burden on the airline to develop the marketing plan." Another carrier had issues with Denver's requirement that airlines maintain service in the market for two years. While the airport cannot contractually require that an airline stay for a specific period of time, it can include a clawback clause that allows the airport to recover any incentive dollars paid to the airport.

Seattle-Tacoma International Airport (SEA)

KEY ATTRIBUTES

Hub Designation: Large hub
Airport Governance: Port of Seattle
Enplanements (2018): 24,025,098 (+6.12% over 2017)
Sample of Recent Flight Announcements:

- *September 2019* – Four times weekly (5 times weekly from October 2019) nonstop service to Singapore on Singapore Airlines
- *April 2019* – Four times weekly (daily after July 2019), nonstop service to Hong Kong (HKG) on Cathay Pacific and daily seasonal nonstop service to Osaka (KIX) on Delta Air Lines
- *March 2019* – Daily, year round nonstop service to Tokyo Narita (NRT) on Japan Airlines
- *May 2018* – Service four times per week to Dublin (DUB) on Aer Lingus, five flights weekly to Paris-Charles de Gaulle (CDG) on Air France, and twice weekly seasonal service to Manchester (MAN) on Thomas Cook Airlines
- *November 2017* – Daily flights to Mexico City (MEX) on Aeromexico
- *September 2017* – Four flights per week (seasonal) to London-Gatwick (LGW) on Norwegian
- *July 2017* – Three weekly seasonal flights to Cologne (CGN) on Eurowings
- *June 2017* –Twice weekly seasonal service to Munich (MUC) on Condor Airlines

Airport Incentives Offered:

- *Marketing* – The airport offers $500,000 for unserved international routes over 4,000 miles; $300,000 for unserved international routes between 2,000 and 4,000 miles; $200,000 for international routes over 2,000 miles with competing services. The airport also provides $25,000 in support for new service to unserved destinations in Washington, Oregon, and Idaho. In addition, it also provides $25,000 in support for unserved cities in the U.S. or for unserved international routes less than 2,000 miles. All marketing support is distributed over one or two years, depending on the incentive category
- *Landing Fees* – The airport waives all landing fees for unserved international long- and medium-haul flights and for flights to unserved airports in Washington, Oregon, and Idaho for two years.
- *Terminal Rent and Use Waivers* – The airport waives international arrivals facilities fees for two years for unserved long-haul international markets (over 4,000 miles) and one year for unserved medium-haul international markets (2,000 to 4,000 miles). The airport will also waive fees for common-use gate and ticket counter space for two years for new service to unserved destinations in Washington, Oregon, and Idaho.

BACKGROUND

Seattle-Tacoma International Airport has offered air service incentives, primarily for new international service, since 2007 when it lured service to Paris on Air France (which was replaced by joint venture partner Delta in 2012 but added back flights on its own metal in addition to Delta in 2018). According to airport officials, the region has gained 17 new international destinations since it started the incentives program. Although local experts acknowledge the impact of Seattle's thriving tech sector on gaining destinations, they believe incentives have made a decisive difference.

Seattle-Tacoma International Airport was recently audited by the FAA, resulting in major changes to the airport's air service incentive program. Despite its recent success, the city faces significant competition from Vancouver International Airport (YVR) for service to Asia because of YVR's ability to offer unregulated subsidies to carriers.

CROSS-BORDER RIVALRY: SEA AND YVR COMPETE FOR INTERNATIONAL FLIGHTS

Seattle air service experts feel that the Canadian government effectively uses incentives to subsidize artificially lower airfares, particularly to Asia, where ticket prices are as low as $250, resulting in significant cross-border leakage. Officials at SEA note British Columbia's largest city has twice as many seats to Asia as Seattle despite being half the size and having half the GDP of its southern neighbor. According to officials at SEA, there are several reasons for this disparity, including FAA regulations on air service incentives that seem to limit the creativity of particularly large airports to develop innovative incentive programs.

Officials at SEA note that YVR is able fund many of its air service development efforts and incentives through the sale of its BORDEREXPRESS primary entry kiosks to other airports. Designed and sold by YVR's Innovative Travel Solutions team, BORDEREXPRESS is one of the quick entry customs kiosks used at several airports in Canada and the United States. The

profits from the sale of the BORDEREXPRESS kiosks provide additional revenue for YVR's air service development efforts.

COLLABORATING WITH AIRLINES FOR MARKETING SUCCESS

SEA works closely with airlines to design promotional programs. Airport officials believe they benefit from the conversations and information-sharing that drive joint marketing efforts. "If we just said we'll turn money over and give you a standard billboard, which I know a lot of airports do, we wouldn't build the relationship," a SEA official told researchers. "And we do gain a tremendous amount of intelligence and information." Local experts believe that joint marketing efforts develop stronger relationships between the carriers and SEA, while also stimulating innovation. For instance, Seattle encourages carriers to use marketing money in nearby markets that would connect via SEA. This permitted Emirates, which operates SEA's nonstop service to Dubai, to spend marketing dollars in Calgary, a Canadian oil hub situated 426 air miles away.

FAA AUDIT'S IMPACT ON INCENTIVES AND MARKETING

Prior to the federal review, SEA used marketing funds to pay for travel managers to visit Seattle and other destinations. Officials used the planned familiarization trips to emphasize SEA's accessibility and passenger-friendliness. The airport paid for meals and hotels during travel managers' visits to foreign cities, while airlines covered airfare. Officials said that a trip for 10 travel managers might cost as much as $10,000. FAA investigators determined that approximately 80 percent of the funding constituted a revenue diversion because it could be classified as destination marketing. The agency noted that meetings specifically about airport facilities were acceptable, but other expenses were not. Officials believe they can continue planned trips for travel managers as long as the airlines cover hotel costs. So far, none have been willing to do so.

SEA officials felt there should be greater consistency in how airports understand and follow the FAA's incentive guidelines. "When we have to say the FAA forbids us from doing [planned tours] it is a difficult conversation to have with airlines when they say, 'Really? Every other airport is doing the same thing,'" one airport official said. "It's like, yes, but they probably should not be, if they had been audited, they wouldn't be. It's like they are in our minds flouting the line. I think it's grey until you're specifically told." SEA believes its current interpretation and application of FAA's regulations on incentives, as a result of the audit, may be putting it at a competitive disadvantage.

In addition to working with new carriers on incentives packages, airport officials coordinated with existing carriers for marketing packages worth $12,000 per existing flight. SEA pointed out that it is authorized to promote current flights, but the FAA said it was improper to coordinate with airlines on marketing for the ongoing routes. SEA has eliminated the program following the FAA audit, but officials believe that the decision may have limited airport's ability to provide quality connectivity. "If one airline says their service is at risk and we say ok as an airport, of course we want to do something about it," a senior SEA staffer said. "Right now we don't have a budget to do that." SEA officials stated that greater clarity of the FAA's incentive guidelines would make it easier to understand whether its initiatives are in compliance.

CONTINUED COMMITMENT TO INCENTIVES

Despite their regulatory concerns, SEA remains enthusiastic about the role of incentives in air service development. "If you go to a wedding, you have to bring a present," an air service development coordinator said. "No one knows what you got them, but if you show up and you're the one person who doesn't have a wedding present that's really noticeable." Although they are quick to acknowledge that airport incentives do not change a flight's fundamental economics, senior staffers at SEA believe that an expansive incentive program is needed to aggressively court new nonstop domestic and international destinations.

John Glenn Columbus International Airport -- Columbus (CMH)

KEY ATTRIBUTES

Hub Designation: Medium Hub
Airport Governance: Columbus Regional Airport Authority
Enplanements (2018): 3,980,158 (+7.88% from 2017)
Sample of Recent Flight Announcements:

- *June 2019* – Daily, year-round nonstop service to San Francisco (SFO) on United Airlines and nearly daily, year-round nonstop service to Salt Lake City (SLC) on Delta Air Lines
- *April 2019* – Three times weekly, year-round service to Raleigh-Durham (RDU) on Frontier Airlines
- *March 2019* – Daily, year-round nonstop service to Seattle (SEA) on Alaska Airlines.
- *October 2018* – Daily, year-round nonstop service to Houston (HOU) on Southwest Airlines
- *August 2018* – Twice weekly year-round service to San Antonio (SAT) on Frontier Airlines.[23]
- *April 2018* – Three times weekly seasonal year-round service to Austin (AUS) on Frontier Airlines[24] and Saturday seasonal nonstop service to Cancun, MX (CUN) on Southwest Airlines
- *March 2018* – Four times weekly service to Myrtle Beach (MYR) and three times weekly service to New Orleans (MSY) on Spirit Airlines
- *February 2018* – Daily, year-round service to Orlando (MCO), Fort Lauderdale (FLL), and Las Vegas (LAS) on Spirit Airlines. Daily seasonal service to Tampa (TPA) and Fort Myers (RSW) on Spirit Airlines
- *April 2017* – Less than daily, seasonal service to New Orleans (MSY) and Cancun (CUN) on Southwest Airlines

Airport Incentives Offered:

- Target transatlantic and transpacific markets receive $600,000 in marketing support over two years
- Other transoceanic flights receive $300,000 in marketing support over two years

[23] The service to SAT on Frontier ended in 2018.
[24] The service to AUS on Frontier ended in 2018.

- Other international flights receive $50,000 in marketing support during the first year
- Target domestic markets with more than 100 passengers per day each way (PDEW) receive $100,000 in marketing assistance in the first year and $75,000 in the second
- Flights to domestic markets with between 50 and 99 PDEW receive $75,000 in marketing incentives during their first year
- Landing fees are waived on all incentivized flights above for the first year

Community Incentives Offered:

- Franklin County ($500,000) and the City of Columbus ($1.2 million) provided a $1.7 million revenue guarantee to Southwest Airlines in 2015 for new service from CMH to Oakland

AIR SERVICE BACKGROUND

Local government officials, business executives, and airport leaders in Columbus view air service to John Glenn International Airport as essential to economic development in Central Ohio. The community has courted flights to new destinations by using one of the most ambitious air service incentives programs in the state. The airport collaborates closely with the city's business community and local governments to expand flight options. The business community is represented by the Columbus Partnership, a coalition of 70 CEOs from the city's top businesses. The organization played a leading role in negotiating the MRG for an Oakland flight in 2015.

COLUMBUS ATTRACTS SOUTHWEST AIRLINES SERVICE TO OAKLAND

Columbus took steps to strengthen its air service by launching the JET (Jobs, Economic development, Transportation) Taskforce in April 2014. Airport leadership, government leaders, economic development experts, and large employers investigated ways to improve ground access to the airport, bolster business growth in surrounding areas, and better air service options for residents. The taskforce's work spurred officials to approach Southwest Airlines about adding a nonstop flight to Oakland to increase its connectivity to the Bay Area and its concentration of tech companies. The city, county, and business community reached a deal on a $1.7 million revenue guarantee to support the Oakland flight with Franklin County providing $500,000 and the City of Columbus providing $1.2 million. The process through which the air service coalition achieved the agreement provides insight into the challenges facing communities inexperienced in negotiating MRGs for the first time.

Under FAA guidelines and regulations, the airport could not enter negotiations on the revenue guarantee alongside the city, county, and business community. As noted above, the regional executive coalition Columbus Partnership led the talks and contract negotiations with Southwest Airlines. Officials admitted to having a steep learning curve. Many were surprised that Southwest was reimbursed for much of the $1.7 million guarantee even as flights to Oakland were filled. Under the terms of the revenue guarantee contract, Southwest provided expected total revenue figures for the flights, but only passengers flying directly between CMH and OAK would count fully towards that figure while connecting passengers were discounted. Community officials noted that as this was the first community incentive effort in which they were involved, they were unaware of the implications of specific provisions in the MRG agreement would have on the amount of MRG funds that would be used.

The misunderstanding may not have occurred had airport officials been permitted to participate more actively in the process. "We start the conversation together. We should not end it independently," one advocate for air service told researchers. "The guidelines for what [airport employees] can and cannot do don't make sense." The misunderstanding was noted by government officials, who expressed less enthusiasm for future revenue guarantees. As one official noted, "You know, for us nobody is losing sleep over the fact that we paid the $1.2 million. But it's - I think we thought we wouldn't have to pay it is the point. So if we came into this knowing that we were going to have to pay it, I think it would have been different. It's expectations. But we're reluctant to be the first person to throw in money for the next effort."

DEVELOPING A STATE-LEVEL AIR SERVICE FUND

Columbus faces special challenges in a state with three large metropolitan regions (including Cleveland and Cincinnati, as well as Columbus). The competition is especially fierce regarding international flights. For instance, Cincinnati and Cleveland recently gained nonstop flights to Iceland, while Columbus did not.[25] "The biggest challenge we have as a state and a city is that we have three big airports," a business community representative told researchers. "No other state, I would argue, has to deal with the level of competition we have in Ohio." The comment underscores the necessity of a strong incentive program in drawing attention to Columbus in a hyper-competitive market with large airports nearby.

Furthermore, many of the cities from adjacent states that are competing with Columbus for flights benefit from state-funded air service initiatives to incentivize flights to their airports, while Ohio does not offer a similar initiative for its largest cities. In fact, every state that touches Ohio has some form of air service incentive program. Airport leaders, local government officials, and business executives all called for the State of Ohio to play a more active role in helping cities gain air service. "We certainly want to advocate for what we call the Third Frontier (an Ohio economic development incentive program for high tech firms) of air service: It is getting that fund established from the state," a local government official said.

Indianapolis International Airport (IND)

KEY ATTRIBUTES

Hub Designation: Medium Hub
Airport Governance: Indianapolis Airport Authority
Enplanements (2018): 4,656,767 (+7.21% from 2017)
Sample of Recent Flight Announcements:

- *May 2019* – Three times weekly service to Myrtle Beach (MYR) on Spirit Airlines
- *March 2019* – Daily, year-round service to Orlando (MCO) and Las Vegas (LAS) on Spirit Airlines
- *August 2018* – Twice weekly nonstop service to San Diego (SAN) on Frontier Airlines
- *July 2018* – Daily, nonstop service to Oakland (OAK) on Southwest Airlines

[25] WOW has since terminated its Cleveland and Cincinnati service due to the airline's bankruptcy. Icelandair also terminated their Cleveland service, largely due to the Boeing 737 Max 8 grounding.

- *June 2018* – Daily, nonstop service to Seattle (SEA) on Delta Air Lines
- *May 2018* – Year-round service to Paris (CDG) on Delta Air Lines with varying frequency (Jun-Aug: daily, Sep-Oct: 5x weekly , Nov-Dec: 4x weekly, Jan-Mar: 3x weekly, Apr-May 5x weekly)
- *April 2018* – Twice daily non-stop to Austin (AUS) on Frontier Airlines[26] and seasonal Sunday service to Austin (AUS) on Southwest Airlines
- *July 2017* – Additional seasonal flight to Cancun (CUN) on Southwest Airlines
- *June 2017* – Newark (EWR) and San Diego (SAN) on Southwest Airlines
- *May 2017* – Austin (AUS) on Allegiant Air and Seattle-Tacoma (SEA) on Alaska Airlines

Airport Incentives Offered:

- Provide up to $400,000 in marketing support over two years for international flights depending on the number of flights per week
- Waive all landing fees and some terminal rent for new flights for two years

Community Incentives Offered:

- State Economic Development office provided a $5.5 million subsidy over two years for service to Paris in 2017
- State Economic Development office provided a $1.5 million MRG over two years for service to San Francisco in 2014

AIR SERVICE BACKGROUND

Government officials and business owners see Indianapolis International Airport (IND) as a centerpiece to Indiana's long-term growth. They have acted to secure political support for a state budget line-item dedicated to advancing connectivity for the state's airports. Officials frame the incentives as a targeted way to lure high-impact flights to the region and spur growth. The state credits the incentive initiative for securing flights from Indianapolis to San Francisco and Paris. The Indianapolis airport has a contractual relationship with the local Chamber to provide market research and organizational support for the airport's air service and economic development opportunities. This arrangement differs from many metropolitan areas, where air service collaboration occurs on an ad hoc basis. The airport also has a dedicated air service team on its staff working to add destinations.

AN AIR SERVICE DEVELOPMENT PARTNERSHIP WITH THE INDY CHAMBER

In May 2017, the Indianapolis Airport Authority agreed to a 12-month contract with the Indy Chamber for air service and land use development assistance. The contract is not to exceed $180,000. The airport's air service team works most closely with Develop Indy, a business unit of the Indy Chamber that focuses on economic development in Indy. Develop Indy coordinates corporate outreach, organizes stakeholder meetings on air service, and provides market research to airport officials and airline executives. Airport officials believe that the agreement illustrates community-wide support for air service investment. "It's different when an airport is going out and saying 'we need this route' versus the entire community standing behind it hand-in-hand,"

[26] Frontier has since ended service to AUS.

an IND official told Inside Indiana Business.[27] Develop Indy also works to attract tenants to undeveloped airport land under the agreement.

INCENTIVIZING A UNITED AIRLINES FLIGHT TO SFO

Indiana first sought to use incentives when seeking a flight to San Francisco. Through a close working relationship between the Indiana Economic Development Corporation (IEDC), a state agency dedicated to job growth, Develop Indy, and the Indianapolis Airport Authority. The Bay Area was identified as Indianapolis's top underserved market. To secure new service, state and local officials contacted United Airlines to begin conversations about what was required to provide service to Indianapolis. Coordination between the airport and the IEDC convinced United Airlines to add the Indianapolis-San Francisco route to its network, to which the airport committed marketing incentives for United Airlines.

Importantly, the IEDC provided a $1.5 million MRG to United Airlines. Since starting in January 2014, the San Francisco flight has been highly successful. United has continued the flight after the revenue guarantee expired and has since added a second frequency from IND to SFO beginning summer 2017. Virgin America started a route from Indianapolis to San Francisco in September 2017.[28]

The San Francisco flight's performance—and the resulting economic activity—encouraged further state investment in revenue guarantees. A regional economic development official noted its importance in generating activity in key sectors.

> "When that flight launched we saw a decent uptick in our tech activity in Indianapolis. The direct flight opened us up for expansions from companies there and it just kind of put us on the map for a good alternative as costs in San Francisco increased. We understand that there are additional markets that could have the same effect, and so our desire is that having the direct flight will help us sell Indianapolis."

The Indianapolis tech-industry's growth after the San Francisco flight began offered a high-profile illustration of the impact state funding could have on swaying airlines. Local companies, including pharmaceutical giant Eli Lilly Co. and engine manufacturer Cummins, were among the first to purchase tickets on the new flight.

INDIANAPOLIS GETS TRANSATLANTIC SERVICE: THE DELTA AIR LINES FLIGHT TO PARIS

During Chamber of Commerce roundtables with partner companies, and IEDC interactions with domestic and international businesses, officials identified the need for international air service to further local growth. Airport officials believed that the city was well-positioned for an international flight because of its high percentage of business passengers. In discussions with airlines, airport officials stressed the number of residents traveling to airports outside Indiana for access to transatlantic service. "[Leakage] was particularly important in the international case because when you look at the cities who were vying for service Indianapolis was the only one

[27] McGowan, Dan. Indy Airport, Chamber Solidify Partnership. *Inside Indiana Business.* May 19, 2017.
[28] Alaska Airlines, which took over the IND-SFO nonstop service from Virgin America, terminated this route in October 2018. United continues to fly IND-SFO.

with significant international leakage," one of the region's air service experts said. "While this could be a challenge to the airline, if it's marketed right you can bring all of that back." Indianapolis's framing of its leakage problem illustrated how a potential liability could be transformed into an asset when negotiating with airlines.

The effort received a boost when Governor Eric Holcomb inserted a $30 million provision into the state's 2017-2018 budget aimed at supporting economic development. Approximately $10 million can be used for incentives for new air service.[29] [30] "He cited this as one of the key wins that he wanted to get out of this session. The governor's office was really the driving force behind saying this is important to us" a state official said. The Indy Chamber along with their partners at the Indiana Chamber of Commerce supported advocacy efforts by asking companies to write letters of support to state legislative leaders urging them to support the fund for air service incentives. Indiana's state support offers a sharp contrast to revenue guarantees throughout the country. Many localities ask an entity representing their business community to pay for a portion of the revenue guarantee, but Indianapolis never requested financial assistance from the private sector because it had support from the state.

The Paris incentives package totaled $5.5 million and was unique in how it provided assistance to the airline. Under the agreement, the IEDC reimburses Delta based on quarterly enplanement totals up to an agreed upon amount. Instead of the state compensating the airline for revenue gaps, it provides money each quarter based on the flight's traffic performance, with payments made per passenger carried.[31] The agreement reduces the amount of risk to communities compared to payouts from revenue guarantees, which are more variable.

Although officials initially sought a nonstop flight to London, they were able to maintain broad community support for Paris by emphasizing the dozens of international connections from Charles De Gaulle International Airport. "While London might have been out there, it wasn't necessarily the identified market" a chamber economic development specialist told researchers. "Emphasizing and focusing on Europe, as opposed to a specific city, helped maintain support." Community leaders' emphasis on the broader opportunities created by a transatlantic destination helped them maintain support despite not achieving a flight to their top destination.

Supporters stressed that the initiative was implemented to benefit the entire state and not merely Indianapolis. After the Paris flight was announced, a state official pledged to devote resources to helping other airports in the state such as those in Evansville, Fort Wayne, and South Bend. "We continue to be in discussions with them over what their business community needs are and how to grow," he said. The initiative's geographic diversity helps it to maintain widespread political support.

[29] Colombo, Hayleigh. Holcomb seeks $10M to attract more non-stop flights. *Indiana Business Journal.* January 14, 2017.
[30] Governor Holcomb has since increased this amount to $20 million for international flights.
[31] *See* Orr, Susan, "$20M in state incentives targeted to help airport lure international flights," *Indianapolis Business Journal*: September 28, 2018, https://www.ibj.com/articles/70657-20m-in-state-incentives-targeted-to-help-airport-lure-international-flights.

Pittsburgh International Airport (PIT)

KEY ATTRIBUTES

Hub Designation: Medium Hub
Airport Governance: Allegheny County Airport Authority
Enplanements (2018): 4,670,954 (+7.94% from 2017)
Sample of Recent Flight Announcements:

- *June 2019* – Daily, year-round nonstop service to Raleigh-Durham (RDU) on Delta Air Lines
- *May 2019* – Twice weekly, seasonal service to Knoxville (TYS) on Allegiant
- *April 2019* – Four times weekly nonstop service to London (LHR) on British Airways
- *September 2018* – Daily, year-round nonstop service to Seattle (SEA) on Alaska Airlines
- *August 2018* – Charter service to Shanghai, China on China Eastern Airlines, twice weekly service to San Diego (SAN) on Frontier Airlines
- *July 2018* – Daily, year-round nonstop service to Salt Lake City (SLC) and Boston (BOS) on Delta Air Lines
- *May 2018* – Daily, year-round nonstop service to Montreal (YUL) on Air Canada
- *April 2018* – Twice weekly, seasonal service to Charleston (CHS) and Sarasota (SRQ) on Allegiant
- *March 2018* – Twice daily nonstop service to Kansas City (MCI), four times weekly service to Palm Beach (PBI) on OneJet
- *June 2017* – Twice weekly, seasonal nonstop service to Frankfurt (FRA) on Condor

Airport Incentives Offered:

- Waive landing fees, ticket counter rental, and baggage claim for up to two years
- Airport marketing package depending upon route
- $800,000 in marketing assistance for flight to Reykjavik, Iceland on WOW Air over two years.
- $560,000 in a MRG (from non-aeronautical revenue) for service to Shanghai, China on China Eastern Airlines
- $500,000 in marketing assistance for flight to Seattle, on Alaska Airlines over two years
- $500,000 in marketing assistance for flight to Frankfurt on Condor over two years
- $1 million in start-up funds from non-aeronautical revenue to OneJet for service to 10 regional cities

Community Incentives Offered:

- $9 million MRG over two years from Allegheny Conference on Community Development and Pennsylvania Department of Community and Economic Development for flight to Paris (CDG) on Delta Air Lines
- $3 million ($1.5 million over two years) subsidy from Pennsylvania Department of Community and Economic Development for flight to London Heathrow (LHR) on British Airways
- $1.5 million loan from Allegheny County Redevelopment Authority to OneJet for service to 10 regional cities

- $500,000 loan from the Commonwealth of Pennsylvania to OneJet for service to 10 regional cities
- $300,000 from Visit Pittsburgh for marketing for service to Shanghai, China on China Eastern Airlines

AIR SERVICE BACKGROUND

Pittsburgh International Airport (PIT), the Allegheny County Airport Authority, and the broader Pittsburgh region are a very active community in using incentives to attract and retain domestic and international air service as a tool to ensure the Pittsburgh air service portfolio matches the new diversified economy of the Pittsburgh region. While the economic factors of a community are the primary decision making factor for airlines, including those in Pittsburgh, the willingness of the community to rally around improving air service at PIT is due to the region's understanding of the importance of air service following the experience of losing its US Airways hub in the mid-2000s and as a tool to facilitate additional business expansion in Pittsburgh. As one official noted, "Our market kind of gets air service. I mean that from the standpoint that they lost it. When somebody loses it, they get a little more about the industry than maybe somebody else that wouldn't. I think that really helps us on that standpoint." PIT has also benefited from a diverse set of non-aeronautical revenue sources including gaming and mineral revenue that allow the Authority to control costs for airlines and offer incentives from a variety of non-rate airline base funds. In 2016, the Allegheny County Airport Authority voted to give CEO Christina Cassotis the ability to enter into incentive agreements without a vote of the board[32]. The airport has been very successful in attracting new domestic and international service to increase connectivity and reposition the airport as an origin and destination (O&D) rather than a carrier hub airport increasing air service by over 80 percent and more than doubling the number of airports served from Pittsburgh International Airport since 2014.

USING NON-AERONAUTICAL REVENUES TO PROVIDE INCENTIVES

In 2013, the Allegheny County Airport Authority signed a lease with Consol Energy-now CNX Resources- to drill for natural gas on the airport's 9,000 acres of land. As part of the agreement, the airport received $46 million in upfront payments and 18 percent royalties estimated to be approximately $20 million annually[33]. The revenue from the royalty payments has been used to pay-off debt on the existing terminal, address deferred capital projects, and reduce the significant cost to operate at PIT. In addition to natural gas related revenue, the airport has received approximately $12 million each year since 2004 from gaming revenues which is used primarily to lower the debt at the airport left following the US Airways dehubbing. These non-aeronautical revenues from the royalty and gaming payments have been used by the Allegheny County Airport Authority to provide marketing incentives to WOW Air and Condor[34] which complement the main target of the non-aeronautical revenue which has been rate stability and reductions to carriers.

[32] Clift, Theresa. Airline investments off-limits to Allegheny County Airport Authority Board. *TribLIVE.* September 23, 2018.
[33] Schooley, Tim. County Exec: Natural Gas revenue was crucial for growth of Pittsburgh International Airport. *Pittsburgh Business Times.* April 9, 2018.
[34] Belko, Mark. Pittsburgh airport wins in state's gambling expansion. *Pittsburgh Post-Gazette.* December 8, 2017.

COMMUNITY PARTNERSHIPS TO MAKE PITTSBURGH AN INTERNATIONAL DESTINATION

Following the loss of the US Airways hub in 2004, one of the top priorities for PIT at the time was to re-establish nonstop service to Europe. One of the first strategies employed by the airport was to engage its network of community partners.

In 2009, Delta Air Lines announced it would start year-round service from PIT to Paris. The service was incentivized through a $9 million MRG over two years that was split between the Allegheny Conference on Community Development and the Pennsylvania Department of Community and Economic Development. In the first year of the flight, Delta collected $5 million in funds ($2.5 million each) from the Allegheny Conference on Community Development and Pennsylvania Department of Community and Economic Development. The second year of the flight met the agreed upon revenue levels and resulted in no payments from either organization. Following the first two years, Delta reduced the year-round service to summer seasonal service.[35] From 2012-2018, Delta operated the seasonal service to Paris at PIT before increasing the size of the aircraft in 2018. However, due to the success of the airport in attracting low-cost service on WOW Air (KEF) and Condor (FRA) as well as additional network carrier service to Europe on British Airways (LHR), Delta decided to end its seasonal flight to Paris in the summer of 2018 Regardless, year-round business class service to Europe had been achieved for the Pittsburgh market for the first time in nearly a decade and belly cargo space had become available for the first time in 15 years.[36]

Under the current management structure, the Pittsburgh International Travel Cooperative was established in 2016 and has been a key part of the success of British Airways and Condor to further expand service. The cooperative is a coalition among the Allegheny County Airport Authority, VisitPittsburgh and other regional visitors' bureaus, the Allegheny Conference on Community Development, and the Pittsburgh Technology Council to promote air service and access to the Pittsburgh region through the airport to markets where common goals exist in increasing inward investment, encouraging travel/tourism and improving air service to the community. As an airport official noted, "I would say there's a couple of different partners we rely on to be partners in how we promote Pittsburgh and the markets we go after. The Allegheny Conference is a good organization for that. They represent all the top businesses in the Pittsburgh region. We work very closely with the Pittsburgh Technology Council. That kind of takes care of small and medium enterprises and Visit Pittsburgh because making air service successful is also about bringing people in." The cooperative has seen success in markets such as expanding service to San Francisco, retaining Condor service now into its third year of service and most recently with British Airways. Through a pooling of talent and resources, the cooperative partners with in-market agencies to promote the airport opportunities. As part of its coordination with regional business and economic interests to promote new international services, PIT has found it useful to estimate the regional economic impacts of new services. For example, the British Airways nonstop London service announced in April 2019 is expected to have an annual economic impact on the region of $57 million, supporting 564 local jobs.

[35] Clift, Theresa. Strong demand upgrades Pittsburgh-to-Paris flight to bigger plane. *TribLIVE*. June 5, 2018.
[36] WOW ended its PIT-KEF service in January 2019, and ended operations altogether in March 2019.

Officials at PIT have also worked to create a market for nonstop service to China by promoting the Pittsburgh region to Chinese tourists, the airport partnered with tour operator Caissa Touristic to market and sell trips to Pittsburgh. As part of the agreement, the airport and its community partners subsidized two non-stop charter flights from Shanghai to Pittsburgh in the summer of 2018 on China Eastern Airlines. Specifically, the Allegheny County Airport Authority provided $560,000 in support while VisitPittsburgh provided $300,000 in cash and in-kind marketing contributions. Additionally, the Idea Foundry, a Pittsburgh-based nonprofit that works with Chinese families and students to encourage educational ties and investment, contributed $50,000 to market the flights.[37] The charter flights were a very visible effort to promote tourism and additional business connections between Pittsburgh and China.

PIT'S ONEJET INCENTIVE EXPERIENCE

In June 2016, the Allegheny County Airport Authority entered into an agreement with start-up airline OneJet to provide service to 10 cities with strong business connections to Pittsburgh including Milwaukee, Indianapolis, Louisville, Cincinnati, Albany, Kansas City, Nashville, Memphis, Hartford, and Providence. The airport viewed OneJet as a unique opportunity to connect strong medium-sized business communities that could not support daily service on a legacy carrier. As one official noted,

> With One Jet, they are a very, very unique partner because they are the only carrier in the industry that can serve medium-sized hubs as well as they can… Delta, United, American are not going to serve Indianapolis. They're going to put that traffic over Detroit or Chicago. When we look at ways for how we can fill in this gap in this industry, medium sized markets they both have a very solid business community in both. It's not like there's no business there. It just might not fit the model that they want to display to carriers. We look at it and say, ok this is something that provides a unique value to our airport, but also to our region. We do buy into it. We believe that we are a part of transforming the economic vitality of this region by showing that the airport is a good partner in the region. This is something that is unique and different, but this is a way that we want to make sure we help to maximize the Pittsburgh region.

The agreement stipulated that OneJet would provide round-trip non-stop service at least five-times a week for five-years to each of the destinations. OneJet would, by December 31, 2017, have established service to 10 markets, including seven to unserved markets. In exchange for this new service and establishing an operations base at PIT, the Allegheny County Airport Authority provided a $1 million grant to OneJet from the airport's gaming revenues.

While OneJet did add service to 9 destinations, by the summer of 2018, it was flying only to Hartford and Indianapolis. In August of 2018, the Allegheny County Airport Authority filed a lawsuit against OneJet to recover $763,000 of the $1 million grant provided to the airline to establish service to 10 cities to hold the airline accountable to the incentive agreement. By the end of August 2018, OneJet had ceased all operations following the lawsuit by PIT and a federal

[37] Mutzabaugh, Ben. Pittsburgh-China non-stops? Airport has a plan to make it happen. *USA Today.* July 27, 2018.

tax lien of over $600,000 for failure to pay federal excise taxes dating back to September 30, 2015.[38]

The OneJet case illustrates the potential pitfalls of air service incentives and the importance of fiduciary accountability through tools such as claw back provisions and specifically worded and outlined contracts with clear expectations as was evidenced in the Pittsburgh-OneJet case for what air service will be provided and for what term.

Norman Y. Mineta San Jose International Airport (SJC)

KEY ATTRIBUTES

Hub Designation: Medium Hub
Airport Governance: City of San Jose
Enplanements (2018): 7,037,144 (+14.78% from 2017)
Sample of Recent Flight Announcements:

- *June 2019* – Daily nonstop service to Nashville (BNA) and Raleigh-Durham (RDU) on Southwest Airlines
- *May 2019* – Daily nonstop service to Honolulu (HNL) and Maui (OGG) on Southwest Airlines
- *April 2019* – Four times daily nonstop to Long Beach (LGB) on Southwest
- *March 2019* – Daily nonstop service to Paine Field (PAE) on Alaska Airlines
- *November 2018* – Twice weekly service to Leon, Mexico (BJX) on Volaris and daily, nonstop service to Detroit on Delta Air Lines
- *July 2018* – Daily , nonstop service to New York (JFK) on Alaska Airlines
- *June 2018* – Daily, nonstop service to New York (JFK) on Delta Air Lines and daily, nonstop service to Mexico City (MEX) on Aeromexico
- *May 2018* – Orlando International (MCO) on Southwest Airlines
- *April 2018* – Albuquerque (ABQ), Boise (BOI), Cincinnati (CVG), Colorado Springs (COS), San Antonio (SAT), and Tucson (TUS) on Frontier Airlines. Houston-Hobby (HOU), New Orleans (MSY), St. Louis (STL), and Spokane (GEG) on Southwest Airlines.
- *March 2018* – Cabo San Lucas (SJD) on Southwest Airlines
- *December 2017* –Morelia (MLM) and Zacatecas (ZCL) on Volaris Airlines
- *October 2017* – Denver (DEN) and Las Vegas (LAS) on Frontier Airlines
- *August 2017* – Tucson (TUS) on Alaska Airlines
- *March 2017* – Newark (EWR) via Alaska Airlines and Chicago O'Hare (ORD) on United Airlines
- *January 2017* – Long Beach (LGB) on JetBlue Airways

[38] Gough, Paul. OneJet faces $622k federal tax lien. *Pittsburgh Business Times.* August 24, 2018.

Airport Incentives Offered:

- *Marketing* – $25,000 for new unserved short haul (within 1,250 miles) domestic; $75,000 for any new or added long-haul domestic (more than 1,250 miles); $100,000 new international within North America; $500,000 new international outside North America.
- *Landing Fees* – Completely waived for 12 months for new unserved short-haul domestic; completely waived for 18 months for new long-haul domestic and new international within North America; completely waived for 18 months for new international outside North America.

AIR SERVICE BACKGROUND

San Jose's airport serves as the air service hub for Silicon Valley, one of the world's most economically dynamic regions. In recent years, the airport has expanded rapidly with passenger growth rates over the past three years of 10.2 percent, 15.6 percent, 14.7 percent and calendar 2019 expected to be the fourth consecutive year of double digit increases. The airport added 18 new domestic destinations ranging from Albuquerque to St. Louis, while also adding six new international flights and nearly tripling the number of nonstop routes with competitive services.

INCENTIVES AS "SUPPORT"

Leaders view airport incentives as an essential ingredient to the growth in service. A decade ago, one official said, airlines asked if incentives programs existed at an airport, but now they are commonplace. "I don't even call them incentives anymore," he remarked. "I just call them support for new service. They are just an expected piece of what airports have to do to get and sustain expanded air service." Despite their willingness to use incentives, airport officials at San Jose don't actively pursue routes that appear unsustainable according to passenger data or other market demand data. "People always have requests, but it doesn't mean that it can be viable for air service," a city official told researchers.

City leaders are also reluctant to seek financial assistance from the business community. "The sense that we have is that nobody subsidized [Silicon Valley companies] when they came here. They're very proud of their success and have pulled themselves up and grown organically and dramatically" one official commented. Instead, airport staff focus on showcasing the region's other advantages and building trusted relationships with airline executives to compete for air service.

BUILDING POLITICAL SUPPORT FOR INCENTIVES BY QUANTIFYING RETURN ON INVESTMENT AND ECONOMIC IMPACT

When airport officials want to offer an incentive package to an air carrier, they must hold a public hearing in front of San Jose City Council, who must adopt a resolution to authorize the airport to provide funds from the City's Air Service Support Program. In order to build support among members of city council and the public, despite the incentives' initial cost, San Jose city leaders are confident that they generate exponentially larger economic growth for the region and net revenue for the airport. For instance, in February 2018, San Jose City Council authorized $223,000 in incentives and fee waivers for a new flight to St. Louis Lambert International Airport (STL) on Southwest Airlines that will generate $600,000 in airport revenues and an economic impact of $10.1 million during the incentive period. As one airport official noted,

"Yes, you might waive some fees, but they're fees you wouldn't have had if they had not flown the plane to begin with."

In an interview with researchers, an airport leader cautioned that the St. Louis flight's economic growth potential was miniscule compared to that of an international flight. "It's not unusual that a daily, long-haul international flight is usually somewhere approaching $100 million a year" in economic impact, an airport leader said.

A SURGING ECONOMY DRIVES AIR SERVICE

Although the Bay Area is a competitive market for air service, San Jose has been buoyed by a surging local economy driven by diversification among local tech companies. Although San Francisco International Airport (SFO) has seen a 50 percent increase in passengers from the end of 2007 through the end of 2017, San Jose has still grown rapidly since the Great Recession., generating 70 percent more passengers than it carried at year end 2013 alone. Airport officials acknowledge that a key reason behind SJC's growth is its proximity to Silicon Valley, one of the nation's leading economic hubs. "Most of our metrics are multiples of national averages. Highest household income in the nation, top patent market, and high educational levels. You can just go down the list," an air service specialist said. City officials say that increasingly, tech employees are moving south and have greater flexibility regarding from which Bay Area airport they are authorized to depart. The dual trends favor San Jose's continued position as an air service hub for the tech industry.

UTILIZING REGIONAL STRENGTHS AND PERSONAL RELATIONSHIPS TO GAIN AIR SERVICE

Airport officials emphasized the role of site visits to local companies in attracting airline service. San Jose airport leaders take airline executives on driving tours of Silicon Valley tech attractions, including the headquarters of Google and Apple. The buildings' impressive modern designs depict a prosperous region. Regional officials also organize stakeholder meetings with airline executives to illustrate local companies' appetite for new air service. The airport partners with the Silicon Valley Leadership Group, an organization representing 300 CEOs that does regional economic development work, and the Silicon Valley Organization, the area's chamber of commerce. Experts believe that visits better illustrate the region's rapid growth than data charts or lists of recently added flights.

"The story I tell my colleagues in the airline industry is these exhibits are just pictures and numbers; don't take my word for the full story," one airport official told researchers. "I'm not asking you to add new service. I'm asking you to come see it for yourself." Leaders believe that the visits to the campuses of tech giants and meetings with the business community set it apart from competitors, while helping to build strong relationships with airline executives. Close relationships between SJC staff and airline executives build upon the region's robust economic advantage.

EXPANDING SERVICE TO THE EAST COAST

San Jose officials are targeting tech hotspots on the East Coast as possible additions for nonstop service. Businesses have encouraged the city to push for additional service to New York, Boston,

Washington D.C. and Raleigh among other key targeted destinations.[39] The airport has a small share of the cross-country market because SFO dominates the Bay Region's transcontinental service. "We will never get 35 percent of the New York market, but we should have more than single digits," one leader noted. San Jose illustrates the struggles confronting a smaller airport located close to a major airline hub airport, San Francisco, known for cross-country flights and long-haul international flights Airport officials continue to look for additional international flights to Europe, Canada, Asia, and Mexico in their strategic quest to meet Silicon Valley's growing travel demands.

Boise International Airport (BOI)

KEY ATTRIBUTES

Hub Designation: Small Hub
Airport Governance: Airport Department, City of Boise
Enplanements (2018): 1,943,338 (+9.32% over 2017)
Sample of Recent Flight Announcements

- *June 2018* – Seasonal Saturday service to Dallas (DAL) on Southwest Airlines
- *April 2018* – Daily, nonstop service to San Jose (SJC) on Southwest Airlines
- *March 2018* – Seasonal service to Denver (DEN) on Frontier Airlines
- *October 2017* – Phoenix-Mesa Gateway (AZA) on Allegiant Air
- *August 2017* – San Jose (SJC) on Southwest Airlines
- *July 2017* – Chicago O'Hare (ORD) on American Airlines
- *June 2017* – San Diego (SAN) on Southwest Airlines and upgauging of Seattle-Tacoma (SEA) to mainline service on Alaska Airlines

Airport Incentives Offered:

- *Marketing* – The airport offers up to $50,000 for year-round service and $25,000 for seasonal service. The amount is also determined by the number of flights per week.
- *Landing Fee Credit* – BOI credits up to 75 percent of landing fees incurred during the first year with a maximum credit of $100,000.
- *Terminal Fee Credit* – The airport allows airlines needing new terminal space to pay 50 percent of the fee for the first 12 months of service.

Community Incentives Offered:

- MRG for new air service to Atlanta ($700,000 in SCASDP funds and $137,500 in local match from City of Boise, Boise Chamber of Commerce, and local businesses).
- Marketing for new air service to Atlanta ($100,000 in local funds from Idaho Tourism and the Boise Convention and Visitors Bureau)

BACKGROUND

BOI has dramatically expanded air service over the past several years, overcoming reductions in air service caused by the economic recession and airline mergers, with enplanements increasing

[39] Southwest has announced weekly nonstop service between SJC and Raleigh beginning in June 2019.

over 20 percent since 2013. Boise's remote location has spurred local leaders to aggressively support the use of incentives as a way to reduce the risk to air carriers while proving the local market can support the service. Despite significant community support for air service development, BOI faces challenges attracting East Coast service and competing against nearby resort communities such as Sun Valley.

SCASDP GRANTS DO NOT PROVIDE ADEQUATE FUNDING TO SUPPORT MRGS

In 2014, BOI secured a $700,000 Small Community Air Service Development Program (SCASDP) grant for use as a revenue guarantee to obtain a Delta Air Lines flight to Atlanta. The local chamber of commerce rallied area businesses to donate $275,000 in matching funds for the project. To date, the service has not materialized and airport leaders were pessimistic about their ability to attract service to Atlanta. Officials noted that the amount was far too little to offer airlines insurance for the route. "A million dollars really does not provide a real adequate incentive, not when you consider the cost of operating and the risk [the airlines] take," a senior airport leader noted. Leaders in Boise believe that the SCASDP program's effectiveness is limited because of the lack of funding for the program. "I've seen it work and make a difference in a lot of places, but I think it's underutilized because it lacks enough of a financial incentive," an official with more than 15 years in aviation management roles said. "If they expanded it, I think it would help a lot." The comments underscore the challenges facing isolated metropolitan areas as they seek to use federal dollars to attract service to destinations that have a longer stage length and thus present a higher cost and risk to the air carrier.

REMOTE LOCATION AS A DRIVER OF COMMUNITY SUPPORT FOR AIR SERVICE

Boise airport officials acknowledge that the city's geographic isolation makes it easier to rally support for incentives efforts. While airports in the Eastern United States are within a reasonable drive of one another, Boise is five hours away from the next closest hub (Salt Lake City International Airport). "I was pleasantly surprised at how easy it was to raise almost $250,000 [in SCASD matching funds]," an airport official told researchers. "People here value the importance of air service to connect with the rest of the country." In remote cities such as Boise, businesses view strong air service connectivity as essential to their participation in the global economy. The airport's remote location also limits leakage. For instance, gains made by Sun Valley's Friedman International Airport have little impact on decision-making in Boise. "We pay attention to what's going on in Sun Valley, but I don't feel that their success is our loss," a Boise official said.

SALES TAX AND THE IMPACT ON AIR SERVICE

Airport officials believe expanding the local option sales tax could provide new opportunities to raise revenues for air service incentives programs. In Idaho, resort communities can levy sales taxes to compensate for the significant proportion of city services used by visitors. Since Boise is not defined as a resort community under Idaho law, it cannot use sales tax as a funding source. For instance, some communities use it to support their fire and police departments. Sun Valley's airport benefits from a 1 percent sales tax supporting MRGs and marketing efforts for new flights. In 2016, the sales tax raised $2.5 million for air service. The Sun Valley tax was approved by voters in 2013 and renewed in May 2017. Even if Boise achieved a sales tax increase, regional aviation experts acknowledge that much of the funding would be directed to

other city priorities such as public transportation. Nevertheless, Idaho law places Boise at a competitive disadvantage compared to resort communities when seeking to lure flights.

Bozeman Yellowstone International Airport (BZN)

KEY ATTRIBUTES

Hub Designation: Small hub
Airport Governance: Gallatin Airport Authority
Enplanements (2018): 671,777 (+12.20% over 2017)
Sample of Recent Flight Announcements

- *June 2019* – Seasonal daily service (Summer and Winter) to Houston (IAH) on United Airlines and twice-weekly seasonal service to Los Angeles (LAX) on Allegiant
- *March 2019* – Seasonal Saturday service to Detroit (DTW) on Delta Air Lines
- *December 2018* – Seasonal twice-weekly service to Long Beach (LGB) on JetBlue Airways
- *June 2018* – Saturday seasonal service to Los Angeles International (LAX) on American Airlines
- *June 2018* – Increased to daily year-round service to San Francisco and Los Angeles on United
- *June 2018* – Increased to daily year-round service to Portland on Alaska
- *June 2018* – Increased seasonal daily service to Newark (EWR) on United Airlines
- *June 2017* – Seasonal daily service to Chicago O'Hare (ORD) on American Airlines

Community Incentives Offered:

- *Marketing* – In 2016, the Bozeman CVB, Big Sky CVB, Yellowstone Country, and the Big Sky Resort provided $210,000 (along with $100,000 in federal funds from a $750,000 SCASDP grant) for marketing efforts to advertise seasonal service on American Airlines to Dallas-Fort Worth International Airport (DFW).
- *Revenue Guarantee* – In 2012, the Bozeman Area Chamber of Commerce, Yellowstone Club, Big Sky Resort, and Moonlight Basin resort offered United Airlines a $1.638 million ($950,000 SCASDP and $688,000 in local funds) MRG for its flight to Newark Liberty Airport (EWR).

  In 2016, the Yellowstone Club, Big Sky Resort, and Gallatin Foundation Inc. (a Dallas-based Montana ranch sales company) raised $650,000 to match $650,000 in federal funds (from a $750,000 SCASDP grant for a $1.3 million revenue guarantee for American Airlines service to DFW. The flight used none of the MRG in the first year.

Airport Incentives Offered:

- *Common Use Space* – The airport offers common-use ticketing space for ticket counters and baggage claims
- *Landing Fees* – All landing fees are waived on new flights for up to one year, up to $30,000

AIR SERVICE BACKGROUND

Bozeman's airport and community aggressively court air service from large hubs by maintaining a low-cost structure for airlines, pursuing revenue guarantees and fiercely marketing the region to high-yield metropolitan areas. The region sees air service as essential to its unprecedented economic expansion driven by the tourism industry. Big Sky, a ski community an hour southwest of Bozeman, is expecting $1 billion in development over the next several years. Area ski resorts have long-facilitated revenue guarantees with airlines, but stronger collaboration among stakeholder groups has strengthened community air service, contributing to the airport's rapid growth.

USING LOW AIRPORT COSTS AND OPERATING FEES TO INCENTIVIZE SERVICE

The overarching philosophy at BZN is that the best incentive the airport can offer to attract and retain new air service is to remove barriers to entry and keep the cost to airlines low. For example, the airport allocates baggage claim and ticket counters as common space and charges airlines based on the number of passengers they serve. Carriers with fewer than 35,000 annual passengers pay around $3.25 per passenger, while airlines with more passengers pay closer to $2.45. The airport generates about $2.55 per passenger from airline fees and expenses, among the lowest costs in the country. It also manages signage and pays for ticket counter and gate inserts and does not charge airlines for access to the flight information display system.

"[Low costs are] every day, every flight, and every airline. Ongoing forever. We really basically say, give us a try. If it doesn't work, no harm, no foul," one airport leader told researchers. "And for the most part it has worked." At BZN, the minimum lease for an airline is 60 days, which reduces the initial financial burden to a carrier looking to start service. Although they are unable to control the revenue airlines generate from flights, Bozeman officials take pride in keeping passenger costs low and eliminating some of the economic risks facing airlines. The low per passenger costs to airlines are partially offset by high revenue per passenger from concessions (over $12 per passenger). Officials point to the 1,400-mile average flight distance as one reason why the geographically remote airport generates large sums of revenue from high food and beverage sales.

SKI RESORTS AND COMMUNITY COLLABORATE TO SECURE REVENUE GUARANTEES

Air service at BZN has benefited from MRGs provided by the area's large resorts, including Big Sky, and second home communities such as the Yellowstone Club and Bozeman Hoteliers through a Tourism Business Improvement District (TBID) self-imposed room tax. Specifically, Big Sky Resort has supported MRGs dating back to the 1970s with service to Minneapolis on Northwest Airlines. (Interestingly, Northwest Airlines was one of the earlier investors in the Big Sky Resort.) Big Sky also provided MRGs to Horizon Air for nonstop service to Seattle in the 1990s. (Previously, flights to Seattle stopped in Spokane.)

In the mid-2000s, ski resorts sought the local business community's assistance in funding revenue guarantees. The community and Big Sky Resort collaborated on a proposed $150,000 revenue guarantee for year-round service on Frontier to Denver. Local officials emphasized that the proposed service would serve fliers year-round, winning over segments of the local business

community unconnected to tourism. Although Frontier announced the new service in 2007 and began service in 2008, the revenue guarantee effort did not culminate when Frontier entered bankruptcy later that year.

Beginning in 2009, airport officials encouraged other Bozeman community leaders to take a more significant leadership role in air service development efforts. Yellowstone Country, a state-funded regional tourism initiative, the Bozeman TBID and the Yellowstone Club, a luxury real-estate entity, joined Big Sky Resort in contributing funds toward a revenue guarantee agreement with United Airlines for seasonal service to Newark Liberty International Airport (EWR). The deal was supported by $950,000 in funds from a 2011 Small Community Air Service Development Program grant and more than $680,000 in local matching support. The flight used $740,000 in first year and the flight was sustainable in its second year. BZN returned over $800,000 to DOT.

In 2014, BZN achieved an even broader coalition of support for a proposed flight to DFW via American Airlines. Local convention and visitors bureaus, ski resorts, and economic development groups teamed up to match the $650,000 in federal funding allocated for a revenue guarantee through the airport's Small Community Air Service Development Program. In 2016, American Airlines announced seasonal service to DFW from BZN. In its first year, the flight achieved revenue targets and no funds were allocated from the revenue guarantee fund.

FORGING CONNECTIONS TO BETTER LEVERAGE MARKETING DOLLARS

In 2017, the Bozeman Convention and Visitors Bureau, Bozeman TBID, Big Sky Resort, and the Yellowstone Club merged marketing efforts to bolster air service to regions with ongoing revenue guarantees and marketing support. For instance, since Bozeman's revenue guarantee for the DFW flight ends in May 2018, the organizations have focused marketing attention on Texas. "We make sure that the Revenue Guarantee group and the Marketing group are going after the same goals," an airport official told researchers. "You don't need marketing in San Francisco if you need marketing dollars to support a new service in Dallas and you don't want to go after a market that can't survive on its own." Communication between major ski resorts and tourism partners has made it easier for Bozeman to accomplish successful revenue guarantees. Airport officials point to successful marketing as a reason why the flight will likely continue once the MRG expires.

Greenville-Spartanburg International Airport (GSP)

KEY ATTRIBUTES

Hub Designation: Small hub
Airport Governance: Greenville-Spartanburg Airport District
Enplanements (2018): 1,133,165 (+7.81% over 2017)
Sample of Recent Flight Announcements:

- *November 2019* – Daily nonstop service to Baltimore (BWI) on Southwest Airlines
- *June 2019* – Daily, nonstop service to Denver (DEN) on United Airlines

- *May 2019* – Increased frequency to Denver (DEN) on Frontier Airlines and increased frequency to Dallas (DFW) on American Airlines
- *December 2018* – Twice daily nonstop service to Miami (MIA) on American Airlines
- *September 2018* – Twice weekly service to Denver (DEN), Las Vegas (LAS), and Orlando (MCO) on Frontier Airlines. Seasonal twice weekly service to Tampa (TPA) on Frontier Airlines.
- *July 2018*- Increase from one to three daily nonstop flights to New York (LGA) on Delta Air Lines
- *July 2017* **–** Three daily flights to Chicago O'Hare on American Airlines

Airport Incentives Offered:

- *Marketing* – The airport offers $250,000 in marketing support for GSP's top 30 O&D markets or a new hub destination (based on DOT O&D data)
- *Fee Waivers* – Landing fees, rental fees for ticket counters and office space, airport security fees, turn costs, and rent for common use areas waived for 12 months for GSP's top 30 O&D markets or a new hub destination (based on DOT O&D data)
- *Ground Handling* – GSP provides fueling for air carriers and can waive flowage fees
- *Airport Equipment* – The airport built out OPS space to accommodate Southwest Airlines at a cost of $1.1 million

Community Incentives Offered:

- *Marketing*- Community organizations including the Upstate Alliance, Greenville County, City of Greenville, Clemson University and local businesses provided over $1.2 million in marketing funds for Southwest Airlines.

AIR SERVICE BACKGROUND

South Carolina's Upstate region is home to more than 465 international companies, making strong air connectivity essential to the region's economic growth. Greenville-Spartanburg launched a $6 million incentive package to attract service from Southwest Airlines to several destinations including BWI, MDW, HOU, MCO and BNA in March of 2011. Five years later, Southwest Airlines pulled all flights from Greenville-Spartanburg except three daily flights to Atlanta as the carrier changed its approach to small airports. GSP is growing rapidly and airport officials have created new ways to cut costs for carriers including providing the fueling for air carriers, generating de facto incentives.

ATTRACTING SOUTHWEST SERVICE TO GSP

Greenville-Spartanburg lured Southwest Airlines to South Carolina using a package of incentives organized by a grassroots community effort. Leaders obtained letters of support from 200 businesses, and entities ranging from local governments to Clemson University collectively contributed over $1 million in marketing funding. Despite Southwest's decision to withdraw key flights to most of the destinations previously served from the airport in April 2016, Greenville-Spartanburg officials are still confident in the value of community incentive programs and are willing to use them again to expand economic opportunity for the community. "I think folks are finally understanding that it's an economic development tool," a senior airport official said. Despite the setback with Southwest, community air service task force members are discussing

future incentive packages, including MRGs, to lure flights to Boston, Toronto, and other strategic European markets such as Munich to better serve the local business community.

DEVELOPING INNOVATIVE INCENTIVES AND BUILDING A NEW TERMINAL

Greenville-Spartanburg has simultaneously expanded its incentive program while also overhauling facilities. For instance, the airport has sought to increase the services it offers to airlines, such as fueling. This allows Greenville-Spartanburg to waive the fees as part of incentive packages. In addition, airport officials decline to use a passenger facility charge, arguing that consistently low entrance costs offer their own form of incentive. The airport has also worked to keep its cost per enplanement (CPE) at approximately $6.50, below the average for small and nonhub airports. "We can effectively give an airline a zero-cost entry into GSP," an airport leader told researchers. The low entrance costs help Greenville-Spartanburg compete against other airports for air service.

Despite the expansive incentive packages and low fees, the airport recently renovated its terminal. Greenville-Spartanburg used millions of dollars in savings, federal grant monies, and shrewd cost-management to renovate the terminal without taking on debt. In interviews, officials stressed the airport's focus on return on investment analysis regarding building design. Since enplanements stayed at a high level following the terminal project, fees only increased $0.25 per enplanement. GSP was able to offset the reduction of Southwest Airlines service by attracting other air service and a maintenance base for PSA Airlines, which further enhanced air service at the airport. Greenville-Spartanburg illustrates how airports can undergo major construction projects to accommodate enhanced air service while still maintaining low costs and broad incentive programs.

COMPETITION PREVENTS THE DEVELOPMENT OF A STATE AIR SERVICE INCENTIVE PROGRAM

South Carolina is among a growing number of states that is considering a state air service incentive program, and airport officials believe that economic analysis metrics illustrate the value of a possible air service incentive program for the state. This is not the first time South Carolina has discussed a statewide incentive program. Prior to Southwest Airlines announcing that it would come to Greenville-Spartanburg in 2011, airport officials were lobbying South Carolina lawmakers to create a state incentive program with $15 million available for communities to attract air service. At the time, Southwest Airlines was also discussing starting service at two other South Carolina Airports: Columbia Metropolitan Airport (CAE) and Charleston International Airport (CHS).

During the competition to lure the airline, Southwest Airlines informed CAE that it would no longer be considered for the service and its decision was down to GSP and CHS. The bill proposing the $15 million in state incentive funding, H.4343, passed the South Carolina House and was awaiting Senate passage when Southwest Airlines made their announcement. Following the announcement, legislators from Columbia stalled and ultimately killed the bill in the Senate. Despite the lack of a state incentive program, Southwest Airlines started service at both CHS and GSP in 2011.[40]

[40] Bird, Allyson. A little Southern hospitality helped draw Southwest. *The Post and Courier*. May 11, 2010.

Burlington International Airport (BTV)

KEY ATTRIBUTES

Hub Designation: Small hub
Airport Governance: City of Burlington
Enplanements (2018): 659,356 (+14.07% over 2017)
Sample of Recent Flight Announcements:

- *June 2019* – Seasonal Saturday service to Denver (DEN) on United Airlines
- *May 2019* – Three times weekly service to Denver (DEN) on Frontier Airlines
- *February 2019* – Seasonal twice weekly service to Orlando (MCO) on Frontier Airlines (returns November 2019)
- *June 2018* – Seasonal nonstop service to Chicago O'Hare (ORD) on American Airlines

Airport Incentives
Domestic Routes – Landing fees, common use fees, and boarding bridge fees are waived for the first two years of operation. The airport also provides $50,000 in marketing support.
International Routes – Landing fees, common use fees, and boarding bridge fees are waived for the first four years of operation. The airport provides more than $50,000 in marketing support.

Community Incentives
$550,000 MRG offered as part of unsuccessful SCASDP grant application ($450,000 from pending SCASDP application and $100,000 from State of Vermont) for service to Denver.

BACKGROUND

Burlington International Airport officials view air service as critical to Vermont's economic development and growth. The state's Department of Tourism and Marketing has used discounts at hotels and other properties to attract transborder airline passengers from Canada as an incentive. The airport's proximity to Plattsburgh International Airport (PBG) places it in a competitive air service market with both airports marketing service to passengers in the Montreal market looking for lower fares available in the United States.

COMPETING WITH PLATTSBURGH, NEW YORK, FOR INTERNATIONAL SERVICE

BTV is located 90 minutes from PBG and works to attract Canadian passengers in the Montreal metropolitan area. Although the airports are only separated by Lake Champlain, airport officials argue that the two airports do not directly compete for Montreal's passengers. "[Plattsburgh's] forte is Montreal and maybe the western townships," one airport official said. "Our strength is Montreal's eastern townships."

However, the two airports do appear to compete for service to warm-weather vacation destinations. "We know that our area goes to the warmer destinations," an airport official said. For instance, Plattsburgh offers nonstop flights to Fort Lauderdale via Allegiant Air and Spirit Airlines, and to Orlando Sanford (SFB) on Allegiant, while Burlington lost service to SFB on Allegiant in 2017. BTV officials have sought to strengthen the airport's offerings by seeking new

service to Florida and obtained seasonal service on Frontier Airlines to Orlando International (MCO) starting in February 2019 and returning in November 2019.

STATE TOURISM DISCOUNTS FOR AIRLINE PASSENGERS

In January 2018, Vermont Governor Phil Scott announced a promotion created by the state's Department of Tourism and Marketing in which 20 hotels throughout the state offer Porter Airlines passengers a 1:1 exchange rate on the U.S. and Canadian dollar. The promotion adds up to 20 to 30 percent in lodging discounts at area hotels. In addition, local ski resorts offer deals on lift tickets exclusive to Porter Airlines passengers. The airline provided seasonal nonstop flights from Toronto to Burlington since 2011, but did not offer the service in the 2018-19 winter season due to demand and ground handling logistics.[41] The Porter-related promotions comprise an integral part of the state's broader tourism promotion effort in Canada. Another element of Vermont's tourism outreach is its annual $150,000 allocation to BTV to market new air service. The state is a lead partner on BTV's 2018 Small Community Air Service Development Program application.

PARTNERING WITH DESTINATION AIRPORTS TO ENHANCE INCENTIVE PACKAGES

BTV succeeded in attracting new westbound service to Denver (DEN). As part of this effort, BTV submitted a SCASDP grant application (which was ultimately unsuccessful) for $450,000 to match $100,000 in funds from the State of Vermont for a MRG for service to Denver. In their application, officials from BTV obtained a letter of support for their proposal from city officials in Denver. Additionally, in their pitches to airlines at JumpStart and Routes, BTV officials highlight both the BTV and DEN incentive packages as a way to reduce the cost and risk for new service in their market. In January 2019, Frontier and United each announced BTV-DEN service, with Frontier's three times per week service scheduled to begin in May 2019 and United's weekly service beginning in June 2019. Interestingly, neither BTV-DEN route was supported by a MRG due to the strength of the demand between the two markets.

Billings International Airport (BIL)

KEY ATTRIBUTES

Hub Designation: Nonhub (small hub prior to 2017)
Airport Governance: City of Billings
Enplanements (2018): 440,465 (+6.11% over 2017)
Sample of Recent Flight Announcements:

- *May 2019* – Three times weekly service to Denver (DEN) on Frontier Airlines
- *July 2017* – Seasonal flight to Chicago O'Hare (ORD) through September on United Airlines
- *June 2017* – Flight to Dallas-Fort Worth (DFW) on American Airlines

[41] The airline has stated that it hopes to resume the service for the 2019-20 winter season.

Community Incentives Offered:

- *Marketing* –In 2016, the community raised $100,000 in marketing support for service to DFW (to match a $750,000 SCASDP grant)
- *Revenue Guarantee* – In 2016 the community raised $500,000 for a MRG for American Airlines service to DFW (to match a $750,000 SCASDP grant)

Airport Incentives Offered:

- *Landing Fees* – All landing fees are waived on new flights for up to one year

AIR SERVICE BACKGROUND

Despite their historical reluctance to participate in community incentive programs, Billings officials and business leaders led an effort to raise $600,000 for marketing and a MRG for nonstop service to DFW. The revenue guarantee was part of a $1.35 million incentive package, partially funded by a $750,000 Small Community Air Service Development (SCASDP) grant in 2016.

OVERCOMING INTERNAL CONCERNS REGARING INCENTIVES

In the past, community members expressed skepticism about offering a revenue guarantee to an airline, which they believed had already found plenty of ways to generate revenue. Through conversations with the airport's consultant, community leaders realized that a guarantee was necessary to maintain both the region's air service and economic competitiveness relative to other Montana communities such as Bozeman.

"[W]e stepped back, looked at it and said regardless of our position, Bozeman's going after it, Missoula's going after it and they're having success, so for us to be successful we had to apply for that grant and we had to guarantee American," a member of the area's air service taskforce told researchers. The air service committee was formed through a collaboration between the city's chamber of commerce, the economic development corporation, and regional tourism groups. Billings saw its SCASDP application as an opportunity to build on the area's already strong business ties to Dallas, a city known for its connection to the energy industry– then a key sector in Montana's economy. Billings officials were also won over by the opportunity to recruit workers from talent-rich Dallas.

OBTAINING REVENUE GUARANTEE FUNDS FROM A COLLECTION OF SMALL BUSINESSES

In conversations with researchers, stakeholders pointed out that in other parts of the state, ski resorts contribute significant funding to air service development efforts. Without a single entity willing to provide a majority of the community matching funds, the Billings Chamber of Commerce and the air service taskforce sought funding from a variety of small businesses. They pointed out the grassroots effort was different than those in many competing markets. "We had 30 businesses or so we had to knock on doors to get the matching money, where [a competitor] made two phone calls," a community development leader commented. Although some local corporations saw their contribution to the revenue guarantee as a business-centered investment, others saw it as a way to support the city. The initiative illustrated that business communities composed of mainly small and regional businesses could have success in achieving a MRG.

LOCAL ECONOMIC CONDITIONS AND REVENUE GUARANTEES' PERFORMANCE

Officials in Billings expressed frustration over regional economic problems depressing load factors on the DFW flight and prompting unexpectedly high payouts to American Airlines. For instance, the local air service taskforce pointed to an intense wildfire season, falling commodity prices, and a sliding oil industry as key headwinds undermining the region's economy in 2017. Some members speculated about lesser tourism traffic following record crowds at nearby parks during the National Park Service's centennial celebration in 2016. Local officials expressed concern that the flight would continue to underperform into the next year. Since the 2017 regional downturn occurred at a time in which the U.S. economy was humming, officials made certain to discuss local trends with American Airlines to provide additional context for the flight's performance.

During negotiations with American Airlines, Billings officials emphasized that the revenue guarantee payout be done on a quarterly basis. Local leaders thought the quarterly structure would effectively limit large payouts based on seasonal variation. "[Quarterly payouts] allow us to take care of some of our peaks and valleys," a regional economic development expert said

CONFUSION WITH FAA RULES ON AIRPORT INVOLVEMENT ON REVENUE GUARANTEES

Business leaders in Billings were confused about how FAA's revenue use and exclusive use policies applied to certain kinds of incentives and the airport's ability to coordinate incentives with community organizations.

"If you have the director, who by the letter of the law is not supposed to be involved in the incentive discussion, that to me is counterproductive, which is interesting because the city is the one that has to submit the SCASDP grant application," one community member said. "How could we not coordinate to use matching funds?" The taskforce expressed frustration, saying that a program intended to promote cooperation between the airport and the community should not restrict communication between the entities.

Daytona Beach International Airport (DAB)

KEY ATTRIBUTES

Hub Designation: Nonhub
Airport Governance: Volusia County, FL
Enplanements (2018): 367,152 (+5.97% over 2017)
Sample of Recent Flight Announcements:

- *May 2019* – Seasonal service to New York (LGA) on American Airlines
- *January 2019* – Seasonal twice weekly service to Toronto (YYZ) on Sunwing Airlines and daily nonstop service to Fort Lauderdale (FLL) on Silver Airways[42]

[42] Silver Airways announced service to FLL will cease on July 1, 2019.

Airport Incentives:

- *Daily Frequency for a Premium Market – New Carrier –First Year** –$250,000 for general airport advertising; $1.19 in landing fees waived per 1,000 pounds; terminal rent waived; ramp handling service fees waived; six months of free parking for passengers using the new service; $1,000 per month in utility credit; $25,000 in facility renovation credit
- *Daily Frequency for a Premium Market – New Carrier – Second Year* – $10 in rental credits per enplaned passenger
- *Daily Frequency for a Premium Market- Incumbent Carrier – First Year** –$250,000 in annual airport advertising; one year of landing fees waived at $1.19 per 1,000 pounds; $10 per enplaned passenger in rental credit; ramp handling services provided at no cost to airline; six months of free parking for passengers using the new service; $1,000 per month in one year utility credits
- *Daily Frequency for a Premium Market – Incumbent Carrier – Second Year* – $10 in rental credits per enplaned passenger
- *Non-Daily Frequency for a Premium Market – Incumbent Carrier – First Year*** – $250,000 in general airport advertising; $1.19 in landing fees waived per 1,000 pounds; $10 rental credit per enplaned passenger; ramp handling fees waived; six months of free parking for passengers using new service
- *Non-Daily Frequency for a Premium Market – Incumbent Carrier – Second Year* –$10 per enplaned passenger in rental credits
- *Non Daily Frequency for a Premium Market – New Carrier – First Year***– $250,000 in general airport advertising; $1.19 in landing fees waived per 1,000 pounds; terminal rent waived; free ramp handling services; six months free parking for passengers using the new service; $1,000 per month in utility credit
- *Non-Daily Frequency for a Premium Market – New Carrier – Second Year* – $10 in rental credits per enplaned passenger
- *Non-Daily Frequency for a Premium Market – Incumbent Carrier – Seasonal Only**** – $75,000 in new destination city advertising; $250,000 in in annual airport advertising; landing fees waived for 12 consecutive months; $10 per enplaned passenger in rental credits; ground handling services fees waived; Six months of free parking for passengers using the new service; $1,000 in utility credits per month for one year
- *Non Daily Frequency for a Premium Market – New Carrier – Seasonal Only**** – $75,000 in new destination city advertising campaign; $250,000 in annual airport advertising; landing fees waived for 12 consecutive months; waiver of terminal rent; free ground handling services; six months free parking for passengers using the new service; $1,000 monthly utility for one year; $25,000 in facility renovation credits

  ** The service must be operated for 12 consecutive months.*

  *** The service must be operated for 12 consecutive months and at least three times a week.*

  ****The service must be operated for at least four consecutive months and at least three times a week. Valid for the first 12 month period only.*

Community Incentives:

- *Daily Frequency for a Premium Market – New Carrier –First Year** – $300,000 from county-provided revenue guarantee; $200,000 for local marketing and advertising campaign for new destination; $400,000 for new destination marketing with the destination convention and visitors bureau
- *Daily Frequency for a Premium Market- Incumbent Carrier – First Year** – $300,000 from county revenue guarantee; $150,000 for local marketing advertising campaign for new destination; $400,000 for new destination city marketing campaign with local convention and visitors bureau
- *Non-Daily Frequency for a Premium Market – Incumbent Carrier – First Year*** – $150,000 in local marketing for new destination; $300,000 in destination marketing campaign with local convention and visitors bureau
- *Non Daily Frequency for a Premium Market – New Carrier – First Year***– $150,000 in local marketing campaign funding for new destination; $300,000 in in new destination city marketing with local convention and visitors bureau

BACKGROUND

In 2016, Daytona Beach air service officials, Volusia County government, and the local business community implemented a $2.3 million incentive package that lured JetBlue to launch nonstop service from New York's John F. Kennedy International Airport (JFK) to Daytona Beach International Airport.[43] The incentive program included $1.14 million in fee waivers, a $400,000 marketing plan, a $300,000 revenue guarantee, and a $493,000 travel bank. The latter portion involved companies pledging to spend certain amounts on New York flights. It caused problems for air service officials as banks refused to handle deposits, companies changed leadership, and corporate procedures made the contribution process difficult for leading partners. Although the incentive plan was ultimately successful in attracting service, officials expressed a strong reluctance to use a travel bank again.

TRAVEL BANK AS AN INCENTIVE FOR NONSTOP SERVICE TO JFK

Early in the campaign to attract JetBlue to Daytona, local leaders sought to highlight the business community's strong support for a New York flight. "We took the approach that if we're going to get JetBlue," one airport official said, "The community has got to do it." The local chamber of commerce solicited support from the region's top companies to build a travel bank. The initiative was portrayed as a down payment on the amount local businesses would spend on flights to New York.

The community was unable to find a bank or credit union willing to manage the travel bank for local companies, causing air service officials to scramble to find other options. The financial institutions were afraid the travel bank would violate federal financial regulations. Experts at DAB asked local companies to make the pledge in the form of a group sales purchase directly with the airline. However, this put more responsibility on JetBlue to track travel pledges and usage. "They were not in favor of getting involved as that was a lot of manual work on JetBlue's side," a county official said. "They didn't like having to get involved with the travel bank that we

[43] JetBlue ended its DAB-JFK service in January 2019.

promised." Leaders in Daytona Beach felt that the extra tracking and accounting work JetBlue did on the travel bank may have diminished the overall value of the incentive.

Local air service officials expressed frustration at some companies' unwillingness to follow through on commitments as they were made two years prior to the commencement of service. For instance, a change in management led one company to drop out of the coalition of local businesses supporting the travel bank initiative. That move alone cost $50,000 from the initiative. Another company had to send reports from the separate organization that handles its travel bookings. The airport communicated the business's spending on the New York flight to the airline each quarter so JetBlue could see that the pledged amount was satisfied. As businesses made pledges several years in advance of the service commencing, many were unaware if the service that was actually secured would fit their business needs.

ADVERTISING COMMUNITY INCENTIVES AS PART OF BROADER PACKAGE

DAB is one of the only airports in the country that includes both community and airport incentives on the plan's marketing materials. For instance, DAB places community-funded revenue guarantees alongside airport-funded incentives such as fee waivers. The practice provides airlines with a better idea of the total amount in assistance they can expect from the community for each type of flight.

AFTER THE TRAVEL BANK: LOOKING FORWARD

Despite problems with the travel bank, leaders in Daytona Beach understand the criticality of incentives in preserving air service at the airport. "If the community can't come up and raise money in creative ways and say we will underwrite this, you are going to lose commercial service at these nonhub airports," a senior airport official told researchers. "This is a David and Goliath fight that we have." The viewpoint is indicative of concerns voiced by officials at nonhub airports throughout the country that small communities will not be able to sustain competitive air service without multi-million dollar incentives packages similar to the one launched by Daytona Beach. However, DAB was recently awarded the *OAG* Trailblazer award for the small airport with the most routes added over the past year. Airport officials credit their strong incentive program as a major enabler of their successful addition of 3 new routes between 2017-2018 and 2018-2019.

Plattsburgh International Airport (PBG)

KEY ATTRIBUTES

Hub Designation: Nonhub
Airport Governance: Clinton County, NY
Enplanements (2018): 119,819 (-14.05% from 2017)
Sample of Recent Flight Announcements:

- *August 2018* – Daily service to Washington Dulles (IAD) on United Airlines (Essential Air Service Route).

Airport Incentives Offered:

- *Airline Incentive Policy adopted in July 2018 – Policy offers a variety of incentives consistent with FAA guidance including but not limited to marketing support and fee waivers.*

Community Incentives Offered:

- *Community Marketing* – In 2013, the community placed $200,000 in Small Community Air Service Development grant funds and $50,000 in matching funds toward marketing Essential Air Service (EAS) to Boston via PenAir. The local chamber of commerce has allocated $300,000 in marketing assistance over the past eight years through its Takeoff Fund.

BACKGROUND

Over the past decade, Clinton County and the North Country Chamber of Commerce have worked to transform the site of the Plattsburgh International Airport, located in Upstate New York, from a closed air force base to an economic development and air service hub. The community, which is only 75 minutes from Montreal, brands itself as the Canadian city's American suburb. The airport has sought to make inroads in the Montreal air service market by offering low fare flights to Florida and South Carolina and offering airlines dramatically lower fees per passenger than Montreal. Although the airport does not have an approved incentive plan, the chamber of commerce's Takeoff Fund has provided marketing assistance to airlines launching new flights and destinations. In addition, airport leaders view outreach as an integral part of cultivating long-term community support for its EAS flights and other goals.

SUPPORTING A COMMUNITY THAT MOVES: CHAMBER SELLS AIR SERVICE DEVELOPMENT

The North Country Chamber of Commerce pools money from businesses including hotels, banks, and other large employers to generate a fund designated for marketing new nonstop flights at the airport. "Our belief is that where things move is where prosperity occurs," a local economic expert said. "Therefore, we put a great emphasis on movement of all kinds whether that be highways, border crossings, and broadband." Local businesses believe that infrastructure investments benefit the entirety of the local economy.

The chamber has extended marketing assistance to Allegiant Air and Spirit Airlines after each added new service. The group was frustrated after it provided Allegiant Air with $55,000 in marketing assistance for a nonstop flight to Las Vegas (LAS) when, despite high load factors, the airline eliminated the route within a year because of logistical difficulties. Officials in Plattsburgh said they were unwilling to use the Takeoff Fund to incentivize additional service from Allegiant.

In addition to cash, the chamber of commerce provides the airport with marketing support. For instance, chamber officials have accompanied airport officials to conferences and participated in conversations with airlines. The chamber of commerce also employs its database of over 400 businesses and attends travel shows throughout Montreal to sell the region's air service options.

In early 2017 the County contracted with a private air service development firm to lead the effort to secure regional jet service with its EAS contract. The company created strong business cases that it presented with the Airport to potentially-interested carriers. The effort resulted in the Airport securing non-stop service to United's hub at Washington Dulles, operated by SkyWest. Community members are excited by the new EAS flight to Washington, D.C. Stakeholders believe that the flights will provide access to more business destinations than the Boston route used previously.

SELLING PBG AS THE U.S. ALTERNATIVE TO MONTREAL-TRUDEAU INTERNATIONAL AIRPORT (YUL)

A key component of the region's broader economic development strategy is to attract Canadian businesses and investment. Plattsburgh officials have sought to capitalize on YUL's high costs per enplaned passenger. According to PBG officials, YUL charges airlines more than $30 per enplaned passenger, while Plattsburgh charges $3.50 per enplaned passenger. The airport's low costs persist even as it has renovated its facilities and expanded its terminal. Officials in Upstate New York believe that their greatest incentive is keeping costs low for airlines.

When asked about the region's willingness to engage in a MRG, officials were strongly opposed. "We have never been willing to do that," one economic development practitioner said. "We believe that in our market with our low costs there should not be any reason to do that."

The airport also believes that it benefits from its favorable relative proximity to Montreal vs. other American airports. Its closest competitor, Burlington International Airport (BTV) in Vermont is over 30 minutes further away from Montreal than PBG, making Canadians less likely to go there for lower cost flights, given similar service levels. Additionally, with the loss of Allegiant Air service from BTV to SFB in 2017, PBG became the exclusive link between the North Country and Florida for Canadians.[44]

EFFECTIVE OUTREACH AND MAINTAINING COMMUNITY SUPPORT FOR AIR SERVICE

PBG has cultivated a strong partnership with the North Country Chamber of Commerce. The relationship is built on the high value the airport places on strengthening community relations. Senior officials from the airport and chamber of commerce meet weekly to discuss business development efforts.

"The airport is very much in the public eye," one Clinton County official said. The airport maintains visibility through staff serving on community committees, speaking at local groups such as the Rotary Club, and attending chamber of commerce events. However, some partnerships are of especially high-value to the county. For instance, a senior airport official who spoke with researchers noted that he serves on a regional economic development advisory committee tasked with attracting millennials—a demographic that flies frequently—to the region. He stressed the importance of interacting with various organizations in order to maintain a public dialogue on the airport and to better gauge what new routes could best serve the community.

[44] Frontier has since started flying from BTV to MCO (as of February 2019).

Friedman Memorial Airport (SUN)

KEY ATTRIBUTES

Hub Designation: Nonhub
Airport Governance: Friedman Memorial Airport Authority
Enplanements (2018): 94,303 (+8.84% over 2017)
Sample of Recent Flight Announcements

- *December 2018* – Daily, seasonal service to Los Angeles (LAX) on United Airlines.[45]
- *December 2017* – Weekly, seasonal service to Chicago O'Hare (ORD) on United Airlines

Airport Incentives Offered:

- *Landing Fees* – Landing fees are waived for the first 12 months of new service (not regularly offered, but used as match for SCASDP grants)

Community Incentives Offered:

- *MRG* – $500,000 for service to Portland on Alaska Airlines (SCASDP grant)
  $500,000 for service to Denver on United Airlines (initially funded through SCASDP grant)
- $1.2 million annual fund from Fly Sun Valley Alliance for MRGs to Seattle on Alaska Airlines, and to Denver, San Francisco, Los Angeles and Chicago on United Airlines
- *Community Marketing* – $160,000 in destination marketing as local match for $500,000 SCASDP grant for service to Portland on Alaska Airlines in 2016
- $175,000 in destination marketing as local match for $500,000 SCASDP grant for service to Denver on United Airlines in 2013
- $1.3 million annual fund for Visit Sun Valley for destination marketing

BACKGROUND

The Idaho communities of Ketchum, Hailey, and Sun Valley support local air service attraction efforts through MRGs and marketing support funded through a local-option tax, while also pursuing grass roots efforts to raise funds from private businesses. More than 75 percent of voters in each of the three communities approved the local option tax renewal in May 2017, and the tax is expected to raise $2.5 million in 2018. The fund is administered by the Sun Valley Air Service Board, created through a joint powers agreement between Ketchum, Hailey, and Sun Valley. The funding is split evenly between Visit Sun Valley, a local convention and visitor's bureau responsible for flight and destination marketing, and Fly Sun Valley Alliance, a nonprofit dedicated to air service development at Friedman Memorial Airport.

THE CAMPAIGN: SELLING A HIGHER TAX RATE AS A TOOL FOR DEVELOPMENT

Officials in Central Idaho pursued a 1 percent local option-sales tax by forming a joint powers agreement through which three small cities pooled earnings from an additional sales tax levied on items chosen by each municipality. For instance, the city of Hailey places the sales tax on

[45] This service was added after Alaska Airlines ended its service to LAX.

rental cars and lodging while the cities of Ketchum and Sun Valley impose the tax on lodging, restaurants, and retail. The initiative was popular with voters because much of the money would be raised by visitors' purchases. In addition, local organizers directed that the tax would be in place for only five years, making the project accountable to the community. Voters could decide whether to approve a renewal levy after air service development officials had time to add nonstop destinations.

Officials frequently encountered frustration from residents confused by why the region sought to subsidize multibillion dollar companies. Leaders responded by focusing attention on the competitive aspects of attracting air service. "We had a lot of research and said this is how it works in our seasonal resort market," an advocate for the program said. "If you want the air service you have to guarantee that they will not lose money. Otherwise, they will go somewhere else." Officials found this approach was particularly useful when comparing Sun Valley's air service to other resort communities such as Aspen and Steamboat Springs. In November 2012, the tax measure achieved the necessary 60 percent majority in two of the three communities and soon passed in the other.

During a renewal campaign in 2017, airport officials highlighted the tax's role in securing MRGs for flights to Los Angeles, San Francisco, Seattle, Portland,[46] and Denver. Officials believed that it was key for them to place the issue on the ballot in May, when there were no other tax issues. The renewal approved by voters will last through 2023.

COMMUNITY COLLABORATION RESULTS IN AN AIR SERVICE DEVELOPMENT PROGRAM

Hailey, Ketchum and Sun Valley formed the Sun Valley Air Service Board to approve MRGs and marketing budgets for air service development efforts sponsored by Fly Sun Valley Alliance and Visit Sun Valley. A representative from each municipality sits on the board, but each community's voting share is determined by the amount of money it contributes through the local-option tax. The cities evenly divide administrative costs such as accounting and other expenses.

Fly Sun Valley Alliance and Visit Sun Valley closely cooperate on marketing. Fly Sun Valley Alliance pays for the promotional efforts in the local community and Visit Sun Valley pays for the promotional outreach in destination cities. Fly Sun Valley Alliance ensures that Visit Sun Valley's initiatives are directed toward nonstop markets and those that have high rates of connecting to Sun Valley. The two groups work together to identify potential cities for nonstop service. The Fly Sun Valley Alliance has a board made up of city officials and private sector partners. Sun Valley Resort also sits on the board and contributes to air service by providing direct financial support for air service guarantees and in-kind assistance to the Fly Sun Valley Alliance.

GRASSROOTS FUNDRAISING FOR AIR SERVICE

Fly Sun Valley Alliance works to ensure that almost all local-option tax dollars are directed toward revenue guarantees. It has partnered with Sun Valley Resort to launch a series of fundraisers to defray administrative costs linked to air service development. In one program, a local board of realtors encourages members to donate an amount to the Fly Sun Valley Alliance.

[46] Alaska Airlines ended its SUN-PDX service for winter 2018-19.

The members see air service as important to them, but do not contribute to the sales tax through their businesses. Realtors that donate receive in-kind benefits donated by the Sun Valley Resort. In addition, the resort hosts Ski for Air Service Day in January each year. Local ski shops sell tickets and the revenue from sales benefits the Fly Sun Valley Alliance.

7. Modeling the Effects of Air Service Incentives on Airport Activity and Regional Economies

Introduction

This section of the report contains an empirical analysis of the relationship between an airport's use of air service incentive programs and the scale of economic impacts that such programs may have for the communities that airports serve. This research is conducted in two distinct phases. First the analysis uses recent historical data to estimate the extent to which the quantity and quality of air service activity at airports can be linked to an airport's use of air service incentive programs to support increases in an airport's level of air service activity. In this component of the analysis, the data is used to address the question "What is the average impact of an airport's use of one or more air service incentive (of any type) on an airport's outgoing flights, its departing seats, and its quality of service, as measured by a Quality of Service Index (QSI)?"

For airports and especially communities, the additional airport activity that might be the result of an air service incentive program is not the ultimate objective of sponsoring and funding incentive programs. Such incentives are offered to increase the contributions of air service and the region's airport to regional economic activity and prosperity. New air services increase or improve a community's links to the outside world, providing local businesses and employers with new links to suppliers and potential customers. New services can also contribute to new travel from outside visitors, who may be traveling for business or personal recreational purposes. To estimate the potential contribution to regional economies that might stem from incentive-driven new flight activity, we examine airport economic impacts—measured by economic variables like the dollar volume of the share of regional economic transactions (the "economic impact") that can be attributed to the airport's operations, the amount of regional personal income that can be similarly attributed, and the number of regional jobs that are a direct or indirect consequence of the airport's activity.

In the remainder of this section, we report estimates for each of these relationships, and then provide a summary.

How Do Air Service Incentives Affect an Airport's Aviation Activity?

This subsection uses linear regression models to quantify the effectiveness of air service incentives. Although there are many common factors that affect air travel markets, and air service trends at any given airport are closely related to the overall trends affecting the air travel industry, the circumstances and objectives leading individual airports or communities to pursue incentive programs will be unique. Assessments of the effectiveness of specific air service programs should reflect those local objectives as well as the differences between incentives that can be offered by airports and those offered by the communities that airports serve. An airport or local community may offer incentives for new air services that improve connections to the overall air transportation network, and communities may also offer incentives to enhance existing services and the economic relationships those services support. In the first case, assessment metrics that are based on passenger enplanements alone may be sufficient to gauge

the effectiveness of incentives, and in the second, metrics based on the extent to which those economic relationships continue or grow may also be appropriate.

With this in mind, we estimated a series of linear regression models to assess the effectiveness of an incentive program. In particular, these linear regression models explore whether the change in the number of seats, change in the number of flight departures, or change in a Quality of Service (QSI) index differs among those airports of various sizes that offered a particular type of incentive versus those that did not.

As part of the modeling exercise, we estimated dozens of linear regression models. The overall modeling framework we used is shown in Exhibit 55.

Exhibit 55. Regression Modeling Framework for Incentive Impacts

Determine dependent and independent variables and functional forms
Determine which set of independent variables to include in model
Segment models by airport size
Conduct outlier analysis
Include airline interaction effects

The first step in the process was to determine what we wanted to model, or what dependent variables to use to measure changes in service across the analysis period. We chose three dependent variables: the number of annual seat departures from an airport, the number of annual flight departures from an airport, and a Quality of Service (QSI) index. Seats and flight departures are two measures of available supply. Seats and departures are both airport-centric measures whereas QSI is a network-centric measure that captures how well the flight offerings at a particular airport connect passengers to the global network. GRA prepared an annual QSI measure for U.S. commercial airports shown in the October *OAG* for each year. For each airport, the database shows service levels to 100 top destinations: the top 50 domestic and top 50 foreign markets (based on *OAG* seats for 2012-2014). We measure changes in service from 2012 to 2017. The year 2017 corresponds to the year for which we collected airport incentive data. Because some airport incentives occur over a two-year period and the long-term effects of these incentives may not be apparent until years three or four (after a new service offering needs to "stand on its own"), we selected 2012 as the base year for measuring service changes.

For the independent variables, we created several variables to reflect different types of incentives. Airports with a domestic incentive include those airports that offer an incentive for a route between two U.S. airports; airports with an international incentive include those airports that offer an incentive for a route between a U.S. airport and an international airport. Airports with an "airport incentive" include those that offered either an airport fee waiver and/or a marketing incentive (i.e., incentives that airports are permitted to offer from airport funds based

on FAA guidance). Airports with a community incentive include those where non-airport sources offered either a minimum revenue guarantee and/or a marketing incentive.

We also included two independent variables representing economic measures and one independent variable representing airline competition in our regression models. The two economic measures include the nominal per-capita income (PCI) for the MSA in which the airport is located and gross regional product (GRP). The MSA data for gross regional product is reported by the U.S. Department of Commerce Bureau of Economic Analysis,[47] and the MSA data on per-capita income is reported by MSA by the Economic Research Department of the St. Louis Federal Reserve Bank, as part of the Federal Reserve Economic Data (FRED).[48] At the time we conducted the analysis, the most recent year that GRP was available was for 2016; we thus included GRP for 2012 and GRP for 2016 (with adjustments for inflation) in our models. PCI and GRP were not available for every airport in the analysis database; thus we included only those airports/observations that had complete data for the given regression model. Finally, we included a measure of market concentration called the Herfindahl–Hirschman Index (HHI) which is defined as the sum of market shares at an airport. Formally,

$$HHI = \sum_{n=1}^{N} MS_n$$

where MS_n is the market share of airline *n* and *N* is the total number of airlines in the market. An airport with a single airline would have an HHI of one; lower HHI values reflect airports with more balanced flight offerings across different airlines. We calculated the HHI index using the annual number of flights that was obtained from the T100 ticketing database; however, Allegiant Air was not present in the input database for the base year of 2006 so we excluded Allegiant from the calculation of HHI.

Exhibit 56 summarizes the dependent and independent variables explored as part of the analysis (with the exception of carrier-specific interaction terms that were added in the last step of the analysis).

[47] https://www.bea.gov/data/gdp/gdp-metropolitan-area
[48] https://fred.stlouisfed.org/tags/series?t=msa%3Bper+capita%3Bpersonal+income

Exhibit 56. Definitions for Dependent and Independent Incentive Impact Modeling

Variable	Definition
Seats	Number of annual seat departures from an airport
Departures	Number of annual flight departures from an airport
QSI	Total annual Quality of Service Index (QSI) points for the top 50 domestic and top 50 international markets out of airport
Domestic Incentive	Indicator variable equal to one if an airport offers an incentive for a route between two U.S. airports, zero otherwise
International Incentive	Indicator variable equal to one if an airport offers an incentive for a route between a U.S. airport and international airport, zero otherwise
Airport Incentive	Indicator variable equal to one if an airport fee waiver and/or airport marketing assistance is provided, zero otherwise
Community Incentive	Indicator variable equal to one if a minimum revenue guarantee or community marketing assistance is provided, zero otherwise
Any Incentive	Definition varies by model specification. This is either an indicator variable equal to one if an airport incentive or community incentive is provided, zero otherwise or an indicator variable equal to one if a domestic or international incentive is offered
HHI	Herfindahl-Hirschman Index (HHI) annual measure (excludes Allegiant)
GRP	Gross regional product, adjusted for inflation
PCI	Nominal per-capita income for the metropolitan statistical area (MSA), adjusted for inflation

As part of the next step in the analysis, we needed to determine which functional form to use for the independent and dependent variables. Exhibit 57 presents descriptive statistics for the dependent and independent variables included in the analysis.

Exhibit 57. Descriptive Statistics for Independent Variables by Airport Hub Size

		ALL	LARGE	MEDIUM	SMALL	NON
SEATS in 2012	Mean	2.53 M	18.9 M	4.95 M	1.23 M	157 K
	Median	292 K	16.9 M	4.94 M	991 K	101 K
	Range	0 – 51.6 M	8.4 M – 51.6 M	2.60 M – 8.63 M	488 – 4.39 M	0 – 635 K
SEATS in 2017	Mean	2.82 M	20.9 M	5.70 M	1.33 M	171 K
	Median	324 K	18.3 M	5.47 M	1.14 M	113 K
	Range	12.4 K – 53.7 M	8.8 M – 53.7 M	2.74 M – 10.0 M	462 K – 3.41 M	12.4 K – 709 K
DEPARTURES in 2012	Mean	24.8 K	168 K	46.2 K	15.0 K	3.37 K
	Median	5.34 K	145 K	46.9 K	14.2 K	2.27 K
	Range	0 – 419 K	65.8 K – 419 K	22.4 K – 84.2 K	4 – 58.5 K	0 – 28.8 K
DEPARTURES in 2017	Mean	24.1 K	167 K	46.7 K	13.8 K	2.84 K
	Median	4.72 K	160 K	49.6 K	13.2 K	2.06 K
	Range	320 – 389 K	68 K – 389 K	21.7 K – 84.1 K	3.51 – 27.7 K	0.32 – 14.4 K
QSI in 2012	Mean	1,159	6,459	2,540	1,001	214
	Median	358	6,304	2,547	1,005	127
	Range	0 – 11,795	1,928 – 11,795	603 – 4,176	0 – 2,190	0 – 803
QSI in 2017	Mean	1,234	6,967	2,777	1,025	217
	Median	369	6,512	2,872	971	139
	Range	0 – 14,380	2,062 – 14,380	656 – 4,242	34 – 2,097	0 – 848
HHI in 2012	Mean	0.48	0.27	0.24	0.26	0.61
	Median	0.36	0.21	0.19	0.2	0.53
	Range	0 – 1.0	0.10 – 0.78	0.11 – 0.81	0 – 1.0	0 – 1.0
HHI in 2017	Mean	0.46	0.23	0.23	0.26	0.6
	Median	0.34	0.19	0.2	0.2	0.52
	Range	0.07 – 1.0	0.09 – 0.78	0.07 – 0.83	0 – 1.0	0.13 – 1.0
GRP in 2012 ($)	Mean	114 K	432 K	188 K	87.4 K	26.8 K
	Median	21.5 K	292 K	111 K	30.5 K	9.97 K
	Range	2.1 K – 1.50 M	57.8 K – 1.50 M	7.8 K – 859 K	3.6 K – 1.50 M	2.1 K – 1.50 M
GRP in 2016 ($)	Mean	127 K	482 K	215 K	97.8 K	28.7 K
	Median	20.6 K	347 K	129 K	31.5 K	9.8 K
	Range	2.4 K – 1.66 M	64.8 K – 1.66 M	8.5 K – 1.0 M	4.1 K – 1.66 M	2.4 K – 1.66 M
PCI in 2012 ($)	Mean	44.1 K	51.6 K	48.6 K	44.7 K	40.7 K
	Median	42.2 K	50.5 K	47.3 K	42.8 K	39.8 K
	Range	22.7 K – 112.7 K	36.7 K – 72.8 K	33.2 K – 75.0 K	31.6 K – 112.7 K	22.7 K – 63.4 K
PCI in 2017 ($)	Mean	46.5 K	55.4 K	51.8 K	46.9 K	42.6 K
	Median	44.4 K	55.4 K	50.8 K	44.8 K	41.9 K
	Range	22.8 K – 103.5 K	40.2 K – 84.7 K	36.8 K – 87.6 K	33.0 K – 103.5 K	22.8 K – 69.1 K

Exhibit 58 presents descriptive statistics for the difference in the dependent variables between the two analysis years. For many of the variables, there is a large difference between the mean and median and the range is very large. For example, the number of seats in 2017 for all airports ranges from 12.4K to 53.7M and the mean of 2.82M is very different from the median of 324K. In these types of situations, it is common to take the log of the variable so that the results of the regression model are not overly influenced by the presence of large values.

Exhibit 58. Descriptive Statistics for Dependent Variables by Airport Hub Size

		ALL	LARGE	MEDIUM	SMALL	NON
	Mean	282 K	2.04 M	744 K	96.1 K	14.4 K
Seat Change (2017-2012)	Median	15.1 K	1.88 M	616 K	79.6 K	2.98 K
	Range	-1.7 M – 6.5 M	-1.3 M – 6.5 M	-756 K – 3.8 M	-1.7 M – 1.6 M	-171 K – 438 K
	Mean	0.2016	0.1042	0.1144	0.2768	0.2033
Log Seat Change (2017-2012)	Median	0.0662	0.0926	0.1106	0.0751	0.0339
	Range	-1.15 – 11.2	-0.1308 – 0.3136	-0.22 – 0.48	-0.49 – 7.41	-1.15 – 11.2
	Mean	-623	-1,146	481	-1,134	-527
Departure Change (2017-2012)	Median	-217	2,098	528	-1,120	-161
	Range	-36.4 K – 40.3 K	-36.4 K – 40.3 K	-29.6 K – 22.2 K	-32.4 K – 9.4 K	-14.4 K – 2.5 K
	Mean	0.0057	0.0100	0.0004	0.1288	-0.0359
Log Dept. Change (2017-2012)	Median	-0.0574	0.0214	0.0097	-0.0824	-0.1
	Range	-1.35 – 7.74	-0.28 – 0.26	-0.46 – 0.39	-0.81 – 6.85	-1.35 – 7.74
	Mean	75.2	508	237	24	3.9
QSI Change (2017-2012)	Median	10.6	355	115	21	3.3
	Range	-950 – 2,585	-950 – 2,585	-341 – 1,236	-340 – 362	-184 – 237
	Mean	0.1357	0.0749	0.0874	0.1682	0.1407
Log QSI Change (2017-2012)	Median	0.0506	0.0589	0.0686	0.0308	0.0611
	Range	-3.45 – 4.49	-0.15 – 0.31	-0.14 – 0.54	-0.36 – 3.85	-3.45 – 4.49
N		323	30	28	67	198

Based on the results of the descriptive analysis, we model the difference in the log of seats, log of departures, and log of QSI between the two analysis years. We also include the log of GRP and log of PCI in the model specifications. For HHI, we do not perform a transformation (and include the "level effect") in the model specifications.

Given the objective of the regression analysis is to associate changes in seats, departures, or QSI to whether a particular type of incentive is offered, Exhibit 59 shows how the average changes in these dependent variables vary across airport type and by whether the airport offers an incentive. The table is revealing in that it provides initial evidence that: (1) we will have challenges in estimating regression models that show a positive relationship between offering an incentive and an improvement in a service quality measure; and, (2) we will need to segment by airport size. With respect to the first point, note that for all airports, the change in the log of seats for airports without an incentive is actually larger (mean of 0.2245) than that for airports with an incentive (0.1935); this may lead to the regression model stating that if an airport offers an incentive, it will lose service. This relationship may seem counter-intuitive, although it may also indicate that airports and communities that face greater growth challenges are more likely to offer incentives than airports that are better able to sustain growth in seat departures without incentives. In addition, if we compare growth in activity for subgroups of similarly sized airports, we see that for small airports the change in the log of seats is smaller for those airports without an incentive (mean of 0.0247) than for those airports with an incentive (0.3319). This may lead to a regression model for airports sorted into size buckets. Such a refinement may allow us to associate the presence of an incentive with a service improvement.

Exhibit 59. Average Changes in Dependent Variables, Conditional on Whether Airport or Community Incentive is Offered, by Airport Hub Size

		ALL	LARGE	MEDIUM	SMALL	NON
Change in Log Seats with Incentive	Mean	0.1935	0.1017	0.0983	0.3319	0.1693
	Median	0.0764	0.0762	0.1045	0.0766	0.0555
Change in Log Seats with No Incentive	Mean	0.2245	0.1101	0.2482	0.0247	0.2795
	Median	0.045	0.1033	0.1872	0.0673	-0.003
Change in Log Departures with Incentive	Mean	-0.0026	0.0028	-0.0202	0.171	-0.07
	Median	-0.0661	0.0205	-0.0095	-0.0824	-0.1187
Change in Log Dept. with No Incentive	Mean	0.0289	0.0267	0.1721	-0.0649	0.0407
	Median	-0.0464	0.0367	0.0793	-0.0781	-0.0599
Change in Log QSI with Incentive	Mean	0.1109	0.0824	0.0674	0.1929	0.0902
	Median	0.0444	0.0673	0.0291	0.0308	0.0462
Change in Log QSI with No Incentive	Mean	0.2051	0.0572	0.2544	0.0548	0.254
	Median	0.0783	0.0229	0.114	0.0167	0.0886
N with Incentive		238	21	25	55	137
N without Incentive		85	9	3	12	61
TOTAL		323	30	28	67	198

Note: Incentive is an indicator variable equal to one if either an airport or community incentive is offered and zero otherwise.

Exhibit 60 shows the frequency of incentives by airport sizes. Low sample sizes continue to be seen across the incentive types for the large and medium airports; there are relatively fewer of these large and medium sized airports, and the vast majority of them offer incentives. In addition, we see that for the medium hubs, the number of airports that offer an airport incentive is identical to the number of airports that offer "any" incentive; this means that there are no medium hub airports in the analysis database that offer just a community incentive and not an airport incentive. In terms of the modeling, this means that the regression results for the medium hub segmentation will be identical for a model that includes "airport incentives" only and for a model that includes "any incentive" as the underlying set of airports included in the "airport incentives" and "any incentives" classifications are identical. The same phenomenon occurs for small hubs. These results for medium and small sized airports also mean that any of these airports that are supported by community sponsored and funded incentive programs also offer an incentive program supported by airport funds.

Exhibit 60 also shows the number of airports included in the analysis database that offer or do not offer an incentive. There are very few airports in the large and medium hub classification that do not offer incentives; as we will see in the regression results this presents challenges for obtaining intuitive results that are statistically significant.

Exhibit 60. Frequency of Incentive Use by Airport Hub Size

	Airport Incentive		Community Incentive		Any Incentive		Domestic Incentive		International Incentive	
	Y	N	Y	N	Y	N	Y	N	Y	N
All hubs	223	100	152	171	238	85	225	98	66	257
Large hubs	20	10	5	25	21	9	15	15	21	9
Medium hubs	25	3	11	17	25	3	24	4	21	7
Small hubs	55	12	37	30	55	12	55	12	15	52
Nonhubs	123	75	99	99	137	61	131	67	9	189

Exhibit 61 presents the results of a naïve regression model that includes just the presence of a domestic incentive, international incentive, or "any incentive" (defined as either a domestic or international incentive) in the model specification. The model fits for these variables are all very low and none of these regression models have an *F*-statistic that is statistically significant. Although this is not unexpected based on the results of the descriptive analysis, the inclusion of other independent variables that reflect additional causal factors could result in a model that fits the data better and provide results that are more intuitive. Formally, the linear regression model may have omitted variables, resulting in biased parameter estimates for the influence of incentives on airport activity.

Exhibit 61. Single Variable Regression Results for All Airports Included in the Analysis

	Seats			Departures			QSI		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Any Incentive[1]	-0.025 (0.134)			-0.024 (0.106)			-0.07 -0.08		
Domestic Incentive		-0.017 -0.131			-0.024 -0.103			-0.066 -0.078	
International Incentive			-0.099 -0.149			0.009 -0.117			-0.068 -0.089
Constant	0.220 (0.114)*	0.214 (0.109)*	0.222 (0.067)***	0.023 (0.090)	0.023 (0.086)	0.004 (0.053)	0.186 (0.068)***	0.182 (0.065)***	0.150 (0.040)***
N	323	323	323	323	323	323	323	323	323
R^2	0.0001	0.0001	0.001	0.0002	0.0002	2E-05	0.002	0.002	0.002
Adjusted R^2	-0.003	-0.003	-0.002	-0.003	-0.003	-0.003	-0.001	-0.001	-0.001
F Statistic	0.035	0.017	0.445	0.05	0.056	0.007	0.765	0.724	0.592

Notes: Parameter estimate (standard error). *p<0.1; **p<0.05; ***p<0.01 [1]Any incentive includes those airports that offer either a domestic and/or international incentive.

The third step of the analysis as described in Exhibit 55 explores this question and seeks to determine which set of independent variables to include in the model specifications. Exhibits 62 to 64 show the results of different regression models for all airport sizes that include different combinations of HHI, log-change in PCI, and log-change in GRP in the model specification. Among the dependent variables reflected in the different tables, the R^2 values of overall model fit show that there is little difference among using seats, departures, and QSI. At the aggregate level that combines all airports, the regression models do not fit the data well and none of these models provide intuitive results as the coefficient associated with any incentive is negative in all but one model. Among Models 2-5, Model 3 consistently provides the highest *F*-statistic. For

this reason, in subsequent modeling steps we include HHI and the log change in PCI in the specification (and exclude the log change in GRP). Formally, the model we use is given as:

$$\Delta y = \alpha + \gamma_1 INCENTIVE + \beta_1 \Delta HHI + + \beta_2 \Delta PCI$$

where Δy is $\log(y_{2017}) - \log(y_{2012})$ and y is either seats, departures, or QSI. The log difference approximates the percentage change between the two years. INCENTIVE is a binary variable equal to one if airport meets the corresponding incentive definition and zero otherwise. ΔHHI is $HHI_{2017} - HHI_{2012}$. ΔPCI is $\log(PCI_{2016}) - \log(PCI_{2012})$.

Exhibit 62. Multiple Regression Results for All Airports Included in the Analysis (Log Seats Used as Dependent Variable)

	Model 1	Model 2	Model 3	Model 4	Model 5
Any Incentive[1]	-0.025 -0.134	-0.005 -0.133	-0.159 -0.203	-0.248 -0.203	-0.297 -0.218
Level change in HHI		0.695 (0.247)***	1.269 (0.351)***	1.174 (0.363)***	1.404 (0.392)***
Log change in Per-Capita Income			1.336 -2.134		-1.187 -3.037
Log change in GRP				0.964 -0.88	1.435 -1.324
Constant	0.22 (0.114)*	0.215 (0.113)*	0.368 (0.213)*	0.393 (0.192)**	0.501 (0.229)**
N	323	323	231	231	216
R^2	0.0001	0.024	0.06	0.055	0.07
Adjusted R^2	-0.003	0.018	0.047	0.043	0.053
F Statistic	0.035	3.963**	4.809***	4.430***	3.989***

Notes: Parameter estimate (standard error). *p<0.1; **p<0.05; ***p<0.01. Note that the 231 airports included in Model 3 differ from the 231 airports included in Model 4, as PCI and GRP are missing for a different set of airports. This is why in Model 5 only 216 airports are included, which represent the set of airports for which both PCI and GRP are populated. [1]Any incentive includes those airports that offer either a domestic and/or international incentive.

Exhibit 63. Multiple Regression Results for All Airports Included in the Analysis (Log Departures Used as Dependent Variable)

	Model 1	Model 2	Model 3	Model 4	Model 5
Any Incentive[1]	-0.024 -0.106	-0.01 -0.105	-0.17 -0.156	-0.234 -0.153	-0.28 (0.163)*
Level change in HHI		0.449 (0.196)**	0.95 (0.271)***	0.844 (0.272)***	1.01 (0.292)***
Log change in Per-Capita Income			1.603 -1.646		-0.853 -2.264
Log change in GRP				0.947 -0.661	1.36 -0.987
Constant	0.023 -0.09	0.02 -0.089	0.161 -0.164	0.175 -0.144	0.264 -0.171
N	323	323	231	231	216
R^2	0.0002	0.016	0.062	0.059	0.076
Adjusted R^2	-0.003	0.01	0.049	0.046	0.058
F Statistic	0.05	2.654*	4.975***	4.704***	4.319***

Notes: Parameter estimate (standard error). *p<0.1; **p<0.05; ***p<0.01. Note that the 231 airports included in Model 3 differ from the 231 airports included in Model 4, as PCI and GRP are missing for a different set of airports. This is why in Model 5 only 216 airports are included, which represent the set of airports for which both PCI and GRP are populated. [1]Any incentive includes those airports that offer either a domestic and/or international incentive.

Exhibit 64. Multiple Regression Results for All Airports Included in the Analysis (Log QSI Score Used as Dependent Variable)

	Model 1	Model 2	Model 3	Model 4	Model 5
Any Incentive[1]	-0.07 -0.08	-0.064 -0.08	0.011 -0.104	-0.059 -0.1	-0.052 -0.107
Level change in HHI		0.206 -0.149	0.652 (0.179)***	0.508 (0.179)***	0.563 (0.193)***
Log change in Per-Capita Income			1.677 -1.09		1.367 -1.492
Log change in GRP				0.547 -0.434	0.197 -0.651
Constant	0.186 (0.068)***	0.185 (0.068)***	0.045 -0.109	0.12 -0.095	0.079 -0.112
N	323	323	231	231	216
R^2	0.002	0.008	0.067	0.043	0.053
Adjusted R^2	-0.001	0.002	0.054	0.03	0.035
F Statistic	0.765	1.34	5.392***	3.397**	2.937**

Notes: Parameter estimate (standard error). *p<0.1; **p<0.05; ***p<0.01. Note that the 231 airports included in Model 3 differ from the 231 airports included in Model 4, as PCI and GRP are missing for a different set of airports. This is why in Model 5 only 216 airports are included, which represent the set of airports for which both PCI and GRP are populated. [1]Any incentive includes those airports that offer either a domestic and/or international incentive.

Exhibit 65 investigates whether model results improve when we include different types of incentives in the specification. The results are similar to those seen for the other models that include all airports in the analysis, namely that the signs associated with incentives are typically negative, always statistically insignificant, and have low R^2 values.

Exhibit 65. Multiple Regression Results for All Airports Included in the Analysis (Using Different Incentive Types as Independent Variables)

	Log Seats	Log Departures	Log QSI	Log Seats	Log Departures	Log QSI	Log Seats	Log Departures	Log QSI
Airport Incentive	-0.129 (0.195)	-0.132 (0.151)	0.046 (0.100)						
Community Incentive				-0.157 (0.161)	-0.131 (0.124)	-0.088 (0.082)			
Any Incentive[1]							-0.183 (0.206)	-0.202 (0.159)	0.007 (0.105)
Level change in HHI	1.260 (0.352)***	0.941 (0.271)***	0.656 (0.179)***	1.281 (0.351)***	0.961 (0.271)***	0.655 (0.179)***	1.272 (0.351)***	0.952 (0.270)***	0.652 (0.179)***
Log change in Per-Capita Income	1.343 (2.135)	1.609 (1.648)	1.672 (1.089)	1.263 (2.134)	1.540 (1.647)	1.640 (1.087)	1.330 (2.133)	1.596 (1.645)	1.677 (1.090)
Constant	0.340 (0.205)*	0.127 (0.158)	0.019 (0.104)	0.320** (0.160)	0.092 (0.124)	0.100 (0.082)	0.389 (0.217)*	0.189 (0.167)	0.049 (0.111)
N	231	231	231	231	231	231	231	231	231
R^2	0.059	0.06	0.067	0.061	0.061	0.071	0.06	0.063	0.066
Adjusted R^2	0.047	0.048	0.055	0.049	0.049	0.059	0.048	0.051	0.054
F Statistic	4.745***	4.828***	5.462***	4.928***	4.952***	5.804***	4.869***	5.124***	5.389***

Notes: Parameter estimate (standard error). *p<0.1; **p<0.05; ***p<0.01. [1]Any incentive includes those airports that offer either an airport incentive and/or a community incentive.

The fourth step of the analysis replicates the models shown in Exhibit 65 for the airport size subsets. The fifth step investigates how sensitive results are to outlier analysis. We discuss these two steps together in the tables that follow.

Exhibits 66 and 67 present results for large and medium hubs, respectively. Because the number of large airports without incentives and the number of medium airports without incentives were both small, we combined large and medium airports together; these results are shown in Exhibit 68. For large and medium hubs, we conclude that the association between incentives and service metrics is weak. The parameter estimates associated with different incentive types are all insignificant or are significant but with the wrong sign. From an interpretation perspective, the results could be an indication that most large and medium airports need to offer incentives to be in consideration for new service, i.e., an airport needs to offer an incentive to "be in the game." This is supported by the high percentage of large and medium airports that offer incentives; however, incentives by themselves are not a significant difference-maker. The results for large and medium hubs could also potentially be influenced by slot constraints which are indications that airline demand is greater than the airport's capacity, even in the absence of incentives. The absence of incentives by large high demand and/or slot-controlled airports is also consistent with the perspectives on incentives from large high demand airports that were expressed by airlines. None of the airlines we interviewed said that they would expect or request incentive support from the New York City commercial service airports, for example.

Exhibit 66. Multiple Regression Results for Large Hub Airports (Using Different Incentive Types as Independent Variables)

	Log Seats	Log Departures	Log QSI	Log Seats	Log Departures	Log QSI	Log Seats	Log Departures	Log QSI
Airport Incentive	-0.01 -0.034	-0.033 -0.042	0.015 -0.035						
Community Incentive				-0.032 (0.045)	-0.024 -0.056	-0.006 -0.046			
Any Incentive[1]							-0.019 -0.035	-0.033 -0.044	0.012 -0.036
Level change in HHI	-0.016 -0.158	-0.051 -0.195	0.056 -0.162	0.013 -0.162	-0.037 -0.204	0.066 -0.168	-0.012 -0.157	-0.048 -0.195	0.056 -0.162
Log change in Per-Capita Income	1.287 (0.461)***	1.200 (0.570)**	1.436 (0.473)***	1.209 (0.466)**	1.119 (0.585)*	1.438 (0.484)***	1.3 (0.460)***	1.208 (0.571)**	1.437 (0.475)***
Constant	0.018 -0.044	-0.056 -0.054	-0.035 -0.045	0.024 -0.042	-0.068 -0.052	-0.024 -0.043	0.024 -0.044	-0.055 -0.055	-0.033 -0.046
N	30	30	30	30	30	30	30	30	30
R^2	0.236	0.157	0.292	0.249	0.143	0.288	0.242	0.156	0.29
Adjusted R^2	0.148	0.06	0.21	0.162	0.044	0.205	0.155	0.059	0.208
F Statistic	2.676*	1.619	3.575**	2.868*	1.449	3.500**	2.768*	1.602	3.541**

Notes: Parameter estimate (standard error). *p<0.1; **p<0.05; ***p<0.01. [1]Any incentive includes those airports that offer either an airport incentive and/or a community incentive.

Exhibit 67. Multiple Regression Results for Medium Hub Airports (Using Different Incentive Types as Independent Variables)

	Log Seats	Log Departures	Log QSI	Log Seats	Log Departures	Log QSI	Log Seats	Log Departures	Log QSI
Airport Incentive	-0.11 -0.09	-0.141 -0.103	-0.179 (0.081)**						
Community Incentive				0.062 -0.06	0.02 -0.066	-0.023 -0.054			
Any Incentive[1]							-0.11 -0.09	-0.141 -0.103	-0.179 (0.081)**
Level change in HHI	0.817 -0.83	0.816 -0.929	-0.344 -0.728	1.022 -0.81	1.161 -0.926	0.166 -0.765	0.817 -0.83	0.816 -0.929	-0.344 -0.728
Log change in Per-Capita Income	0.9 -0.73	1.782 (0.812)**	1.097 (0.637)*	1.206 -0.72	2.066 (0.828)**	1.374 (0.685)*	0.9 -0.73	1.782 (0.812)**	1.097 (0.637)*
Constant	0.168 -0.1	0.027 -0.114	0.179 (0.090)*	0.026 -0.06	-0.122 -0.065	0.016 -0.054	0.168 -0.1	0.027 -0.114	0.179 (0.090)*
N	28	28	28	28	28	28	28	28	28
R^2	0.165	0.266	0.305	0.154	0.211	0.169	0.165	0.266	0.305
Adjusted R^2	0.06	0.174	0.218	0.048	0.113	0.065	0.06	0.174	0.218
F Statistic	1.577	2.895*	3.508**	1.458	2.141	1.628	1.577	2.895*	3.508**

Notes: Parameter estimate (standard error). *p<0.1; **p<0.05; ***p<0.01. [1]Any incentive includes those airports that offer either an airport incentive and/or a community incentive. Note the airports that have an airport incentive are identical to the airports that have any incentive, so the results of the regression models for the first three models are identical to the results for the last three models included on this table.

Exhibit 68. Multiple Regression Results for Large and Medium Hub Airports Combined (Using Different Incentive Types as Independent Variables)

	Log Seats	Log Departures	Log QSI	Log Seats	Log Departures	Log QSI	Log Seats	Log Departures	Log QSI
Airport Incentive	-0.037 (0.037)	-0.067 (0.043)	-0.026 (0.035)						
Community Incentive				0.031 (0.037)	0.007 (0.043)	-0.010 (0.034)			
Any Incentive[1]							-0.045 (0.038)	-0.071 (0.044)	-0.031 (0.036)
Level change in HHI	0.153 (0.192)	0.063 (0.218)	0.119 (0.180)	0.099 (0.197)	0.027 (0.229)	0.121 (0.185)	0.158 (0.191)	0.068 (0.218)	0.123 (0.180)
Log change in Per-Capita Income	0.915 (0.403)**	1.372 (0.458)***	1.350 (0.378)***	1.004 (0.412)**	1.420 (0.478)***	1.338 (0.388)***	0.920 (0.401)**	1.383 (0.457)***	1.353 (0.377)***
Constant	0.082 (0.044)*	-0.031 (0.050)	0.015 (0.041)	0.037 (0.035)	-0.089 (0.041)**	-0.001 (0.033)	0.089 (0.044)**	-0.028 (0.051)	0.020 (0.042)
N	58	58	58	58	58	58	58	58	58
R^2	0.113	0.181	0.205	0.11	0.144	0.199	0.12	0.182	0.209
Adjusted R^2	0.064	0.135	0.161	0.06	0.096	0.154	0.071	0.137	0.165
F Statistic	2.298*	3.972**	4.654**	2.215*	3.020**	4.470***	2.462*	4.015**	4.742***

Notes: Parameter estimate (standard error). *p<0.1; **p<0.05; ***p<0.01. [1]Any incentive includes those airports that offer either an airport incentive and/or a community incentive.

Exhibits 69 and 70 present results for small hubs—the first table contains all small airports (for which per-capita income data is available) and the second excludes three outlier airports: Orlando Sanford International (SFB), St. Pete-Clearwater International (PIE) and Punta-Gorda (PGD). All three of these airports have a large presence by Allegiant Air. The results that include the airport incentive variable are identical to the results that include the all incentive variable as the set of small hub airports that have an airport incentive is identical to the set of those that have any incentive. The regression results for small hub airports provide intuitive directional results. The parameter estimates for both airport incentives and community incentives are consistently positive across all models. For the model that includes all small hub airports, airport incentives are statistically significant for the regression models that have log of seats and log of QSI as the dependent variables. However, this significance changes when the three outlier airports are excluded; as seen in Exhibit 70, where the presence of community incentives become statistically significant at the 0.10 level. The adjusted R^2 for these models are among the highest of any of the models discussed so far. Overall, the models that use the log of seats as the dependent variable fit the data the best. ***The results of the regression analysis support the hypothesis that for small hub airports, there is a positive association between offering an airport or community incentive and an increase in service.***

Exhibit 69. Multiple Regression Results for Small Hub Airports (Using Different Incentive Types as Independent Variables)

	Log Seats	Log Departures	Log QSI	Log Seats	Log Departures	Log QSI	Log Seats	Log Departures	Log QSI
Airport Incentive	0.480 (0.275)*	0.388 (0.286)	0.252 (0.147)*						
Community Incentive				0.233 (0.205)	0.152 (0.212)	0.080 (0.110)			
Any Incentive[1]							0.480 (0.275)*	0.388 (0.286)	0.252 (0.147)*
Level change in HHI	3.958 (0.496)***	3.671 (0.515)***	2.729 (0.265)***	3.965 (0.503)***	3.676 (0.521)***	2.731 (0.271)***	3.958 (0.496)***	3.671 (0.515)***	2.729 (0.265)***
Log change in Per-Capita Income	6.097 (3.193)*	5.890 (3.319)*	2.906 (1.710)*	5.509* (3.210)	5.308 (3.326)	2.473 (1.729)	6.097 (3.193)*	5.890 (3.319)*	2.906 (1.710)*
Constant	-0.439 (0.327)	-0.497 (0.340)	-0.200 (0.175)	-0.134 (0.238)	-0.224 (0.247)	-0.009 (0.128)	-0.439 (0.327)	-0.497 (0.340)	-0.200 (0.175)
N	62	62	62	62	62	62	62	62	62
R^2	0.548	0.491	0.658	0.535	0.479	0.644	0.548	0.491	0.658
Adjusted R^2	0.525	0.464	0.641	0.511	0.452	0.626	0.525	0.464	0.641
F Statistic	23.455***	18.614***	37.242***	22.234***	17.772***	35.007***	23.455***	18.614***	37.242***

Notes: Parameter estimate (standard error). *p<0.1; **p<0.05; ***p<0.01. [1]Any incentive includes those airports that offer either an airport incentive and/or a community incentive. Note the airports that have an airport incentive are identical to the airports that have any incentive, so the results of the regression models for the first three models are identical to the results for the last three models included on this table.

Exhibit 70. Multiple Regression Results for Small Hub Airports (Omitting Outlier Airports and Using Different Incentive Types as Independent Variables)

	Log Seats	Log Departures	Log QSI	Log Seats	Log Departures	Log QSI	Log Seats	Log Departures	Log QSI
Airport Incentive	0.102 (0.078)	0.014 -0.065	0.027 (0.054)						
Community Incentive				0.203 (0.051)***	0.153 (0.043)***	0.117 (0.037)***			
Any Incentive[1]							0.102 (0.078)	0.014 -0.065	0.027 (0.054)
Level change in HHI	-0.112 (0.405)	0.28 -0.337	-0.184 (0.282)	-0.097 -0.358	0.353 -0.299	-0.144 -0.256	-0.112 (0.405)	0.28 -0.337	-0.184 (0.282)
Log change in Per-Capita Income	1.739 (0.900)*	1.1 -0.748	0.976 (0.626)	2.024 (0.796)**	1.485 (0.666)**	1.226 (0.570)**	1.739 (0.900)*	1.1 -0.748	0.976 (0.626)
Constant	-0.119 (0.091)	-0.151 (0.076)*	-0.051 (0.064)	-0.162 (0.060)***	-0.243 (0.050)***	-0.106 (0.043)**	-0.119 (0.091)	-0.151 (0.076)*	-0.051 (0.064)
N	59	59	59	59	59	59	59	59	59
R^2	0.078	0.052	0.05	0.26	0.229	0.193	0.078	0.052	0.05
Adjusted R^2	0.028	0.00003	-0.002	0.22	0.187	0.149	0.028	0.00003	-0.002
F Statistic	1.556	1.001	0.961	6.449***	5.456***	4.379***	1.556	1.001	0.961

Notes: Parameter estimate (standard error). *p<0.1; **p<0.05; ***p<0.01. [1]Any incentive includes those airports that offer either an airport incentive and/or a community incentive. Note the airports that have an airport incentive are identical to the airports that have any incentive, so the results of the regression models for the first three models are identical to the results for the last three models included on this table.

Exhibits 71 and 72 present results for nonhubs—the first table contains all nonhub airports (for which per-capita income data is available) and the second excludes three outlier airports corresponding to Trenton-Mercer County (TTN), Cincinnati Municipal Airport Lunken (LUK), and Worcester Regional Airport (ORH). TTN has a large presence by Frontier and LUK had a

large presence by Ultimate Air Service. When these three airports are included, results are counter-intuitive (the signs associated with incentives are all negative). However, when these outlier airports are excluded, we see some directional evidence that incentives and improvements in service measures are related, although the relationship is not as clear or strong as that observed for the small hubs.

Exhibit 71. Multiple Regression Results for Nonhub Airports (Using Different Incentive Types as Independent Variables)

	Log Seats	Log Departures	Log QSI	Log Seats	Log Departures	Log QSI	Log Seats	Log Departures	Log QSI
Airport Incentive	-0.422 (0.358)	-0.395 (0.252)	-0.036 (0.173)						
Community Incentive				-0.561 (0.311)*	-0.378 (0.220)*	-0.261 (0.149)*			
Any Incentive[1]							-0.557 (0.388)	-0.535 (0.272)*	-0.095 (0.188)
Level change in HHI	0.565 (0.532)	0.195 (0.375)	0.108 (0.257)	0.652 (0.524)	0.273 (0.371)	0.120 (0.251)	0.617 (0.527)	0.243 (0.370)	0.111 (0.255)
Log change in Per-Capita Income	2.172 (3.996)	1.601 (2.812)	2.083 (1.927)	3.247 (4.037)	2.173 (2.859)	2.802 (1.936)	2.294 (3.984)	1.733 (2.794)	2.153 (1.925)
Constant	0.588 (0.340)*	0.310 (0.239)	0.050 (0.164)	0.545 (0.271)**	0.205 (0.192)	0.140 (0.130)	0.718 (0.375)*	0.442 (0.263)*	0.097 (0.181)
N	111	111	111	111	111	111	111	111	111
R^2	0.028	0.028	0.013	0.044	0.033	0.04	0.034	0.041	0.015
Adjusted R^2	0.001	0.001	-0.015	0.018	0.006	0.013	0.007	0.014	-0.013
F Statistic	1.023	1.046	0.474	1.655	1.209	1.491	1.249	1.514	0.545

Notes: Parameter estimate (standard error). *p<0.1; **p<0.05; ***p<0.01. [1]Any incentive includes those airports that offer either an airport incentive and/or a community incentive.

Exhibit 72. Multiple Regression Results for Nonhub Airports (Omitting Outlier Airports and Using Different Incentive Types as Independent Variables)

	Log Seats	Log Departures	Log QSI	Log Seats	Log Departures	Log QSI	Log Seats	Log Departures	Log QSI
Airport Incentive	-0.023 (0.074)	-0.041 (0.061)	0.066 (0.133)						
Community Incentive				0.059 -0.063	0.067 -0.052	-0.079 (0.114)			
Any Incentive[1]							0.089 -0.08	-0.001 (0.066)	0.095 (0.145)
Level change in HHI	-0.353 (0.116)***	-0.367 (0.095)***	-0.383 (0.208)*	-0.352 (0.114)***	-0.362 (0.093)***	-0.393 (0.205)*	-0.339 (0.114)***	-0.356 (0.094)***	-0.391 (0.205)*
Log change in Per-Capita Income	1.947 (0.796)**	1.543 (0.653)**	2.515 (1.430)*	1.746 (0.808)**	1.296 (0.662)*	2.831 (1.455)*	1.810 (0.792)**	1.489 (0.654)**	2.490 (1.428)*
Constant	-0.010 (0.070)	-0.170 (0.057)***	-0.155 (0.125)	-0.054 (0.056)	-0.230 (0.046)***	-0.073 (0.100)	-0.094 (0.078)	-0.198 (0.064)***	-0.181 (0.140)
N	108	108	108	108	108	108	108	108	108
R^2	0.123	0.158	0.064	0.13	0.167	0.066	0.133	0.154	0.066
Adjusted R^2	0.098	0.133	0.037	0.104	0.143	0.039	0.107	0.129	0.039
F Statistic	4.871***	6.488***	2.370*	5.157***	6.951***	2.452*	5.295***	6.303***	2.433*

Notes: Parameter estimate (standard error). *p<0.1; **p<0.05; ***p<0.01. [1]Any incentive includes those airports that offer either an airport incentive and/or a community incentive.

Because nonhubs include a large number of airports, we further segmented the nonhubs into three categories based on their total enplanements. However, the number of observations in the regressions is not exactly equally distributed across the three groups because the ranks were assigned unconditional on the availability of the economic variables included in the independent variables. After ranking the airports into thirds based on enplanements, then the regressions were run for each group, with observation counts reflecting the number within the group that has a complete set of available information for all independent variables. These models are shown in Exhibits 73 to Exhibit 75. For the bottom third (corresponding to the smallest nonhub airports), results are counterintuitive and none of the regression models have an *F*-statistic that is statistically significant. For the middle third, we see some directional evidence that incentives and service are related, but the results are not conclusive. For the top third, (corresponding to the largest nonhubs) the results are counter-intuitive and the parameter estimates associated with the incentives are all negative.

Exhibit 73. Multiple Regression Results for Bottom Third of Nonhub Airports (Using Different Incentive Types as Independent Variables)

	Log Seats	Log Departures	Log QSI	Log Seats	Log Departures	Log QSI	Log Seats	Log Departures	Log QSI
Airport Incentive	-0.982 (1.052)	-0.718 (0.732)	0.473 (0.456)						
Community Incentive				-0.484 (1.320)	-0.463 (0.918)	-0.530 (0.564)			
Any Incentive[1]							-0.891 (1.076)	-0.736 (0.744)	0.403 (0.468)
Level change in HHI	-1.914 (1.694)	-1.314 (1.178)	-0.091 (0.733)	-1.681 (1.851)	-1.089 (1.287)	0.184 (0.791)	-1.682 (1.727)	-1.121 (1.195)	-0.196 (0.751)
Log change in Per-Capita Income	8.064 (13.634)	5.867 (9.483)	2.066 (5.905)	6.122 (14.478)	4.951 (10.062)	6.538 (6.183)	8.195 (13.946)	6.370 (9.651)	2.131 (6.062)
Constant	0.545 (0.770)	0.285 (0.536)	-0.005 (0.334)	0.347 (0.753)	0.155 (0.523)	0.199 (0.322)	0.606 (0.820)	0.360 (0.568)	-0.024 (0.357)
N	23	23	23	23	23	23	23	23	23
R^2	0.11	0.113	0.08	0.075	0.08	0.071	0.101	0.113	0.064
Adjusted R^2	-0.031	-0.028	-0.065	-0.071	-0.065	-0.076	-0.041	-0.027	-0.083
F Statistic	0.78	0.803	0.55	0.516	0.549	0.483	0.714	0.808	0.435

Notes: Parameter estimate (standard error). *p<0.1; **p<0.05; ***p<0.01. [1]Any incentive includes those airports that offer either an airport incentive and/or a community incentive.

Exhibit 74. Multiple Regression Results for Middle Third of Nonhub Airports (Using Different Incentive Types as Independent Variables)

	Seats	Departures	QSI	Seats	Departures	QSI	Seats	Departures	QSI
Airport Incentive	0.774 -0.662	0.488 -0.423	0.281 -0.15						
Community Incentive				-0.252 -0.555	-0.077 -0.356	-0.12 -0.24			
Any Incentive[1]							0.711 -0.718	0.449 -0.459	0.271 -0.31
Level change in HHI	1.739 (0.725)***	0.841 (0.464)*	0.225 -0.31	1.461 (0.730)*	0.689 -0.467	0.117 -0.31	1.641 (0.715)***	0.78 (0.457)*	0.192 -0.31
Log change in Per-Capita Income	-0.057 -7.692	0.934 -4.917	3.935 -3.33	0.395 -7.936	1.008 -5.082	4.169 -3.41	0.003 -7.733	0.971 -4.943	3.962 -3.34
Constant	-0.261 -0.706	-0.4 -0.451	-0.39 -0.31	0.453 -0.532	0.017 -0.341	-0.12 -0.23	-0.252 -0.773	-0.394 -0.494	-0.4 -0.33
N	42	42	42	42	42	42	42	42	42
R^2	0.139	0.094	0.066	0.133	0.063	0.049	0.131	0.085	0.061
Adjusted R^2	0.071	0.022	-0.01	0.043	-0.011	-0.03	0.062	0.013	-0.01
F Statistic	2.048	1.312	0.898	1.613	0.854	0.647	1.903	1.177	0.827

Notes: Parameter estimate (standard error). *p<0.1; **p<0.05; ***p<0.01. [1]Any incentive includes those airports that offer either an airport incentive and/or a community incentive.

Exhibit 75. Multiple Regression Results for Top Third of Nonhub Airports (Using Different Incentive Types as Independent Variables)

	Log Seats	Log Departures	Log QSI	Log Seats	Log Departures	Log QSI	Log Seats	Log Departures	Log QSI
Airport Incentive	-0.906 (0.368)**	-0.900 (0.363)**	-0.756 (0.302)**						
Community Incentive				-0.441 (0.279)	-0.405 (0.276)	-0.334 (0.231)			
Any Incentive[1]							-1.513 (0.434)***	-1.572 (0.421)***	-1.318 (0.351)***
Level change in HHI	0.813 (0.734)	0.931 (0.723)	0.364 (0.602)	1.330 (0.764)*	1.429 (0.756)*	0.779 (0.631)	0.806 -0.688	0.911 -0.667	0.348 -0.555
Log change in Per-Capita Income	1.698 (2.792)	0.954 (2.748)	1.138 (2.290)	2.128 (2.981)	1.292 (2.948)	1.405 (2.461)	1.785 -2.625	1.079 -2.545	1.241 -2.12
Constant	0.989 (0.351)***	0.806 (0.345)**	0.747 (0.288)**	0.522 (0.253)**	0.320 (0.251)	0.335 (0.209)	1.593 (0.421)***	1.467 (0.408)***	1.300 (0.340)***
N	46	46	46	46	46	46	46	46	46
R^2	0.169	0.179	0.15	0.103	0.105	0.07	0.263	0.293	0.269
Adjusted R^2	0.11	0.12	0.089	0.039	0.041	0.003	0.21	0.243	0.217
F Statistic	2.853**	3.053**	2.467*	1.608	1.635	1.048	4.994***	5.812***	5.151***

Notes: Parameter estimate (standard error). *p<0.1; **p<0.05; ***p<0.01. [1]Any incentive includes those airports that offer either an airport incentive and/or a community incentive.

In summary, based on the detailed analysis reporting in the results tables above, only the small hubs provide clear directional evidence that offering incentives will improve a service metric.

As an additional refinement of the analysis and one that reflects recent developments in air service patterns in domestic markets, we estimated a series of regression models that included

indicators for whether Allegiant Air was present in the market in 2017 and an interaction term between the incentive and Allegiant. This modeling refinement was estimated for several reasons. First, Allegiant has contributed to very strong growth in activity at airports where it has chosen to operate (especially when Allegiant has a large share of the airport activity), and this includes the three outlier airports mentioned above (SFB, PIE, and PGD). Second, the business model used by Allegiant includes seasonal and less than daily operations at individual airports, with a strong emphasis on financial risk-sharing with airports through incentive programs.[49] We investigated an Allegiant-specific impact due to the particularly high growth seen at airports where Allegiant has a very high share of the total traffic—such as the three outlier small hub airports mentioned earlier (SFB, PIE, and PGD). The new regression specification for interactions on these models is:

$$\Delta y = \alpha + \delta_1 INCENTIVE + \delta_2 ALLEGIANT + \delta_3 INCENTIVE \times ALLEGIANT + \beta_1 \Delta HHI + \beta_2 \Delta PCI + \epsilon_i$$

The means total effect of incentives is:

$$\frac{\partial \Delta y}{\partial INCENTIVE} = \delta_1 + \delta_3 \times ALLEGIANT$$

and the total Allegiant effect is

$$\frac{\partial \Delta y}{\partial INCENTIVE} = \delta_2 + \delta_3 \times ALLEGIANT$$

Thus, if an airport offers an incentive and is not served by Allegiant, the effect of the incentive is given as δ_1, whereas if an airport offers an incentive and is served by Allegiant, the effect of the incentive is given as $\delta_1 + \delta_3$.

Exhibits 76 through 82 summarize the results of the analysis that includes Allegiant Air interaction terms. Exhibits 76 and 77 show the results for all airports regardless of hub size when airport-sponsored incentives (Exhibit 76) or community-sponsored incentives (Exhibit 77) are included. In all cases, results are not intuitive (airport incentive terms tend to be negative and terms with Allegiant are not statistically significant).

[49] This aspect of the business plans of Allegiant and some other small low cost airlines is discussed in the section of the report covering airline perspectives on airport and community incentive programs.

Exhibit 76. Multiple Regression Results for All Airports (for Airport Incentives and Allegiant Air Interaction Terms)

	Log Seats	Log Seats with Interaction	Log Departures	Log Departures with Interaction	Log QSI	Log QSI with Interaction
Airport Incentive	-0.129 -0.195	-0.09 -0.291	-0.132 -0.151	-0.119 -0.225	0.046 -0.1	0.218 -0.148
Allegiant Presence in 2017		-0.077 -0.354		-0.038 -0.274		0.174 -0.18
Airport Incentive[1] x Allegiant in 2017		-0.015 -0.414		0.0002 -0.319		-0.31 -0.21
Level change in HHI	1.26 (0.352)***	1.271 (0.354)***	0.941 (0.271)***	0.946 (0.273)***	0.656 (0.179)***	0.66 (0.180)***
Log change in Per-Capita Income	1.343 -2.135	1.48 -2.166	1.609 -1.648	1.666 -1.672	1.672 -1.089	1.853 (1.099)*
Constant	0.34 (0.205)*	0.364 -0.249	0.127 -0.158	0.139 -0.193	0.019 -0.104	-0.06 -0.127
N	231	231	231	231	231	231
R^2	0.059	0.06	0.06	0.06	0.067	0.078
Adjusted R^2	0.047	0.039	0.048	0.039	0.055	0.057
F Statistic	4.745***	2.870**	4.828***	2.886**	5.462***	3.785***

Notes: Parameter estimate (standard error). *p<0.1; **p<0.05; ***p<0.01. [1]Any incentive includes those airports that offer either an airport incentive and/or a community incentive.

Exhibit 77. Multiple Regression Results for All Airports (for Community Incentives and Allegiant Air Interaction Terms)

	Log Seats	Log Seats with Interaction	Log Departures	Log Departures with Interaction	Log QSI	Log QSI with Interaction
Community Incentive	-0.157 -0.161	-0.512 (0.295)*	-0.131 -0.124	-0.355 -0.228	-0.088 -0.082	-0.158 -0.151
Allegiant Presence in 2017		-0.311 -0.23		-0.187 -0.178		-0.062 -0.118
Community Incentive[1] x Allegiant in 2017		0.532 -0.354		0.333 -0.274		0.104 -0.181
Level change in HHI	1.281 (0.351)***	1.303 (0.351)***	0.961 (0.271)***	0.974 (0.271)***	0.655 (0.179)***	0.66 (0.180)***
Log change in Per-Capita Income	1.263 -2.134	1.24 -2.153	1.54 -1.647	1.514 -1.665	1.64 -1.087	1.637 -1.102
Constant	0.32 (0.160)**	0.51 (0.208)**	0.092 -0.124	0.207 -0.161	0.1 -0.082	0.137 -0.106
N	231	231	231	231	231	231
R^2	0.061	0.072	0.061	0.068	0.071	0.073
Adjusted R^2	0.049	0.051	0.049	0.047	0.059	0.052
F Statistic	4.928***	3.465***	4.952***	3.287***	5.804***	3.532***

Notes: Parameter estimate (standard error). *p<0.1; **p<0.05; ***p<0.01.

Exhibits 78 and 79 show the results for models that include only large and medium hub airports and include the adjustments for the presence of Allegiant Air in 2017; the results here are similar to those observed for the all hub airport models that include Allegiant Air interaction terms.

Exhibit 78. Multiple Regression Results for Large and Medium Hub Airports (for Airport Incentives and Allegiant Air Interaction Terms)

	Log Seats	Log Seats with Interaction	Log Departures	Log Departures with Interaction	Log QSI	Log QSI with Interaction
Airport Incentive	-0.037 -0.037	-0.056 -0.07	-0.067 -0.043	-0.049 -0.079	-0.026 -0.035	-0.022 -0.066
Allegiant Presence in 2017		-0.054 -0.068		-0.095 -0.076		-0.056 -0.063
Airport Incentive[1] x Allegiant in 2017		0.048 -0.088		0.024 -0.099		0.022 -0.083
Level change in HHI	0.153 -0.192	0.168 -0.195	0.063 -0.218	0.1 -0.218	0.119 -0.18	0.14 -183
Log change in Per-Capita Income	0.915 (0.403)**	0.959 (0.411)**	1.372 (0.458)***	1.442 (0.459)***	1.35 (0.378)***	1.392 (0.384)***
Constant	0.082 (0.044)*	0.104 (0.052)*	-0.031 -0.05	0.009 -0.059	0.015 -0.041	0.039 -0.049
N	58	58	58	58	58	58
R^2	0.113	0.124	0.181	0.222	0.205	0.223
Adjusted R^2	0.064	0.04	0.135	0.147	0.161	0.149
F Statistic	2.298*	1.477	3.972**	2.972**	4.654***	2.988**

Notes: Parameter estimate (standard error). *p<0.1; **p<0.05; ***p<0.01.

Exhibit 79. Multiple Regression Results for Large and Medium Hub Airports (for Community Incentives and Allegiant Air Interaction Terms)

	Log Seats	Log Seats with Interaction	Log Departures	Log Departures with Interaction	Log QSI	Log QSI with Interaction
Community Incentive	0.031 -0.037	-0.036 -0.127	0.007 -0.043	-0.022 -0.142	-0.01 -0.034	-0.088 -0.119
Allegiant Presence in 2017		-0.056 -0.042		-0.107 (0.047)**		-0.056 -0.039
Community Incentive[1] x Allegiant in 2017		0.083 -0.131		0.054 -0.147		0.094 -0.122
Level change in HHI	0.099 -0.197	0.123 -0.198	0.027 -0.229	0.067 -0.223	0.121 -0.185	0.147 -0.186
Log change in Per-Capita Income	1.004 (0.412)**	1.028 (0.416)**	1.42 (0.478)***	1.505 (0.468)***	1.338 (0.388)***	1.358 (0.390)***
Constant	0.037 -0.035	0.078 -0.047	-0.089 (0.041)**	-0.015 -0.052	-0.001 -0.033	0.04 -0.044
N	58	58	58	58	58	58
R^2	0.11	0.139	0.144	0.222	0.199	0.23
Adjusted R^2	0.06	0.057	0.096	0.148	0.154	0.156
F Statistic	2.215*	1.685	3.020**	2.975**	4.470***	3.114**

Notes: Parameter estimate (standard error). *p<0.1; **p<0.05; ***p<0.01.

Exhibits 80 and 81 show the results for the small hub airports. For small hubs, the statistical significance of the incentive coefficient shown in Exhibit 69 goes away for the models with seats and QSI when Allegiant interaction terms are included. The incentive × Allegiant interaction term is negative, while the Allegiant indicator is positive, although neither are statistically significant. However, the parameter for the Allegiant indicator is positive and close to the same

magnitude in absolute value of the interaction term, which could suggest that the net effect of incentives where Allegiant is present is close to zero, since the summation of the two terms would approximately cancel each other out. In practical terms, this implies that the impact of incentives on airports is similar between airports that have Allegiant service and those that do not have Allegiant service.

Exhibit 80. Multiple Regression Results for Small Hub Airports (for Airport Incentives and Allegiant Air Interaction Terms)

	Log Seats	Log Seats with Interaction	Log Departures	Log Departures with Interaction	Log QSI	Log QSI with Interaction
Airport Incentive	0.48 (0.275)*	0.603 -0.584	0.388 -0.286	0.541 -0.607	0.252 (0.147)*	0.35 -0.312
Allegiant Presence in 2017		0.253 -0.515		0.242 -0.535		0.171 -0.275
Airport Incentive[1] x Allegiant in 2017		-0.219 -0.668		-0.247 -0.695		-0.163 -0.357
Level change in HHI	3.958 (0.496)***	3.971 (0.505)***	3.671 (0.515)***	3.686 (0.525)***	2.729 (0.265)***	2.738 (0.270)***
Log change in Per-Capita Income	6.097 (3.193)*	6.184 (3.521)*	5.89 (3.319)*	6.092 -3.662	2.906 (1.710)*	3.013 -1.883
Constant	-0.439 -0.327	-0.597 -0.484	-0.497 -0.34	-0.656 -0.503	-0.2 -0.175	-0.31 -0.259
	62	62	62	62	62	62
R^2	0.548	0.55	0.491	0.492	0.658	0.661
Adjusted R^2	0.525	0.51	0.464	0.447	0.641	0.63
F Statistic	23.455***	13.700***	18.614***	10.864***	37.242***	21.805***

Notes: Parameter estimate (standard error). *p<0.1; **p<0.05; ***p<0.01.

Exhibit 81. Multiple Regression Results for Small Hub Airports (for Community Incentives and Allegiant Air Interaction Terms)

	Log Seats	Log Seats with Interaction	Log Departures	Log Departures with Interaction	Log QSI	Log QSI with Interaction
Community Incentive	0.233 -0.205	0.591 -0.614	0.152 -0.212	0.529 -0.638	0.08 -0.11	0.3 -0.33
Allegiant Presence in 2017		0.369 -0.367		0.339 -0.381		0.228 -0.197
Community Incentive[1] x Allegiant in 2017		-0.438 -0.647		-0.454 -0.671		-0.27 -0.347
Level change in HHI	3.965 (0.503)***	3.974 (0.507)***	3.676 (0.521)***	3.685 (0.527)***	2.731 (0.271)***	2.737 (0.272)***
Log change in Per-Capita Income	5.509 (3.210)*	5.923 (3.520)*	5.308 -3.326	5.824 -3.654	2.473 -1.729	2.726 -1.89
Constant	-0.134 -0.238	-0.448 -0.396	-0.224 -0.247	-0.521 -0.411	-0.009 -0.128	-0.204 -0.212
	62	62	62	62	62	62
R^2	0.535	0.543	0.479	0.487	0.644	0.653
Adjusted R^2	0.511	0.502	0.452	0.441	0.626	0.622
F Statistic	22.234***	13.319***	17.772***	10.612***	35.007***	21.042***

Notes: Parameter estimate (standard error). *p<0.1; **p<0.05; ***p<0.01.

Finally, Exhibits 82 and 83 show these results with the inclusion of the terms for the presence of Allegiant Air at an airport in 2017 for nonhub airports. The estimates are counter-intuitive in that the sign of the incentive parameter estimates tends to be negative.

Exhibit 82. Multiple Regression Results for Nonhub Airports (for Airport Incentives and Allegiant Air Interaction Terms)

	Log Seats	Log Seats with Interaction	Log Departures	Log Departures with Interaction	Log QSI	Log QSI with Interaction
Airport Incentive	-0.422 -0.358	-0.229 -0.461	-0.395 -0.252	-0.225 -0.324	-0.036 -0.173	0.262 -0.218
Allegiant Presence in 2017		0.321 -0.682		0.307 -0.479		0.555 (0.322)*
Airport Incentive[1] x Allegiant in 2017		-0.494 -0.774		-0.448 -0.544		-0.793 (0.365)**
Level change in HHI	0.565 -0.532	0.541 -0.538	0.195 -0.375	0.172 -0.378	0.108 -0.257	0.068 -0.254
Log change in Per-Capita Income	2.172 -3.996	2.544 -4.063	1.601 -2.812	1.929 -2.856	2.083 -1.927	2.657 -1.919
Constant	0.588 (0.340)*	0.479 -0.406	0.31 -0.239	0.207 -0.285	0.05 -0.164	-0.135 -0.192
N	111	111	111	111	111	111
R^2	0.028	0.032	0.028	0.035	0.013	0.057
Adjusted R^2	0.001	-0.014	0.001	-0.011	-0.015	0.012
F Statistic	1.023	0.695	1.046	0.763	0.474	1.272

Notes: Parameter estimate (standard error). *p<0.1; **p<0.05; ***p<0.01.

Exhibit 83. Multiple Regression Results for Nonhub Airports (for Community Incentives and Allegiant Air Interaction Terms)

	Log Seats	Log Seats with Interaction	Log Departures	Log Departures with Interaction	Log QSI	Log QSI with Interaction
Community Incentive	-0.561 -0.311	-0.767 -0.442	-0.378 -0.22	-0.487 -0.314	-0.261 (0.149)*	-0.229 -0.213
Allegiant Presence in 2017		-0.267 -0.477		-0.177 -0.338		0.03 -0.229
Community Incentive[1] x Allegiant in 2017		0.444 -0.639		0.25 -0.453		-0.064 -0.307
Level change in HHI	0.652 -0.524	0.671 -0.528	0.273 -0.371	0.284 -0.374	0.12 -0.251	0.117 -0.254
Log change in Per-Capita Income	3.247 -4.037	2.829 -4.112	2.173 -2.859	1.944 -2.914	2.802 -1.936	2.864 -1.976
Constant	0.545 (0.271)***	0.661 (0.336)*	0.205 -0.192	0.28 -0.238	0.14 -0.13	0.126 -0.161
N	111	111	111	111	111	111
R^2	0.044	0.049	0.033	0.036	0.04	0.041
Adjusted R^2	0.018	0.003	0.006	-0.01	0.013	-0.005
F Statistic	1.655	1.076	1.209	0.78	1.491	0.887

Notes: Parameter estimate (standard error). *p<0.1; **p<0.05; ***p<0.01.

In summary, based on the results of the regression modeling exercise, we observe:

- It is difficult to detect a relationship between incentive offerings and service measures for large and medium airports. This is likely due to the fact that only a few large and medium airports do not offer airport and/or community incentives. This may be due to the fact these airports need to "pay to play" in the sense they need to offer incentives in order to be competitive with other airports for service as almost all similar airports are offering incentives and airlines may have come to expect these offerings.
- We encountered similar modeling difficulties for nonhub airports, although we do obtain regression results for seats that provide directional support for the hypothesis that airports that offer incentives may see service improvements.
- For small hub airports, we see a positive and often statistically significant relationship between offering community and/or airport incentives and improvements in service. Models that used the log of seats tend to fit the data the best.
- For small hub and nonhub airports, results are sensitive to outliers.

Based on the results of these regressions, we determined that the regressions that measured the change in seats performed better than the regressions that measured the change in departures or change in QSI. Further, the regressions for small hub and nonhub airports performed well (providing intuitive results and defensible *R*-squared values) whereas the regressions for medium and large hubs did not reveal any significant or intuitive impacts on the airport incentives.

Based on the results of the regression model, we will be able to correlate the provision of incentives for small hub and nonhub airports to the change in departure seats and then use prior studies that have quantified the value of additional seats to a community for the evaluation tool. We use the models for small hub and nonhub airports shown in Exhibit 84 for this analysis, which is described in the next section of the report. These are log linear models using the log of the airport's annual departing seats as the dependent variable. The estimates are based on data for small hub airports and for nonhub airports that exclude the outliers identified above. These selected model estimates are reported above in Exhibits 70 (small hubs) and 72 (nonhubs) above. As noted above, for small hubs, the estimates for models that include only airport-directed incentives are identical to those reported for the model using "any incentive" because there are no small hub airports in the dataset that have community-directed incentive programs that do not also have airport-directed programs.

Exhibit 84. Multiple Regression Results for Small Hub and Nonhub Airports (using Departing Seats as the Dependent Variable and Incentives from the Airport or the Community as an Independent Variable)

	Small Hubs (No Outliers)			NonHubs (No Outliers)		
DEPENDENT VARIABLE	Log(Annual Departing Seats)			Log(Annual Departing Seats)		
Airport Incentive	0.102			-0.023		
	-0.078			-0.074		
Community Incentive		0.203			0.059	
		(0.051)***			-0.063	
Any Incentive[1]			0.102			0.089
			-0.078			-0.08
Level change in HHI	-0.112	-0.097	-0.112	-0.353	-0.352	-0.339
	-0.405	-0.358	-0.405	(0.116)***	(0.114)***	(0.114)***
Log change in Per-Capita Income	1.739	2.024	1.739	1.947	1.746	1.81
	(0.900)*	(0.796)**	(0.900)*	(0.796)**	(0.808)**	(0.792)**
Constant	-0.119	-0.162	-0.119	-0.01	-0.054	-0.094
	-0.091	(0.060)***	-0.091	-0.07	-0.056	-0.078
N	59	59	59	108	108	108
R^2	0.078	0.26	0.078	0.123	0.13	0.133
Adjusted R^2	0.028	0.22	0.028	0.098	0.104	0.107
F Statistic	1.556	6.449***	1.556	4.871***	5.157***	5.295***

Finally, we note that there are many possible extensions to our analysis. For example, it would be interesting to incorporate one or more measures of competition among airports. Airports that are located in a region served by multiple airports may be more likely to offer incentives, in order to remain competitive. A nonhub airport located in a major metropolitan area may see different impacts of offering an incentive as compared to a nonhub airport that is more isolated (and has less competition with other airports).

Economic Impacts of Air Service Incentive Programs

The comprehensive regression analysis examines the effects of air service incentive programs and other airport characteristics on airport activity and quality of service as measured by annual commercial flights, annual departing seats, and QSI scores. This analysis indicates that there are few strong statistical links between the presence of incentive programs at airports—whether airport-directed or community-directed—and these service variables, especially for large and medium hub airports. These weak relationships may reflect the fact that the use of air service incentives of some kind is now relatively common among airports and the communities served by airports, especially for large and medium hub airports.

As indicated in Exhibit 84, at small hub and nonhub airports, statistically significant relationships between changes in airport activity measures and the presence of incentive programs of any kind are present for changes in annual departing seats, using the logarithmic model specifications. These relationships are not as strongly present in regressions using the other two proposed dependent variables, as shown in Exhibits 70 and 72. We used these Exhibit 84 results to estimate the relationship between the presence of incentive programs and economic impacts in the regions served by airports.

The first step in this analysis is to estimate the effect of the presence of incentive programs at an airport or community on the change in the log of annual departing seats between 2012 and 2017. The parameter estimates reported in Exhibit 84 show that other things equal, this log difference is increased by 0.102 at small hub airports that have incentive programs, and is increased by a comparable value of 0.089 at nonhub airports that have incentive programs.

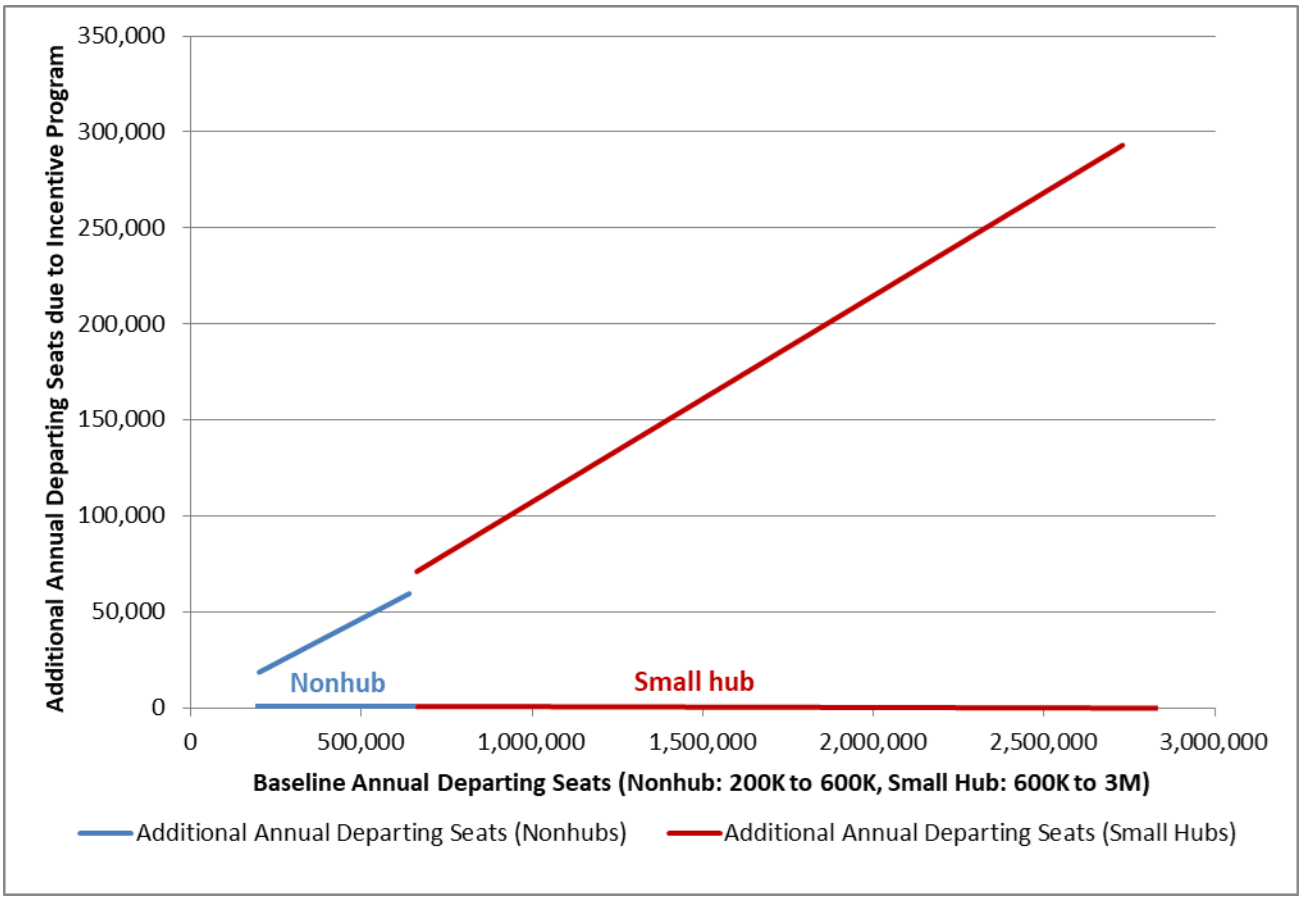
Because this regression analysis uses log differences, the difference measured in levels for a particular airport is a percentage difference, the magnitude of which depends on the baseline number of annual departing seats at the airport in question. Exhibit 85 below shows how these changes in annual departing seats vary with the size of the airport (measured in departing seats). The parameter estimates show that nonhub airports, with between approximately 200,000 and 600,000 annual departing seats,[50] increase annual departing seats by between approximately 17,800 and 53,400 due to offering incentives, which on average increase departing seats by about 8.9 percent. For small hubs, ranging between approximately 600,000 to 3,000,000 annual departing seats,[51] offering incentives is associated by the model in Exhibit 84 with between approximately 61,200 and 306,000 additional annual departing seats, since the incentive offers are associated on average with an increase in departing seats of about 10.2 percent.

Ranges of increases in departing seats associated with incentive offers at small and nonhub airports, based on these model estimates, are shown in Exhibit 85. The regression model results indicate that the offering of incentives is associated with a modestly larger percentage increase in seats at the small hub airports, which have more baseline departing seats than do nonhub airports.

[50] The FAA definition of a nonhub passenger service airport is one with more than 10,000 annual enplanements and less than 0.05% of total U.S. annual enplanements. In the most recent TAF, the largest nonhub airport is Chattanooga (CHA) with 472,248 passenger enplanements in 2017. Using the average load factor of 0.8 for regional airlines reported in the 2018 FAA Aerospace Forecast (FAA 2018), CHA's annual enplanements correspond to 590,310 (or approximately 600,000) annual departing seats. For nonhubs, rather than using the defined minimum of 10,000 annual enplanements, for this analysis we use the minimum value of 160,000 annual enplanements, which corresponds, at the 0.8 load factor, to 200,000 annual seat departures. For nonhub airports, this range of 200,000 to 600,000 annual departing seats is used to define the range of airport activity in this analysis.

[51] While there is some overlap between the smallest small hub airports and the largest nonhubs, 600,000 annual departing seats is used for the lower bound of small hub activity. The largest small hub airport in the most recent TAF is Burbank (BUR) with 2,304,625 annual enplanements. Again using the 0.8 load factor, this implies annual departing seats of 2,880,781, or approximately 3,000,000. (Using an average load factor of 0.85, closer to the average load factor estimated by FAA in the Aerospace Forecast for mainline carriers, implies 2,711,324 annual departing seats.) Thus, for analyzing small hub airports, a range of 600,000 to 3,000,000 annual departing seats is used in this analysis.

Exhibit 85. Impact of Incentive Programs on Annual Departing Seats for Small and Nonhub Airports, by Scale of Airport Activity



To connect these impacts of air service incentives on airport activity to regional economic impacts, the project team examined a number of airport economic impact studies from 2004 to 2016. Airport economic impact analyses estimate the share of a region's economic activity—economic and business transactions, regional income, and regional jobs—that can be attributed to the airport's operations and presence in the region. In particular we look at the relationship between annual departing seats at the airports in our sample of economic impact studies and the number of regional jobs that could be associated with this activity as one of the airport economic impacts. Regional jobs are an important metric for community organizations, and are a measure that does not need to be adjusted for price level changes.

Exhibits 86 and 87 show the small hub and nonhub airports in our sample of economic impact studies. For each airport, annual departing seats are reported along with measures of economic impact, including the number of regional jobs identified by the economic impact analysis to be supported by the airport's aviation and economic activity. These quantities can be used to estimate the regional jobs per airport departing seat as well as the reciprocal of that number, the number of annual departing seats associated with a regional job.

For these two ratios, we calculate the overall average for small hub airports and nonhub airports. We also calculate a trimmed average, based on the exclusion of the two highest values and the

two lowest values from the calculation, which in Exhibits 86 and 87 are shown in boxes at the top and bottom of the two rightmost columns. For small hub and nonhub airports, we use the trimmed averages for further calculations.

The sample of economic impact results for small hub airports is shown in Exhibit 86. For small hub airports, there are on average about 200 annual departing seats associated with each regional job for the seven individual airports used to calculate the trimmed small hub average for this ratio. Note that for small hubs, the overall average ratio of airport-associated jobs to annual seat departures is similar for the seven airports in the trimmed sample. These results are shown in Exhibit 86.

Exhibit 86. Economic Impacts and Annual Departing Seats at a Sample of Small Hub Airports

Small Hub Airport		Econ Impact ($M)	Income ($M)	Jobs	Annual Departing Seats	Jobs/ Seat	Seats/ Job
Norfolk	ORF	$791.4	$275.7	9,696	3,095,564	0.003	319.3
Charleston	CHS	$710.9	$243.9	6,725	2,024,202	0.003	301.0
Wilmington	ILM	$1,630.8	$83.4	4,910	599,492	0.003	296.6
Burbank	BUR	$1,766.5	$662.9	12,440	3,215,298	0.004	258.5
Lexington	LEX	$370.3	$104.3	3,478	763,860	0.005	160.7
Huntsville	HSV	$0.0	$66.0	6,075	1,250,178	0.005	205.8
Piedmont	GSO	$1,953.3	$229.7	8,410	1,717,330	0.005	160.7
Spokane	GEG	$895.5	$319.0	12,243	2,454,904	0.005	200.5
Boise	BOI	$1,344.6	$510.7	15,559	2,491,006	0.006	160.1
Greenville	GSP	$817.1	$170.5	9,528	1,440,136	0.007	151.1
Guam	GUM	$1,722.0	$628.0	20,440	2,117,579	0.010	103.6
					Overall Average	**0.005**	**198.2**
					Trimmed Average	**0.005**	**213.5**

In Exhibit 87, similar factors and calculations are reported for a sample of 19 nonhub airports. Using the trimmed average of 15 of these nonhub airports results in an estimate of 0.0114 jobs per departing seat, or about 88 seats per regional job associated with the airport's activity in its home region. *This is an average regional impact or relationship that is over twice as strong as that shown for small hub airports, in that at a nonhub it takes fewer than half the annual departing seats to "result" in a regional job compared to the small hub relationship*. The nonhub sample airports and the values from the economic impact comparisons are shown in Exhibit 87.

Exhibit 87. Economic Impacts and Annual Departing Seats at a Sample of Nonhub Airports

Nonhub Airport		Econ Impact ($M)	Income ($M)	Jobs	Annual Departing Seats	Jobs/ Seat	Seats/ Job
Fayetteville	FAY	$312.5	$18.7	610	313,129	0.002	513.3
Chattanooga	CHA	$122.7	$44.1	1,440	647,942	0.002	450.0
Central Wisconsin	CWA	$61.9	$14.8	457	198,617	0.002	434.6
Asheville	AVL	$473.8	$41.5	1,700	568,889	0.003	334.6
Coastal Carolina	EWN	$179.1	$13.3	560	166,087	0.003	296.6
Green Bay	GRB	$242.9	$68.8	1,633	440,796	0.004	269.9
La Crosse	LSE	$49.1	$47.5	802	146,147	0.005	182.2
Hickory Regional	HKY	$25.1	$5.1	160	24,430	0.007	152.7
Grand Junction	GJT	$380.0	$130.8	2,871	411,435	0.007	143.3
Concord Regional	JQF	$160.9	$43.0	1,940	205,858	0.009	106.1
Pueblo	PUB	$85.0	$22.5	828	74,554	0.011	90.0
Lake Charles	LCH	$224.0	$52.5	1,612	128,557	0.013	79.8
Ocala	OCF	$73.6	$23.2	634	49,422	0.013	78.0
Eagle County	EGE	$635.9	$217.5	6,294	347,125	0.018	55.2
Cheyenne	CYS	$192.7	$50.0	2,043	93,209	0.022	45.6
Front Range	FTG	$75.5	$31.6	489	18,525	0.026	37.9
Rocky Mountain Metro	BJC	$460.5	$153.9	2,670	100,329	0.027	37.6
Daytona Beach	DAB	$1,105.1	$314.0	11,316	421,749	0.027	37.3
Kinston Regional	ISO	$452.3	$48.3	1,350	20,129	0.067	14.9
					Overall Average	**0.0141**	**70.8**
					Trimmed Average	**0.0114**	**88.1**

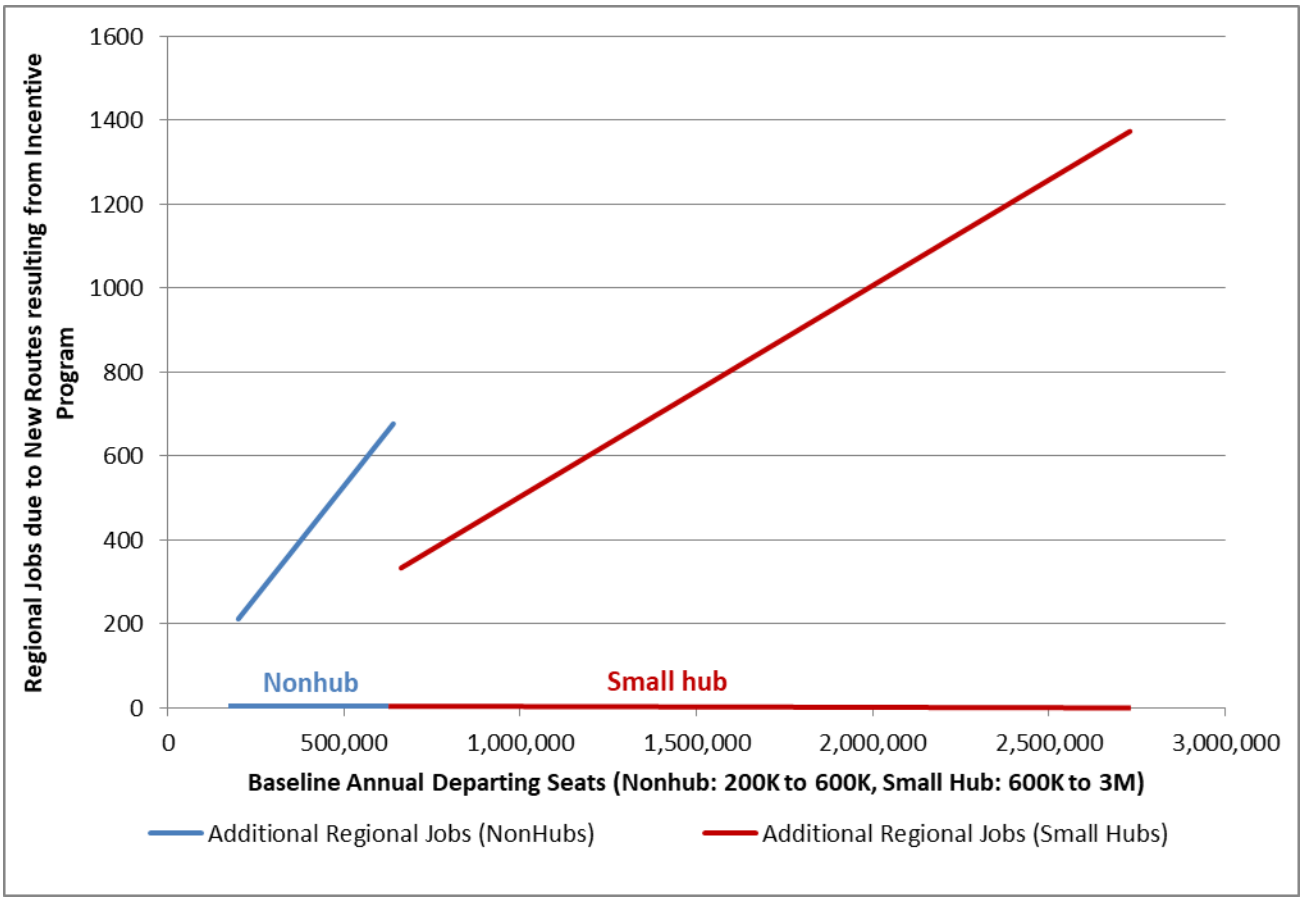
To estimate the scale of effects that an average incentive program might have for regional economies, the two relationships presented in this subsection can be linked. First, the relationship between the presence of incentives of any type at small and nonhub airports and annual seat departures that was developed in the econometric modeling described in this section and reported in Exhibit 84 and graphically in Exhibit 85, shows how incentives affect small hub and nonhub airport activity (measured as annual departing seats) on average.

Second, the estimates for the average relationship between regional jobs and airport seat departures, reported in Exhibits 86 and 87, shows how the seats associated with an incentive program at a small hub or nonhub airport may be associated with changes in regional economies. Linking these two associations provides a rough idea of how an incentive program may affect regional economic activity, expressed as the number of regional jobs that could be associated with the additional seat departures that an incentive program might induce, on average. This implied relationship is shown in Exhibit 88.

Since the estimates indicate that both the effect of an incentive program on airport seat departure activity and the impact of a marginal departing seat on regional job creation are stronger at nonhub airports compared to small hubs, the slope of the line linking the presence of an incentive program to growth in regional jobs as the airport's baseline annual seat departures increases is markedly steeper for the nonhub airports.

Depending on the baseline annual seat departures at a nonhub airport, the use of incentives is associated in the data with between approximately 200 and just over 600 annual airport-associated jobs.[52] Similarly, a small hub airport's incentive program may also be associated with between approximately 300 and just over 1,200 regional jobs, depending on the airport's annual departing seats, which range between approximately 600,000 and 3,000,000 per year (a much wider range than nonhubs).

Exhibit 88. Economic Implications of the Presence of Incentives at Small and Nonhub Airports (Increase in Annual Departing Seats for Different Levels of Baseline Annual Seat Departures)



This analysis of the regional economic effects of an airport's decision to offer air service incentives is based on the association between two different types of analysis and relationship. The first is the link between an airport's use of an incentive program (of any type and scale) and the annual activity at the airport, measured as departing seats, based on the results of econometric modeling. The second is the average link between an airport's seat departure activity—its scale—and the airport's economic impact within the region it serves, as measured in the regional jobs that can be associated directly or indirectly with the airport's operations. These results can be taken to point to high level trends, and the results for a given airport will depend

[52] These airport-associated jobs need not be located on the region's nonhub airport. They may be connected with the regional economic activity that is in turn associated with the airport and its effects on the regional economy.

on many factors that are not considered in this high level analysis, such as the structure of the incentives offered by a particular airport, the types of airlines and passengers making use of the airport, the overall local and national economic environment, and many other factors.

8. Lessons Learned

In the course of the research conducted for this project, the project team has interviewed a comprehensive range of stakeholders and participants from the evolving world of air service incentives in the United States. These have included the airports and communities who offer, fund and manage air service incentives, airlines that make use of incentives to develop their air transportation networks, and the regulators who ensure that airport-sponsored incentive programs represent appropriate and fair uses of airport generated funds. As a result of these discussions, several lessons about the current use of air service incentives have been synthesized, and are presented in this section.

1. In concert with the evolution and changes in the airline industry in recent years, the use of air service incentives by airports and communities has become much more commonplace and are now in much wider use by U.S. airports and their communities—while the importance of the sustainability of a new service remains fundamental for airlines evaluating new markets and opportunities, the use of some type of incentive both for financial risk sharing and as a "deal sweetener" is increasingly becoming an airline expectation, especially for LCCs and ULCCs.
    a. Because of the constraints placed on airport funded and directed incentives, they may be less complex and will sometimes be of shorter duration than incentives developed and funded by communities may be. Because of this, community directed incentives may be the more likely source of innovation in U.S. air service incentive programs and offerings.
    b. Most large and medium hub airports have incentives of some type in place, and those that do not offer them are likely to be slot constrained airports of national prominence that serve markets that are in high demand. They may not need to offer incentives. This is consistent with what was heard in the airline interviews—airlines do not look for incentives from LGA or JFK, for example.
    c. The importance and amount of air service incentives depends on a variety of factors including the stage length of a potential route, the aircraft being used, the market's history with similar service, the business model of the air carrier, and the likelihood of a competitive response from another carrier.
    d. Increasingly, large and medium hub airports are focusing their incentive programs on attracting international air service and service to point-to-point markets with business demand while small hub and nonhubs have focused their efforts on increased connectivity through routes to domestic hubs.
    e. This evolution or spread of the use of incentives by airports and communities, and their increased frequency, which reduces the variability in the datasets, especially for large and medium hub airports, makes the mixed regression results that show only modest differences in the performance of airports with and without incentive programs in effect unsurprising. Increasingly, the use of incentives sponsored by airport stakeholders, including the airports themselves, to support new markets is becoming the norm.

2. There is increasing importance for community funded and managed incentives. This growing prominence may lead to new kinds of problems or challenges for both communities and their airports.
    a. Community organizations interested in providing incentives may be less well informed about commercial aviation, airline economics, and the requirements from the FAA that may constrain the freedom with which airport managers can be involved with community incentive efforts
    b. Community organizations could benefit from better understanding of airline economics and the opportunity costs for an airline when it assigns aircraft to service in specific locations and knowing more about what drives airline choices and their willingness to enter markets (or decide to leave them)
        i. Encouraging this better understanding of airlines may be increasingly important since community funded and managed incentives are the likely source of innovation in U.S. air service incentives, including the adoption of the kinds of incentive approaches seen at non-U.S. airports.
    c. Sponsors of community incentives also need to understand the limitations on the extent to which airport directors, managers, and staff can be involved in the offering and implementation of community directed incentives—this may be especially challenging for small hub and nonhub airports that are operated as departments of municipal governments, with airport directors reporting to city managers and councils.
    d. The diversity of public and private entities providing air service incentives has increased in recent years. For example, 19 states either have established air service incentive programs or have participated in community air service incentive programs.

3. What should airports and communities know about the incentives they might introduce?
    a. Is the proposed program comparable to offerings by nearby or by similar airports and/or communities? How can incentive programs be put side by side and compared?
    b. What markets can airport directed incentives plausibly encourage service to? How would service in those markets interact with the markets currently served by the airport, or by nearby competitor airports? How will these factors and interactions influence airline thinking about potential routes?
    c. What kinds of "returns" does the airport and the community think about as contributing to the "ROI" for an incentive offering? For airports, does ROI refer strictly to financial returns, or operational changes and developments? Do the community organizations and state and local governments that are sponsoring more and more air service incentive programs have the same understanding of the regional benefits of improved air service as airports do?
    d. What should airports and airport managers do to stay compliant with the FAA requirements regarding incentive programs and their provisions and structure?
        i. FAA has stated that it does not "approve" incentive programs, and audits of incentive programs typically come about as part of overall audits of airport finances and programs.

ii. FAA interest or concern regarding incentive programs and incentive provisions may sometimes be initiated by airline complaints that an incentive program is structured to fit or benefit a particular type of carrier.
iii. FAA oversight and guidance of U.S. airport-directed incentive programs may be of particular interest for state, local, and community policymakers interested in the differences between U.S. restrictions on airport-funded air service incentives and those that can be offered by non-U.S .airports.
    1. To what extent can this innovation gap be made up by the greater flexibility available to community directed programs?

4. Airports can be, and are, very different from one another with respect to the factors and lessons identified above and in the report generally, and understanding an airport's features and the ways in which the airport may differ from other airports is very important for creating effective air service incentives by both airports and communities.

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10. Glossary

ASD	Air Service Development
ASIP	Air Service Incentive Program
CPE	Cost per enplanement or per enplaned passenger
CVB	Convention and Visitors Bureau
EAS	Essential Air Service
EDC	Economic Development Council
FIS	Federal Inspection Service
LCC	Low-cost carrier
MRG	Minimum Revenue Guarantee
O&D	Origin and Destination
PDEW	Passengers per day each way
SCASDP	Small Community Air Service Development Program
ULCC	Ultra low-cost carrier