

Technical Appendix 4: Qualitative Research

ACRP 03-28: The Role of U.S. Airports in the National Economy

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1 INTRODUCTION

Appendix 4 reviews the qualitative research conducted for ACRP 03-28. Part 1 of this Appendix reviews and summarizes the 76 interviews conducted with airport managers, business owners, executives of business groups (such a chambers of commerce, industry consortia, and others), and aviation organizations. Part 2 of this Appendix, reviews the important but generally non-quantifiable contributions of U.S. airports to community development.

1.1 Interviews

The purpose of interviews was to add an “on-the-ground” perspective to the quantitative analyses represented in other parts of the research conducted. The information gleaned from the interviews verified and enriched the quantitative research and findings.

Research conducted through interviews explored the extent of industry reliance on air transport by sector for a sample of companies that fall within these industry sectors, as well as with airport managers. For the most part, the interviews tended to validate the industry data uncovered by the Research Team. However, it appears that the two to three year time lags routinely found in time series data may be slightly overstating some industry reliance on aviation and understating reliance on surface alternatives. This lag time is important to note, because it is apparent that routing and scheduling technologies are being aggressively used by shippers and integrators (e.g., UPS, Federal Express and others) and are allowing for increasingly greater efficiencies and reliability in managing ground shipments. Also, several interviews reported that refrigeration requirements are a major impediment for air transport of perishables in light of readily available refrigerated trucks and rail cars.

Second, interviews with industry organizations were conducted to better understand how economic impact data is used in the industry and to identify gaps in the existing body of research. Interviews with aviation membership organizations provided an overview of how economic impact data is used by professional airport and aviation membership organizations. As a result, the research team was able to describe the membership, the missions and the messages of several organizations serving the aviation industry. The outcome provides insight to the current sources of economic data, the messages being created by industry organizations, the audience for these messages and the potential value of additional data.

The interviews also allowed the research team to explore whether off-airport businesses and industry groups observed a relationship between changes in air service and productivity within their business or industry. Today, the mode of cargo shipment depends on transportation price, value of the product shipped, and required schedule. Often, the

shipper is indifferent to the mode of transportation as long as the cargo carrier or logistics firm meets the desired schedule and price requirements. Integrated carriers such as FedEx and UPS dominate the domestic market and offer services that involve both ground and air transport. Most short haul air cargo (under 200 miles) travels by truck. Consequently, a database that focuses on cargo only transported in aircraft provides a partial picture of demand and service levels. Since ground transport has become a more significant contributing mode in the last five to ten years, a time series of data that only focuses on the air component might understate the role of cargo if the road component was not included.

Third, interviews were conducted with additional industry organizations, business alliances and firms to explore how connectivity of airports (non-stop destinations) influence and buttress markets and sales volumes.

1.2 Qualitative Impacts of Airports

Airports generate a wide range of activities that do not involve monetary transactions and sponsor activities where the full values of such transactions are often not reflected in money circulated in the economy. Such activities do not result in economic impact benefits or the benefits that are counted understate the full values attributable to airports. In describing the national role of airports, these non-quantifiable contributions augment the economic impact, multifactor productivity and consumer surplus perspectives that define the economic role of the national airport system.

The qualitative impacts of U.S. airports generally fall into one of four main categories: safety, health, research and other (examples of “other” are news reporting and air shows). A wide variety of groups and individuals benefit from these qualitative impacts, depending on the specific aviation operation and activity. Examples include, but are not limited to, airport communities, interest groups, students, remote communities, the ill, farmers, business communities, and the general public.

2 BACKGROUND AND SUMMARY OF INTERVIEWS

2.1 Research Approach to Interviews

The first part of the interview program was to confirm the data research that identified industry sectors that rely on airports for business operations. Initially, the Research Team targeted Fortune 100 companies to interview. This approach, while initially sound from a research standpoint, did not prove as fruitful as hoped. It was difficult to find the right individuals to talk with and gain corporate permission to do so. The Research Team's second approach was to call industry associations and obtain contacts for companies that were active in the association and likely to agree to be interviewed. This method worked much better and, combined with Research Team contacts, yielded multiple interviews that proved to be an interesting sample. The following air-reliant business classifications were interviewed:

- Aircraft manufacturers
- Construction and Building components
- Cut flowers
- Data processing services
- Electronic product manufacturers
- Engineering services
- Fabricated and stamped metal products
- Fresh fish
- Medical device manufacturers
- Pharmaceuticals
- Printing and publishing
- Ski industry

Secondly, interviews were conducted with airport administrators and leaders of aviation membership organizations. The airports included several that are leaders in cargo movements and several that are large general aviation airports with high volumes of corporate travel. Two cargo airports, Anchorage and Miami International Airport (MIA), also have high volumes of commercial passenger service. The aviation membership organizations interviewed represented aircraft owners, pilots, the general aviation industry,

the commercial airline industry, the business aviation industry, and the professionals who maintain and repair aircraft.

Third, the qualitative analysis draws on telephone interviews with individual businesses, industry groups, or economic development organizations to discuss how changes in air connectivity effect their business, industries, or local general economic development. To obtain a cross-sectional sample, the research team analyzed the change in value added between 1995 and 2013 for each industry group and each geographic area that encompassed an airport. Metropolitan Statistical Areas (MSAs) were used to define the area of influence around an airport or groups of airports. The goal was to identify industries and geographic areas where large positive or negative changes in gross product occurred. The following groups of industry and geographic areas were identified as candidates for interviews.

- Accommodations & Food Services – San Antonio, Boston, Phoenix, Chicago
- Administration & Support of Waste Management Services – San Diego, Atlanta, St. Louis, Boston
- Art, Entertainment & Recreation – Nashville, San Francisco, Philadelphia
- Finance & Insurance – Philadelphia, Phoenix, Salt Lake City
- Information – San Francisco, Denver, Boston
- Management of Companies & Enterprises – Pittsburgh, Cincinnati, Philadelphia, Denver
- Manufacturing (& Cargo) – Chicago, Atlanta, Portland, Detroit, St. Louis, San Francisco
- Professional Scientific & Technical Services – Boston, San Francisco, Denver, Tampa
- Real Estate, Rental & Leasing – Phoenix, Raleigh-Durham, Atlanta
- Wholesale Trade – Chicago, Atlanta, Portland

2.2 Summary of Findings – Industries that Depend on Airports

The interviews resulted in a wealth of information about how companies make distribution decisions for shipment of parts and products:

- Air transport is the most expensive mode and in most cases the choice of last resort, except for:
 - Perishable goods
 - High value products

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- Just-in-Time parts and supplies
- Time sensitive delivery either because of long distances or production delays
- Explicit requests by customers

- For perishable goods (e.g. flowers, drugs, fish) air transport does not usually provide climate controlled environments, but shortens the time the product is “at risk” of perishing. Refrigerated trucks and rail otherwise provide more controlled environments.

- The technology that powers time definite delivery by air has been fully implemented for many ground services provided by integrated carriers, such as FedEx and UPS. This has allowed companies to select time definite ground transport as the lower cost option to air. The integrated carriers have responded to this shift by expanding ground transport capabilities and delivery options.

- Logistics software is also available to company shipping departments to search for the lowest cost option for transport and to steer internal company shipping requests to the lowest cost option that meets delivery requirements. This software is modifying old habits that air transport is the only assured way for time definite delivery and tracking capability.

- Integrator agreements with the United States Postal Service and access to postal distribution networks are also offering companies an even lower cost ground shipping option. Like the purchase of air travel, product shipment has become a commodity business. Even when a company has a contract carrier in place, the logistics department will search for the lowest cost option from that carrier as pricing changes constantly.

- Heavy manufactured parts and equipment tend not to be shipped by air unless absolutely necessary. Companies are more likely to locate in their sales region for service and shipping reasons. A good example of this trend is the automotive manufacturing industry where Japanese and German auto makers are producing U.S. destined automobiles almost entirely in the U.S.

- Publishing is another industry whose use of air cargo is becoming more limited because:
 - A growing proportion of retail publications are distributed electronically
 - Automated distribution facilities have reduced delays and uncertainty about product availability so lower cost shipping alternatives are a viable option
 - Time definite ground transportation options are preferred.
 - However, use of air travel for internal and external meetings remains strong.

- On the business travel side, there is no doubt that the internet services are replacing some internal company meetings or meetings with clients. However, use of air travel for sales and on-site service continues to be the preferred mode, except,

perhaps, in short haul markets where air travel has become more limited and ground transport options save time. Companies that serve remote locations also depend on private or commercial air service.

2.3 Interviews with Air Reliant Industries

Cut Flowers

Interview with Andrew Hamer, Armellini Express Lines

Armalini Express Lines is a specialty shipper of fresh flowers based in Miami, Florida.

The majority of cut flowers coming to the U.S. arrive from Colombia and Ecuador. The product is grown, processed, refrigerated, and packaged in the country of origin then shipped via air in non-climate-controlled containers. The air-transport sections of the supply chain are the only sections which are not climate-controlled, and this is seen by some in the industry as the weak link in the supply chain.

The cut flowers are cooled to 34–36 degrees Fahrenheit (°F) and packaged in boxes for air shipment. Flowers are not air-transported in water, nor in refrigerated shipping containers. So when the shipment arrives in Miami, the boxed flowers have reached a temperature of 50–60 degrees Fahrenheit (°F). Armellini Express Lines ventilates the boxes of flowers, replacing the warmed air with cooler (34–36 degrees Fahrenheit (°F)) temperature and humidity (80%) controlled air as soon as the flowers arrive at their facility. In that way, the flowers will last in a refrigerated environment. Later, they repack the flowers and put them in water.

Flowers are then grouped into Truck Load or LTL (Less Than Load) shipments for transport. The trucks used to transport flowers are environmentally controlled to preserve the cut flowers during the trip to wholesale distribution centers across the United States.

If air transportation were not available, the flower-growing regions would likely shift farther north, perhaps into Mexico, where reliable truck transportation could control the shipments from grower to wholesaler. Since the air-transport section of the process is the weak link, this shift from air to truck would be viewed as an improvement in the supply chain.

Domestically, in the United States, flowers are only shipped via air in small lots – too small to be economically viable for a truck to deliver – and in small priority-delivery shipments. This is because flowers shipped by air are not climate-controlled during shipment and climate control is the primary factor the shipper wants to maintain. Businesses that supply fresh flowers to customers may choose to locate near an integrator’s hub airport to allow shipment to take place at the latest possible time (as in midnight madness in Memphis).

Fresh Fish Cold-Chain

Interviews with Steve McQueary, Brown Line LLC, and Thomas Mathews, Legal Sea Foods

Brown Line is a cold-chain transportation company based in Seattle, Washington, which has a reputation in the industry for quick delivery of high-quality fresh fish. Legal Sea Foods is a fresh-fish and restaurant company in Massachusetts.

Since many of the coastal waters near the continental U.S. have been fished out, the most productive fishing grounds remaining are far from urban population centers. Because fish have a limited shelf life, and timely delivery is important to the quality of the meal served in a restaurant, high-quality whole fresh fish are likely to be transported by air.

Air transportation becomes an important link in the fresh-fish cold-chain due to the remote nature of productive fishing grounds. For example, fish caught on a day-boat in Alaska will be processed on the docks that evening, chilled to 30 degrees Fahrenheit (°F) and put on an airplane bound for Seattle. Once the fish arrives in Seattle, a transportation company (in this case Brown Line) will repack the fish into a refrigerated truck, and that truck will drive non-stop from Seattle to Chicago, Boston, or New York. The fresh fish will be served in a restaurant in fewer than five days after it was caught.

The most likely fish to fly all the way from Alaska to major U.S. cities are seasonal fish and high-value fish. Copper River King Salmon is a seasonal fish, so being the first restaurant in Seattle, San Francisco, or Boston to have it on the menu is an important milestone; therefore, it will be flown all the way. Halibut is also a high-value fish (approx. \$5.50 per kilogram), so its value-to-weight ratio puts it in the category of fish that get flown from the fishing grounds to the restaurant.

There are several instances where fish is sent via truck due to its value, or conditions it may encounter en route. When the risk of the fish sitting unrefrigerated on an airport ramp (in a warm climate) is high, the product is shipped in refrigerated trucks because keeping it cold is more important than getting there in less than 60 hours (the time it takes a Brown Line truck to make the trip from Seattle to Boston). Frozen fish and lower-value fresh fish that are processed into fillets also travel via truck because time-in-transit is not a critical factor in the fish's value at market.

Processed fish are sealed in airtight plastic pouches and cooled to 30 – 32 degrees Fahrenheit (°F). The pouches are packed in sturdy waterproof containers with either dry ice (max 5 pounds) or with gel cold-packs to maintain the temperature during transit. Everts Air Cargo, an Alaska shipper, requires all packages to withstand 48 hours in transit without refrigeration. Alaska Airlines maintains some refrigerated facilities at their hubs, but cannot guarantee all cold-chain shipments will be stored in refrigeration. Shipments are not refrigerated during the time spent in the airplane.

Fabricated and Stamped Metal Products

Interviews with Bob Knittel, Metal Flow Corporation; Lisa Habe, Interlake Stamping of Ohio; Bob Laystrom, Laystrom Manufacturing; Tom Thornburg, Sacoma International; and John W. Whittmann, RES Manufacturing Company

Many of the companies interviewed in this sector build components for the manufacture of larger machines such as automobiles. These companies rely on air transportation to move people, and to a lesser extent, parts. People need to fly in order to visit distant suppliers, attend sales meetings, and collaborate on engineering and design issues. “The transportation of people and parts is very important to Metal Flow,” said Knittle, so much so that if their local airport closed, they would choose to move their facility near another airport. “Several people travel every week in support of the company’s sales and technical-support divisions,” he added.

RES Manufacturing Company said air transportation is critical to their business; if they did not have access to air transport for their people, they would not be able to reach some of their customers in time because surface travel takes too long.

Interlake Stamping of Ohio has a customer in Puerto Rico, and while many of the parts regularly are transported via truck and ship, parts are shipped via air when their customer has an urgent parts requirement. Additionally, visits to customers and trips to trade shows are made via air.

Laystrom Manufacturing builds heavy, bulky products, but even those are transported via air when the customer is experiencing an urgent situation. According to Laystrom, this “happens six to eight times per year.” Additionally, Laystrom employees travel 18 to 20 times per year in support of customers and to visit trade shows.

The nature of these businesses and their proximity to the customer make it feasible to transport most products via truck. Even in many urgent situations, an express truck can deliver the product as quickly as an aircraft could, and these companies’ employees typically travel via automobile when the trip is under six hours. Additionally, the cost of transporting by air has a big impact on the profit margins of the products these companies make. However, John W. Whittmann of RES Manufacturing Company said, “We spend \$50,000 a year sending people to visit customers, suppliers, and trade shows.”

Pharmaceuticals

Interview with John Caliper, Lynden International

Lynden International is a multi-modal transportation company based in Seattle, Washington.

The United States Food and Drug Administration (FDA) enforces regulations and accountability measures on temperature-sensitive pharmaceutical shipping companies, which has resulted in the formation of specialty couriers in the U.S. While American Airlines estimates that 25 percent of all healthcare products are temperature-sensitive and require refrigeration during transportation and storage, John Caliper claims, “Less than one percent of cold-chain pharmaceuticals are shipped via air, and the remainder travel via surface transportation in refrigerated containers.”

The three primary drivers for air shipment are value, shelf life, and overcoming the distance from a distribution center to the customer. First, high-value pharmaceuticals are often shipped via air because the cost of shipment is such a small part of the total cost, and the customer wants the product sooner rather than later. Next, products with a short shelf life travel via air to increase the time they are available to the customer. Finally, products coming from distant distribution centers typically fly when they are competing with products that can be obtained from a closer distribution center; thereby, eliminating the time difference in the selection of a supplier.

Pharmaceutical companies, like many other industries which require a large, well-connected distribution network, have set up their distribution centers at locations that have multi-modal transportation solutions. One example of such a city is Memphis, Tennessee—where there is easy access to cargo airlines, ships, trucks, and rail service. This allows a company to respond to its customer with the fastest (or most economical) transportation solution all from one location.

Medical Device Manufacturing

Interviews with Tom Sommer, Massachusetts Medical Device Industry Council, and David Gaskin, MicroLife Solutions

The Massachusetts Medical Device Industry Council (MassMEDIC) represents the medical device industry in Massachusetts, and MicroLife Solutions builds medical devices in Golden, Colorado.

The FDA has three classes of devices (I, II, and III), and the level of customer or technical support often depends on the class of device. Class I devices are minor devices (e.g., accessories like disposable mouth pieces), and typically require less support. Class II devices interact with the body, enter the body, or are implanted in the body; and manufacturers of Class III devices travel to support them on a regular basis.

Close proximity to air transportation is so important to the medical device industry that many of these companies choose to locate their facilities near air transportation hubs. The industry is highly collaborative, and people travel to distant suppliers for the purposes of marketing, sales, and attending trade shows. Because scientists and engineers need to collaborate on the design and function of these devices, there is a need to have in-person

meetings and to work on issues as a group. The industry reaches all over the world, from Europe to the U.S. to Asia, so being able to fly to customers, meetings, and conferences is essential.

The medical device industry creates 14 percent of the products built in the Commonwealth of Massachusetts, and shipping them via air is an important part of the process. For example, Boston Scientific maintains an automated distribution center near Boston because of the close proximity to air and other modes of transportation. Because medical devices are delicate and have a high value-to-weight ratio, they are often shipped via aircraft.

Transportation Equipment Manufacturing

Interviews with John Caliper, Lynden International, and Darrell C. Wilson, United Technologies (UTC)

Lynden International is an award-winning shipper of parts for Toyota Motor Co., and United Technologies builds products ranging from elevators to helicopters.

Many transportation equipment manufacturers, like Toyota Motor Co., United Technologies Co. (UTC), and Boeing Commercial Airplanes, have global subcontractor networks which build many of the components of their products. The worldwide shipping system consists of barges, ships, trucks, trains, and planes. The customer's timetable drives the decision regarding transportation method. The products go by air if the need is urgent, and they travel via surface means if the preference is to lower costs.

In Boeing's case, components (including 737 fuselages) typically travel by ship and rail. However, Boeing has also modified four 747-400s to be able to transport 787 wings, fuselage sections and other parts. Boeing Commercial Airplanes announced in October 2003 that, due to the length of time required by land and marine shipping, air transport will be the primary method of transporting parts for the Boeing 787 Dreamliner. Delivery times for the 787's wings, which are built in Japan, will be reduced from around 30 days to just over eight hours with the modified 747s.

Air transportation is very important to the success of UTC's business as well. They ship goods via air transportation when a) the customer requests it, b) the transit time is more important than the cost, and c) a change in the schedule necessitates it. UTC ships via all modes of transportation, and because the cost of shipping is often a consideration for their customers, UTC has systems and guidelines in place to help them choose the proper transportation mode. Additionally, in order to increase productivity, UTC employees travel to visit customers and suppliers on a daily basis.

Ski Area Industry

Interview with David Byrd, National Ski Areas Association

Air transportation is a significant partner in the ski area business, so much so that resorts will contract with the airlines to provide air service during the ski season. This is typically limited frequency jet service during late December through March. Ski areas are located away from large cities—in places where weather conditions are favorable to snow. Destination resorts have developed into small cities that provide all the comforts of modern life including hotels, restaurants, and shopping centers. However, they are often beyond driving distance of major population centers; therefore, they rely on airports and the air transportation system to bring customers to them.

Air transportation to ski resorts peaked during the 2006/07 season with 44.3 percent of visitors arriving via air. During the 2011/12 season, there were more than 55 million skier-visits to ski areas with 41.1 percent of them arriving by air.

Life Sciences

Interview with Tom Sommer, Massachusetts Medical Device Industry Council

The life sciences industry relies heavily on the air transportation industry to move its scientists and engineers to partner companies in countries around the world. The ability to collaborate during the designing and manufacturing phases of life science products is essential, so efficient transit to distant global destinations is an important part of their business.

Whether partnering with distant companies or visiting them for due diligence, being able to send a person is key in this industry, so airport proximity is an important consideration when choosing a location for a life science business.

Construction and Building Components

Interview with Randy Bennet, Superintendent, Nate Holst, Supervisor, and Stephanie McCay, Communications Manager, PCL Construction Leaders

PCL Construction Leaders is a multinational Design-Build construction company with offices in Canada, United States (U.S.), Australia, and the Caribbean. The company constructed the Air Canada Center in Toronto, the Hawaii Convention Center in Honolulu, and the Warrior-in-Transition Complex at Fort Wainwright. The PCL family of companies has multiple offices in the U.S. and Canada where people and equipment are based.

PCL Construction Resources maintains and manages the capital assets in the U.S. and they are responsible for the transportation of equipment. The nature of construction equipment means it's heavy, large, and moves either on wheels or tracks. In order to provide job sites

with the equipment they need, PCL Resources contracts to over-the-road (OTR) commercial carriers. The OTR companies pick up equipment at PCL distribution centers and transport it to the job site.

PCL construction projects can last several years and the people assigned to a project will typically move to the area where the work is. Superintendents, supervisors, and other management staff will be housed in local real estate, usually in houses or condominiums. If the building site is an island, then air transportation or ships will be used to relocate employees. If the site is within North America, then surface transportation is used.

PCL has over 3,500 professional, management, and staff employees many of whom travel to job sites, client meetings, and sales presentations. All eleven of PCL's offices in Canada are in a city served by Air Canada. All 17 offices in the U.S. are located in cities served by United Airlines. Both the Australian office and the Bahamas office have access to commercial airline service. PCL uses video conferencing as much as possible, but executives who manage more than one regional office travel via air to meet with staff and visit job sites quite frequently. The marketing staff travels via air a dozen times a year to attend trade shows and conferences.

Interview with Darrell C. Wilson, United Technologies (UTC)

UTC makes elevators, and systems for security and climate-control (among other products).

Air transportation is very important to the conduct of UTC business, but the type of product often dictates how it will be transported. For example, Otis' elevator systems are large and heavy, and the planning phase is often long so that they rarely require air transportation. On the other hand, small electronic controls for building systems and security can be grouped together and therefore shipped economically via air because of their high value-to-weight ratio.

Typically, UTC ships goods via air transportation when a) the customer requests it, b) the transit time is more important than the cost, and c) a change in the schedule necessitates it. UTC ships via all modes of transportation, and because the cost of shipping is often a consideration for their customers, UTC has systems and guidelines in place to help them choose the proper transportation mode. Additionally, in order to increase productivity, UTC employees travel to visit customers and suppliers on a daily basis.

Electronic Product Manufacturing

Interview with Andrew Wittenborg, Minnesota High Tech Association

Minnesota High Tech Association represents technology companies in the upper Midwest region, particularly in the Minneapolis/St. Paul area. The companies they represent range from 3M to Honeywell to Digi-key, as well as to several start-up robotics companies. The

Twin Cities are home to 25 Fortune 500 companies, and proximity to an airport hub was a factor when those companies chose to locate there. Some studies have shown that hub airports tend to charge higher airfares, but these companies think it is worth the price to have access to direct flights.

Airline flights to regional destinations are also important. Many smaller electronics companies that are located in small towns rely on Essential Air Service (EAS) to keep them connected to the rest of the world. Without that airline access, some small-town companies would consider moving to a larger town with reliable air service.

The robotics and remotely-piloted vehicle industries depend on airports. During initial phases, engineers, pilots, and business leaders frequently travel to meetings and conferences. During testing phases, robotic flying machines are often located at airports, so the engineers and builders meet where the machine is. Finally, when the flying machine is fully operational, it takes off and lands at airports.

Many of the parts for robotic systems and remote-piloted aircraft are made in the Midwest, and they are shipped throughout the world via air. Because of the easy access to air and other modes of transportation, St. Jude, Med-Tech, and Boston Scientific maintain distribution centers in the Twin Cities. However, as with all products, size matters. Small valuable products like circuit boards are more likely to transport via air than are large wind turbine parts.

Data Process Services – Big Data

Interview with Kristy O’Leary and Nik Vukovich, Clear Peak

Clear Peak specializes in finding the essential information in large arrays of data. The big data challenge essentially starts because companies collect a lot of data. Not all the data are relevant or useful, so the amount of valuable information is always far less than the available data. Once data have been distilled down to relevant information, that information must then be sifted-through again in an attempt to find the miniscule amount which might actually prove useful.

Many companies collect massive amounts of data, but they have little idea of how to sort them and find the insightful bits. This is where specialty companies like Clear Peak come in. Clear Peak has the capability to sort big data into the next big idea. Bringing that expertise to the marketplace requires its sales force to travel all over the U.S. every week.

In order to find and employ the experts they need, Clear Peak engages in a global search for talent. When they make contact with candidates they want to interview, the company flies them to the Denver office. Being located near a hub airport is essential to their business—not only for the ability to go out and talk with new clients, but also in order to connect with new talent and bring them for a visit.

Engineering Services

Interview with Bob Cohrs, SEH Inc.

SEH is a professional services firm with approximately 550 engineers, architects, planners, and scientists headquartered in Minnesota, but with offices in Colorado, Indiana, Nebraska, South Dakota, Wisconsin, and Wyoming. The firm offers planning and engineering services in a variety of disciplines including airports, traffic engineering, highway design, civil and environmental engineering, water resources and wastewater treatment, architecture and planning.

The firm's portfolio of clients extends from large urban areas to remote locations. Often a municipality or county government retains SEH to perform multiple engagements on different projects. The company owns a twin engine Piper Navajo aircraft and occasionally leases other aircraft for client services. One of the engineers on staff is also a pilot and SEH also has a part-time pilot. Use of the aircraft allows the company to shorten the elapsed time needed to visit clients with limited or no air service and long ground access times. In addition, several members of a project team can travel for essentially the same transportation cost and provide the client with a higher level of service. The engineer who is the pilot is also able to participate in project meetings.

When asked how dependent SEH is on air transportation, Mr. Cohrs stated that the aircraft makes it possible to serve clients in remote locations. One or two additional days of professional time and expenses would be required if they drove to many of these client meetings. Use of the aircraft consequently becomes a cost effective solution and one that has made it possible to provide a high level of service to more distant clients.

Printing & Related Support Activities – Book Publishing

Interview with Mike Scheuring, Transportation Logistics Manager, Pearson PLC

Pearson PLC is a multinational publishing and education company headquartered in London, United Kingdom. It is among the world's largest education companies and the largest book publishers. Pearson maintains seven distribution centers in the United States, as well as many other distribution centers around the world. Pearson's distribution centers are largely automated now, and that technological advance, along with more reliable ground transportation, has changed the distribution model Pearson uses.

Before automation, shortcomings in the delivery process were likely to be made up by shipping the product via air. Now that distribution centers are automated, and companies like UPS and FedEx have brought time definite delivery scheduling to ground transportation, there are fewer instances where air shipment is required to meet the schedule. Automated distribution centers and reliable transportation have eliminated many of the issues which

previously prompted air shipments. One other important advance brought by automated systems is the availability of logistics software to choose the fastest and least expensive way to ship product to the customer while maintaining the customer's schedule.

Products are still sent via air if the customer requires it to meet a schedule or if there are delays in production. While air shipments represent only 10 – 15% of all product shipments people traveling on Pearson business use air transportation quite often.

Furthermore, Pearson has many internal and external customers. Because Pearson has many business units, it maintains a philosophy of frequent face-to-face meetings for training, quality assurance, management, improved company integration, product development and collaboration. Additionally Pearson employees visit external customers to promote new opportunities, visit trade shows, and attend sales presentations. This collaborative effort to maintain both internal and external customers results in a high reliance on air travel to move people more often than products.

2.4 Interviews with Airport Administrators and Airport Organizations

Interviews with airport administrators were conducted to confirm and enhance the information collected from data sets in the previous phase. The list of industrial sectors that rely on air cargo for exports developed in the research closely corresponds to the industries identified through interviews with airport managers. This confirms the findings of the Task 2 research related to air cargo. There was little to no information collected on light manufacturing as a result of the interviews. There were a few suppositions about probable use of the airport by nearby companies but no direct knowledge.

It was difficult to directly confirm research on the topic of industry-sensitivity to airport access and industries that purchase large amounts of aviation service. One exception was the confirmation by the airport manager at Van Nuys Airport that a large percentage of the airport's general aviation activity was related to the motion picture industry. The airport managers at Teterboro and Morristown were aware of the Fortune 500 company headquarters in the area. They could also report on the high level of corporate aviation use as a percentage of overall operations. However, the airport managers at the three GA airports were emphatic about the need for discretion with corporate clients and could not say specifically which companies traveled in and out of the airport.

Interviews with professional membership organizations provided insight into the creation and the end use of the economic impact data created for the aviation industry. Many membership organizations commission reports from private consulting firms either independently or cooperatively with other organizations. The FAA and the U.S. Census Bureau produce monthly and annual reports that are also valued throughout the aviation

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industry. Primarily, the economic data is used to lobby for policy changes, funding and regulatory initiatives at the federal level. Reports and presentation are also developed for use at the state level and for the media. Catchphrases are developed from benchmarks to communicate the value of aviation in simple and direct terms.

Although there is a considerable amount of data currently available, the interviews produced new thoughts about future direction. One common theme was that the research in the area of the economic impact of aviation should have a standard methodology. Another thought was that since the benefits of aviation are often difficult to quantify, it might be valuable to take a more qualitative approach to communicating the message. In addition, the interviews produced a compiled list of specific future research topics that would be valuable to the industry.

Interviews confirmed many of the top industries identified in Task 2 of the research related to cargo movement at airports. Research reported in this study identified computer and electronic products (1), miscellaneous manufactured commodities (3), machinery (4), medical equipment and supplies (6) and apparel and Accessories (8) as top imports by industrial sector and the export list is similar. All of these items were identified as during the interview process as significant to the cargo movement at Anchorage, Miami (MIA) and Rickenbacker airports (although Rickenbacker noted that all cargo movement at this point is import). One item that was not identified in during the course of the study's research that was clear from the interview process is the importance of cargo movement related to perishable products including flowers, fruits and vegetables and seafood. All three airports reported on infrastructure improvements, regulatory advantages or tax incentives that had been put in place to support the cargo industry. Rickenbacker and MIA both reported on associated business development at or near the airport as a result of the cargo operations including freight forwarders.

Previous research described a research finding associating the value of air transportation services to light manufacturing industries that rely on exporting and importing air cargo. This finding was difficult to validate specifically but comments provided by MMU about the international nature of several based businesses and the observations at Teterboro that there is probably some movement of samples for a processing facility near the airport may provide general support for this category. Aviation support for light manufacturing and corporate travel were explored through direct interviews with businesses.

Interviews confirmed the corporate use of airports by many of the industries identified in Task 2. The airport manager at Van Nuys confirmed the use of corporate aviation by the motion picture industry. Economic impact studies for MMU and MIA listed the use of corporate travel by professionals in technology, finance, pharmaceuticals, communications, automotive, health care and real estate. There was confirmation that Fortune 500 companies locate near airports for employee business travel although privacy protocols at each airport dictated that specific businesses or travelers were not generally known. Some

anecdotal stories support location near airports of sports teams and media operations near the airport.

With regard to international travel and cargo, the topic of U.S. Customs came up more than once. The presence of a Customs and Border Protection (CBP) agent at the airport is essential to receiving international arrivals.

Interviews with Airport Staff

Cargo

The Ted Stevens International Airport in Anchorage, Alaska (Anchorage), the Miami International Airport in Miami, Florida (MIA) and the Rickenbacker International Airport in Columbus, Ohio (Rickenbacker) are all hubs for international cargo operations. The source of the information about these airports was phone interviews with airport management at the Anchorage and Rickenbacker Airports and written material provided by the marketing team at MIA.

International cargo service enters the country through Anchorage and MIA largely because of their geographic location. Cargo that travels through Anchorage comes primarily from Asia and cargo coming through MIA comes primarily from Latin America and the Caribbean. However, international cargo arriving at Rickenbacker usually comes from Hong Kong and Shanghai through Anchorage.

Anchorage: Roughly 80 percent of the cargo that moves between Asia and North America goes through Anchorage. Industries that are well-represented coming through Anchorage are garments, electronics, auto parts and oil field equipment. Alaska also exports its seafood from Anchorage using air cargo.

Anchorage airport services a high volume of cargo—500 wide-bodied flights per week—but most of it is pass through tonnage. Most cargo transfer in Anchorage is tail-to-tail—meaning it moves from one airplane directly onto another airplane. There are no specific facilities (like warehouses) at the airport that are needed to support this activity, which yields very little in the way of spin-off industry.

To strengthen its position as an international cargo transfer point, the Alaska International Airport System¹ offers logistics firms and shippers liberalized cargo transfer opportunity as a result of the 2003 “Stevens Amendment.” U.S. law permits air cargo going to or from a foreign country to be transferred to another airline in Alaska without legally breaking its international journey. The airport manager noted that this is a value-added operation that is not well-understood in the market.

¹ The Alaska International Airport System includes Anchorage and Fairbanks Airports.

Miami International Airport (MIA): In 2011, MIA was first among U.S. airports in terms of balance of international air freight by value.² Of the total freight moving through MIA, 88 percent was international.³ The following industries are well-represented in MIA trade goods: perishable products, high-tech commodities, telecommunications equipment, textiles, pharmaceuticals and industrial machinery. In 2011, MIA handled 70 percent of the country's perishable imports. This includes 72 percent of U.S. fruits and vegetables imports; 89 percent of U.S. flower imports; and 54 percent of U.S. fish imports.⁴ Also, in 2011, MIA's top exported commodity groupings measured by tonnage, were: (1) computers and peripherals; (2) telecommunications equipment; (3) Industrial machinery and parts; (4) metals and metal products; and (5) vehicle parts and tires. This airport's top imported commodities by weight were: (1) flowers; (2) fish/crustaceans; (3) vegetables and roots; (4) fruits and juices; and (5) raw grains.⁵

MIA is at the core of a robust air cargo-related industry cluster. The airport's cargo operations are supported by a multiple economic development policies and public services, including: Foreign Trade Zone designation, the Miami Free Zone, the MIA Cargo Clearance Center, the MIA Animal and Plant Health Inspection Service Facility and the MIA Fumigation Facilities. Nearly 1,000 Customs Brokers and over 1,200 Freight Forwarders are located near MIA, as are companies specializing in international trade and logistics, trade law and advocacy, finance, importing and exporting. The area also houses more than 100 foreign trade offices and bi-national chambers of commerce.

Rickenbacker: Unlike the coastal airports of Anchorage and MIA, Rickenbacker is located in the Midwest near Columbus, Ohio. At Rickenbacker, inbound international cargo is primarily textiles and garments for the fashion industry; however, electronics are growing as well. Because the headquarters of many national fashion retailers are located in the region (i.e. the Limited, Abercrombie & Fitch and Tween), charter carriers come into Rickenbacker 2-4 times a week carrying garments. There is no outbound international cargo at this time.

Rickenbacker is also known for maintaining "heavy lifting" capabilities. When there is a disruption in a supply chain and time is of the essence, heavy equipment such as generators and engines can be transported by air from Rickenbacker. For instance, Rolls Royce turbine

² Source: Wistertrade.com from U.S. Census Bureau Foreign Trade Division. In 2011, the value of exports from MIA exceeded the value of imports flown into MIA by \$21 billion. In perspective, MIA's balance of trade exceeded the total trade surpluses of airports ranked 2, 3 and 4 (Salt Lake City, Cleveland and Seattle-Tacoma). Nationally, the U.S. balance of air exports – air imports was a deficit of \$71 billion.

³ Miami International Cargo Hub, 2012-2013, Miami Dade County Aviation Department, Marketing Division

⁴ Ibid

⁵ Ibid

generators, GE aircraft engines and supplies for Antonov Russian aircraft have all been flown out of Rickenbacker.

Five years before this research started, the Rickenbacker Global Logistics Park, a rail intermodal facility, was built adjacent to the airport. The Logistics Park hosts a rail component combined with trucking and the airport offers Foreign Trade Zone status. As a result, many national and international logistics companies have located near the airport including Atlas Air, Kalitta Air and Evergreen. Currently, FedEx and UPS operate six flights a day at Rickenbacker.

Rickenbacker's central U.S. location has added to its role in domestic cargo operations. The U.S. Postal Service contracts for service at Rickenbacker. AirNet, a company which specializes in moving super high priority small goods such as human organs for transplant and medical equipment, has its national headquarters at Rickenbacker. Rickenbacker is also a central transfer point for Forward Air—a major freight forwarder.

Commercial & Charter Air Service

Of the six airports interviewed, commercial air service is present at three (Anchorage and MIA and charter service is growing at Rickenbacker). In Anchorage, about 1 million tourists visit the state during the four summer months⁶. In addition to the tourism industry, 150,000-200,000 Alaska residents travel by air in the winter because it is too far or too difficult to drive. International passenger travel through Anchorage dropped off precipitously in the 1980s when the Russians opened their airspace.

In 2011, 38.3 million passengers passed through MIA, the highest level of annual passenger traffic in the airport's history. Of the total passengers, 48 percent or 18.4 million were international passengers. As a result, MIA ranked second overall in the U.S. in international passenger travel and first in the U.S. for passengers traveling to and from Latin America and the Caribbean. In 2011, 13.4 million people visited Miami—98 percent of these arrived by air. The Port of Miami is the world's busiest cruise port and MIA delivers 60 percent of its passenger base. International trade is one of Miami's top two leading industries. In addition to the cargo activities, MIA reports that the City of Miami has the largest concentration of domestic and international banks south of New York City, with approximately 100 financial institutions and 51 foreign banking agencies. While there are no specific statistics provided, it is likely that leaders in these industries are patrons of corporate air travel services.⁷

Rickenbacker has developed a niche for vacation/charter flights, less than daily and one-off charters, football events, military charters, and ad hoc events. From an operational

⁶ To put this number in perspective, Alaska has 710,000 permanent residents.

⁷ Miami-Dade Aviation Department, Miami International Airport: Passenger Hub 2012-2013.

standpoint, the passenger aviation activity provides the airport with revenue from landing fees, parking, etc. Corporate aircraft including Southeast, Pan Am Charter, and Direct Air are companies that serve that niche. Allegiant Air began scheduled service this year and is doing well.

General Aviation

Of the six airports interviewed, three reported on GA activity in response to questions about passenger service (Teterboro, Morristown and Van Nuys). These airports have large corporate GA activity and are discussed below.

Teterboro: Of all aircraft operations at Teterboro Airport, roughly 90 percent are corporate aircraft and 10 percent are recreational aviation. There is no scheduled cargo service and the airport manager is not aware of any cargo services operating at the airport.

Teterboro is known as an airport that caters to high-profile passengers. These have included U.N. dignitaries, attendees of the 2012 Republican National Convention, NASCAR drivers traveling in for an annual awards event, and celebrities. Teterboro also serves many of the Fortune 500 companies in the area. Newark and northern New Jersey are close to the airport and Downtown Manhattan is only five miles away. All three host major corporate headquarters. Donald Trump's helicopter, the AIG hangar and the New York News helicopter are at the airport; however, in an effort to be discrete and afford its clients some degree of privacy, it does not report which individuals travel through.

Located on airport is a sales and service facility for the DeSault Falcons and NetJets, a company which provides on demand corporate travel. There are scheduled daily corporate shuttle flights for people conducting business in the City for the day. International flights accounted for about 6,000 of the total 147,476 operations last year which is 4 percent of total operations. U.S. Customs is at the airport to support the international passenger traffic.

Morristown: Morristown Municipal Airport (MMU) in New Jersey is less than 30 *stoplight-free* miles from New York City. The primary activity at the airport is corporate aviation. The surrounding area is home to more than 50 members of the Fortune 500 with major facilities or headquarters including: ADP, UPS, Verizon, Johnson & Johnson, Kraft Foods, BASF, Deloitte and Pfizer. The following industries are some that use Morristown for corporate passenger service: technology, finance, pharmaceuticals, communications, automotive, health care and real estate. According to the airport's administrators, "If a major industry is in North Jersey or New York City, it's probably at MMU." As an example of the importance of the Morristown Airport, the most recent economic impact study noted that the New York Jets relocated their administration building and practice fields to Florham Park, NJ because of its proximity to MMU.

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International travel plays a significant role at MMU. Anecdotally, the airport manager noted that a quick look at the custom's arrival list looks like the list of group games at the World Cup. Several businesses located near Morristown are international firms. These include the Swiss company Novartis, the German company BASF, Verizon Wireless (partly owned by the British company Vodafone) and Honeywell—truly multinational company—are all located near the Morristown Airport. These tenants are doing business on all continents on a regular basis and MMU is part of the logistics that makes all of this possible. Due to the demand, a U.S. Customs service is on site at the airport.

Cargo is not a large aspect of operations at MMU. Lab specimens are flown in from the airport nightly. There are occasionally specialized cargo flights that are high-value, but they are infrequent. Users include Lab Corp, Royal Air Cargo and Kalitta Air.

Van Nuys: There is no commercial cargo movement at Van Nuys airport. This airport only handles non-scheduled charter aviation. There is some recreational aviation and there are first responders located on the field. The airport manager explained that “with passengers, we don’t track passenger movement although charters come in regularly.” At Van Nuys, the movie and film industry account for the largest part of passenger travel. A good estimate is that 7 in 10 have a connection to the film industry in one way or another. The airport also serves customers in the media and sports industries. There are several other similar companies on the airport, such as NetJets, that can be described as “on demand services.”

This airport serves a significant amount of corporate and private industry flying business. Located north of Los Angeles, near Hollywood and Santa Monica, it serves a very high income population including movie stars and wealthy residents (the airport is located in close proximity to some of the wealthiest zip codes in the country).

In addition to corporate flights, the airport hosts an on-site flight school and the LA Unified School District has a school on-site that provides training in aviation-related maintenance fields. The Air Response (helicopter fleet) for the Los Angeles City Fire Department also maintains its permanent air operations base at the airport.

According to the airport manager, it is a very fair assumption that there is some movement of goods to and from Van Nuys. For instance, movie crews probably move camera equipment and other things to filming locations. However, there is not an aviation cargo company operating at the airport and the airport manager had no first-hand knowledge of cargo movement at the airport. He also reported that the airport currently does not have customs clearance services here. There was a U.S. Customs agent at the airport until 2005 and there is a current initiative among tenants at the airport to get Customs back, indicating that there is a market demand for it.

Interviews with Aviation Organizations

Aviation membership organizations represent different niches within the aviation industry including airports, commercial airlines, general aviation operations, airport managers, aviation manufacturers and aviation maintenance professionals. These organizations advocate for the interests of their membership and most of them describe the value of airports and the aviation industry in terms of their beneficial economic impact. These organizations are the end-users of economic impact data and are using the data to create change in the industry. The purpose of these interviews was to gather more information about where the data is being found, how it is being used and who is hearing the message. These conversations also inquired as to whether there was a gap in the current data set.

Most of the organizations that were interviewed represent aviation interests collectively and at a national level, and that their message is typically directed toward regulators and legislators on Capitol Hill. One exception to this was the Professional Aviation Maintenance Association (PAMA), which does not use economic impact data. The focus of their advocacy and education initiatives is on safety. According to Mr. Dale Forton, the organization's president, "Aviation maintenance and dollar value do not go together...The question in this industry is safety." In the summary that follows, the input on each topic is summarized from the collective interviews. The notes from each interview are included in the appendix of this report.

Economic Impact Studies

During the course of the interviews, there were a variety of responses to the question about which economic impact studies were used to support initiatives and inform decisions. Some organizations reported creating their own reports either independently or in cooperation with other membership organizations. In these instances, the data for the reports came largely from economic impact reports done by state DOTs and from data collected from their membership. Other organizations reported using these studies and others.

The General Aviation Manufacturers Association (GAMA) created an aggregate national economic impact study for the entire aviation industry in 2003 with support from 10 other industry organizations and another report for the general aviation industry in 2005 in cooperation with NASEO. For the past three years, GAMA has also produced an annual report titled *General Aviation Statistical Databook and Industry Outlook*.

Airports Council International (ACI) commissioned a study titled *The Economic Impact of Commercial Airports in 2010*. This report is showcased on a website titled "Airports for the

Future”.⁸ ACI was the initial group to suggest that ACRP sponsor a national airport economic impact study.

The International Air Transport Association (IATA) commissioned a study titled *Benefits of Aviation*.⁹ The study has a global focus and includes a series of country reports including one titled “*Economic Benefits from Air Transport in the US*” with 2010 data.

NEXA Advisors published a 2009 study titled *Business Aviation, An Enterprise Value Perspective* which was sponsored in part by GAMA and NBAA. The study focused on companies in the S&P 500 and found that business aircraft users outperformed non-users in several important financial measures including annual average revenues and earnings.

The National Business Aviation Association (NBAA) reported that in general, it does not commission its own economic impact studies, although it supported the study by NEXA Advisors. As a result, the NBAA reported using the studies done by other organizations as a primary source of aviation industry data. The NBAA also reported that statewide aviation studies were a good source of data.

The Aircraft Owners and Pilots Association (AOPA) recently commissioned its first ever economic impact report. The report will use three case studies including State College and Santa Monica and will also take a look at the impact of GA on a national scale. AOPA also provides economic impact information to the National Council of State Legislators¹⁰ who then issued a brief titled “*General Aviation 101*”.

In addition to studies commissioned or conducted by aviation membership organizations, the FAA published “*The Economic Impact of Civil Aviation on the U.S. Economy*” in August 2011.¹¹ The authors observe, “In today's ever-changing and innovative world, aviation provides a vital link to economic opportunities at home and abroad.” In February 2012 (document dated December 2011), FAA published a supplement to its August 2011 national report to show impacts by state.¹² The FAA also publishes annual economic impact studies in which the data are broken down by state but does not drill down as far as the individual airport level.

Another economic impact resource created by a public entity is the U.S. Census on Foreign Merchandise Trade. It reports world trade statistics by month including value and shipping weight of cargo imported into the U.S. by air from every country in the world. It also

⁸ www.airportsforthefuture.org

⁹ <http://www.benefitsofaviation.aero/Pages/default.aspx>

¹⁰ <http://www.ncsl.org/>

¹¹ http://www.faa.gov/air_traffic/publications/media/FAA_Economic_Impact_Rpt_2011.pdf

¹² http://www.faa.gov/air_traffic/publications/reports/economic_impact_map/

provides a monthly report on the value and weight of merchandise exported from every U.S. Port by air.¹³ FHWA also has an annual database that is multimodal. It breaks out the flow of goods by air and includes weight and dollar value.

Use of the Data

As noted briefly at the beginning of the section, the membership organizations interviewed all reported that they use the economic impact data primarily to create messages to legislators and regulators on Capitol Hill. Most did not go into specific detail during the interview but current website headlines provide an indication of the advocacy and regulatory issues being addressed across the industry today:

- FAA Pilot Rules
- Levels of Customs Staffing at U.S. Ports of Entry
- Business Aviation Use
- The Federal Cap on Local Passenger Facility Charges
- Airfield access for pilots of GA aircraft

Some organizations said that they use economic impact data to address state elected officials including governors and legislators when aviation topics were on the state agenda. Others reported getting involved in airport-specific issues when there were actions being considered that would result in restricting airport access or reducing operational capacity. AOPA often works at the specific airport level in this role and also to promote additional investment in specific airports. At least one organization also reported that there was sometimes a need to educate their members about the economic impact of aviation.

Useful Additions/Existing Gaps

It is important to note that these studies were conducted in different years, employed different methodologies and varied in impacts that were included and excluded, including multiplier effects, visitor spending and other impacts generated by off-airport aviation activities

¹³ http://www.census.gov/foreign-trade/Press-Release/ft920_index.html

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Suggestions collected during the interviews identified gaps in the existing data set and also a repeated request to standardize the data collection and methodology for the studies. Several people commented that because the study methodologies vary, the use of the data is limited. Therefore, information from multiple studies cannot be used together because of the different methodologies and assumptions underlying each study. Specific comments were provided about gaps in existing economic impact data. The categories that were identified were:

- Better information about spending by travelers when they arrive at their destination, especially for GA airports that are not large.
- How technology has impacted aviation and improved the ability to operate because technology is one of the economic drivers of aviation.
- More “color” (i.e., discussions of context versus a recitation of numbers) on the value of incremental international air service to a U.S. airport including the value to the region. International spending seems to be higher per person for international visitors.
- There is an upcoming shortage of pilots and technicians. Data and statistics related to the impact of those employment categories and the economic impact of not filling those jobs.
- More information on the value of the efficiency provided to a business or business owner as a result of aviation use (transportation speed, increased sales).
- The economic impact of federal and state policies on the aviation industry including taxes would be valuable. At a more local level, the economic impact of the patchwork of state level taxes including personal property taxes, fuel, registration, etc. would be useful.
- Separate categories that describe the impacts for general aviation, air cargo, and commercial airlines. Past studies provided aggregate numbers.
- How domestic airports fit into the whole U.S. national transportation system and contribute to the U.S. national transportation system versus other modes
- Several organizations expressed a desire to have a more qualitative description of the value of aviation. The dollars and numbers of jobs are one way of expressing value. But there are many things that are difficult to quantify but could be described in a sketch or a case study to communicate its value.

During the interviews, more than one organization suggested this last approach and provided suggestions. One idea was to profile a company that has located in a small community because of access to the airport. Another idea was to profile an international company such as Caterpillar that uses aviation for corporate travel, commercial travel and cargo operations. A third idea was to describe the ripple effects of a shutdown of aviation

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from 9/11 or the Icelandic volcano. The FAA is currently doing some studies about the productivity-enhancing qualities of aviation which may also fall into this category.

While discussing the topic of gaps in current economic impact data, a comment was made that it is hard to get people excited about funding and carrying out economic impact studies but the data that it creates are used quite a bit and people are excited about the use of the results. There may be some value to capturing the effect of the economic impact studies by documenting some of the decisions that have been supported and changes that have been made as a result of using economic impact data.

3 INTERVIEWS WITH REPRESENTATIVES OF AIRPORTS

3.1 Miami International Airport

Name of Contact	Lauraine B. Murray, Marketing Division
Organization	Miami International Airport
Email	lmurray@miami-airport.com
Date of Interview	N/A

Ms. Murray provided written information that was used to provide answers to the interview questions by Mead & Hunt staff. All information inserted here comes directly from the written information provided by Ms. Murray from material produced by the Miami International Airport (MIA).

1. Please describe breadth of cargo and passenger services at the airport

Cargo may be cargo-only flights, integrator services and/or belly. Passenger services may be corporate, commercial, personal, or recreational.

Cargo: MIA's extensive air service network is provided by 68 scheduled and 21 charter air carriers, of which 38 are all-cargo carriers. MIA's airlines offer service to approximately 150 cities on four continents, with dedicated freighter service operating to 94 global destinations.

Passengers: During 2011, MIA set a new all-time record for annual passenger traffic with 38.3 million passengers, an increase of 7.3 percent over 2010. Of the total passengers that traveled through MIA 18.4 million, or 48 percent were international, and 19.9 million or 52 percent were domestic.

2. Describe cargo operations of your airport

Reference specialized products, specialized services at airport, volumes, origins and destinations

Products: MIA serves as the hub for distribution of perishable products, hi-tech commodities, telecommunications equipment, textiles, pharmaceuticals and industrial machinery.

In 2011, MIA handled 70 percent of the country's perishable imports:

- 72 percent of U.S. Fruits and Vegetables Imports

- 89 percent of U.S. Flower Imports
- 54 percent of U.S. Fish Imports

Services: An expansive and impressive mix of people and services surrounds MIA, including nearly 1,000 Customs Brokers, over 1,200 Freight Forwarders and numerous local and multinational companies specializing in international trade and logistics, trade law and advocacy, finance, importing and exporting. There are now more than 100 consulates, foreign trade offices and bi-national chambers of commerce.

3. Describe passenger services at your airport

Reference industries of travelers (if known), major companies with based aircraft, nearby industrial or businesses parks

During 2011, Miami's visitor numbers totaled 13.4 million, with a record 6.4 million, or 48 percent international visitors and 7.0 million, or 52 percent domestic visitors. 98 percent of all visitors to Miami arrive by air. The Port of Miami is the world's busiest cruise port, with over 4 million passengers per year. The world's largest cruise lines are based in Miami. MIA provides the Port of Miami with 60 percent of its passenger base.

4. Please describe how you see the economic role of the airport?

Miami-Dade County serves as an international business center for the Western Hemisphere, a vital hub for trade, commerce and finance in the Americas.

5. Does your airport have a current economic impact study?

Yes. Miami International Airport Cargo Hub 2012-2013 and Miami International Airport Passenger Hub 2012-2013. Both were developed by the Miami-Dade Aviation Department, Miami International Airport.

6. Please describe the international cargo and/or travel as a component of your airport?

Incoming and outgoing for cargo and passenger.

For cargo, can they name industries or companies that are served for exports and imports?

International passengers: In 2011, MIA ranked 2nd in the U.S. in overall international passenger travel. MIA ranks first1st in the U.S. in international passenger travel for passengers traveling to and from Latin America and the Caribbean.

Cargo: In 2011, MIA handled 2,000,042 tons of total airfreight, of which 1,763,690 tons, or 88 percent was international freight, and 236,352 tons, or 12 percent, was domestic. Miami International Airport was the leading airport in the United States for international freight, and among world airports, MIA ranked 10th in international freight in 2011.

MIA’s top commodity groupings ranked by tons as shown below.

Exports	Imports
Computers/peripherals	Flowers
Telecommunications Equipment	Fish/Crustaceans
Industrial Machinery/Parts	Vegetables & Roots
Metals and Metal Products	Fruits & Juices
Vehicle Parts/Tires	Grains--Raw

7. How important are international cargo or passenger services to the mission/ vitality of your airport?

They are extremely important.

Cargo: The leader in the Americas in international freight and the world’s largest gateway to Latin America & the Caribbean, MIA controls the north / south cargo flows in the Western Hemisphere. In 2011, MIA handled 82 percent of all air imports and 81 percent of all exports to and from the Latin American / Caribbean region.

8. Is there a difference in how your airport promotes domestic and international cargo and passenger services in the context of the airport’s economic role

This is about marketing to industries or companies, or providing services on airport to industries or companies

MIA markets international cargo opportunities by providing information about the Foreign Trade Zone designation, the Miami Free Zone, the MIA Cargo Clearance Center, the MIA Animal and Plant Health Inspection Service Facility and the MIA Fumigation Facilities.

Passenger service: During 2011, MIA handled 49 percent of the U.S.-South American passenger market, 29 percent of U.S.-Central American and 28 percent of the U.S.-Caribbean passenger markets. MIA is the largest connecting point for flights between the Americas, and for flights between the Americas and Europe.

3.2 Teterboro Airport

Name of Contact	Pam Phillips
Organization	Teterboro Airport
Email	pwalden@panynj.gov
Date of Interview	January 4, 2013

Note: Mr. Zach Puchacz is an employee at Mead & Hunt in Lansing, MI. He was previously an employee at Teterboro Airport and provided information to supplement the comments made by Ms. Phillips based on his first-hand experience as an employee in Operations there.

1. Please describe breadth of cargo and passenger services at the airport

Cargo may be cargo-only flights, integrator services and/or belly. Passenger services may be corporate, commercial, personal, or recreational.

There is no scheduled passenger service but there is a lot of corporate business activity. It's probably a 90/10 split between corporate business and recreational aviation. There is no scheduled cargo service and Ms. Philips was not aware of any cargo service operating at the airport.

Mr. Puchacz: Smaller cargo shipments do happen at Teterboro. He is aware of a medical processing facility near the airport that uses the airport to fly in lab samples. It is primarily a corporate airport. It is a place for VIP movements (United Nations (U.N.) dignitaries for example, Republican National Convention), NASCAR drivers for annual awards, movie stars. Teterboro has heavy corporate travel (Fortune 500 companies in NYC fly out of Teterboro). Trump's helicopter, AIG hangar, New York News helicopter are some known examples but the airport does not track or "pry" into the privacy of the activity. NetJets is there, too. There is a service and sales operation of DeSault Falcons. There is very little recreational traffic.

2. Describe passenger services at your airport

Reference: Industries of travelers (if known), major companies with based aircraft, nearby industrial or businesses parks

We try not to know who is operating at the airport for privacy. There is information available on the FAA website for the numbers of based aircraft.

3. Please describe how you see the economic role of the airport?

Corporate aircraft supports corporate business activity for New York City—Manhattan (5-6 miles away) plus Newark, northern NJ—there are many major corporate headquarters in that area of the country. The airport also acts as a local business engine by employing local

people and buying services in the area. The airport itself is a major employer for the local region.

Zach: Medical flights, business flights, (all kinds of business) and some pleasure/recreation flying. There are scheduled daily business shuttle flights for corporate activity where employees are coming in to work for the day. For instance, Victoria's Secret and associated businesses have a daily shuttle.

4. Does your airport have a current economic impact study?

Numbers are down about 20,000 from 2007 numbers.

A 2005 Study is the most recent economic impact study, which is pretty dated.

5. Please describe the international cargo and/or travel a component of your airport?

International flights account for about 6,000 operations per year and this year 147,476 operations were conducted at the Airport and 5,500 of those were international. This is a very good estimate.

U.S. Customs is at the airport to support the international passenger traffic. There is not a formal processing FIS facility but instead, trucks drive out to the plane from a small office attached to a hangar. Travelers remain on the plane until customs arrives at the door.

6. Is there a difference in how your airport promotes domestic and international cargo and passenger services in the context of the airport's economic role

This is about marketing to industries or companies, or providing services on airport to industries or companies

We don't promote the airport per se. We do conduct outreach for noise and safety.

General: Most of the businesses and employees tend to live in the local area which has a specific economic impact on the regional economy.

3.3 Van Nuys Airport

Name of Contact	Jess Romo, Airport Manager
Organization	Van Nuys Airport
Email	jromo@lawa.org
Date of Interview	January 8, 2013

1. Please describe breadth of cargo and passenger services at the airport

Cargo may be cargo-only flights, integrator services and/or belly. Passenger services may be corporate, commercial, personal, or recreational.

There is no commercial cargo movement at the airport. This airport only handles non-scheduled charter aviation. There is some recreational aviation and there are first responders located on the field. With passengers, we don't track passenger movement although charters come in regularly. This airport is a combination of pretty significant corporate and private industry flying. It serves a very high income population including movie stars and wealthy residents. The airport is located in close proximity to some of the wealthiest zip codes in the country.

There is a flight school on site to train those interested in learning to fly.

The LA Unified School District has a school on-site to train maintenance trades related to aviation and the Air Response (helicopter fleet) for the Los Angeles City Fire Department has their permanent air operations base at the airport. They also do servicing of helicopters on the field. We have any number of based aircraft but the complement or fleet mix has changed over the past 20 years. Flying has become a more discretionary activity—become more corporate. We still have more propeller aircraft than jets.

2. Describe cargo operations of your airport

Reference: specialized products, specialized services at airport, volumes, origins and destinations

It is a very fair assumption that there is some movement of goods to and from Van Nuys. For instance, movie crews probably move camera equipment and other things to filming locations. However, there is not an aviation cargo company operating at the airport. The airport manager reported that she has no first-hand knowledge of cargo movement at the airport.

3. Describe passenger services at your airport

Reference: Industries of travelers (if known), major companies with based aircraft, nearby industrial or businesses parks

At Van Nuys, the movie and film industry account for the majority of passenger travel. A good estimate is that 7 in 10 have a connection to the film industry in one way or another. We also serve people in the media and sports industries, too. Otherwise, NetJets is located here and just opened last fall. There are other similar companies like that on the airport too that can be described as “on demand services.”

4. Please describe how you see the economic role of the airport?

As I see this, we are a public access airport. It’s a GA airport and it is open to the flying public. Our job is to act as the steward of this enterprise. It is my job to make sure that the airport remains safe, open (equal access) and non-discriminatory. That is our main focus.

The economic role or impact depends on how healthy the several businesses are on and around the airport. Then those businesses strengthen the local, regional and state economy. The economic ripple effect of this airport goes out a long way. 70-80 percent of the improvements on the field are owned and maintained by the tenants and they have an interest in making sure the airport remains healthy.

5. Does your airport have a current economic impact study?

No. The last one was done in the late 80s or early 90s. There have been other studies that indicate that the airport has an overall economic impact of \$1 to \$2 billion.

6. Please describe the international cargo and/or travel a component of your airport?

Incoming and outgoing for cargo and passenger.

For cargo, can they name industries or companies that are served for exports and imports?

Here the situation: If someone is coming directly from an international destination, they have to clear U.S. Customs. We current don’t have customs clearance services here. We used to have them here but CBP left in 2005. There is an initiative among tenants at the airport to get them back which indicates that there is a market demand for it. The U.S. Customs service could return this year—it is an active discussion. It would be a user-fee arrangement if they do come back. We still get international flights but they have to go to LAX first to get cleared and then they go on to Van Nuys, which does happen but it is infrequent.

7. Is there a difference in how your airport promotes domestic and international cargo and passenger services in the context of the airport's economic role

This is about marketing to industries or companies, or providing services on airport to industries or companies

We would incorporate CBP as a key point in marketing if it returned here.

We currently reach out to the business community, attend trade shows, and attend the NBAA annual conference. Fortune 500 companies with dedicated flight departments [are marketing targets for us.] There are probably some corporate flight departments operating at the airport but we really don't keep track and privacy is important. We also market through the International Operators Conference in San Diego which is a sub-group of NBAA.

Fueling activity is required to be reported. "I need to be able to report that I dispensed X gallons of fuel this month." That is an indicator of the health of the business and the airport.

General comment on GA operators: There is a "mixed bag" of operators and a certain amount of space is set aside for non-aviation activities. We have a golf course operator. Home Depot retail store is separated by a flood control channel. All activities are revenue generators for the airport.

FAA wants to make sure that there is space for aviation activities at the airport but recognizes the need to supplement income to remain operational.

3.4 Morristown Municipal Airport (NJ)

Name of Contact	Maria S. Sheridan, A.A.E.
Organization	Morristown Municipal Airport
Email	marias@mmuair.com
Date of Interview	12/20/12

1. Describe cargo operations of your airport.

Cargo is not a large aspect of operations at MMU. Lab specimens are flown from the airport nightly. We do get specialized cargo but it is infrequent. Examples would be lasers to Mexico, Super bowl hats when the Giants won, and other high priority shipments. Users include Lab Corp, Royal Air Cargo, and Kalitta Air. As there is no scheduled cargo, it is all on demand and therefore a higher value service than your typical FedEx overnight box.

2. Describe passenger services at your airport

The following industries use this airport for passenger service: technology, finance, pharmaceuticals, communications, real estate, etc. If a major industry is in North Jersey or New York City, it's probably at MMU.

From the economic impact study:

- The New York Jets relocated their administration building and practice fields to Florham Park, NJ because of its proximity to MMU.
- The County also features more than 50 members of the Fortune 500 with major facilities or headquarters. Top employers include some of the most recognizable names in business today, including ADP, United Parcel Service, Verizon, Johnson & Johnson, Kraft Foods, BASF, Deloitte, and Pfizer.

3. Please describe how you see the economic role of the airport.

We see it as a transportation asset and selling tool for the County and Region. With U.S. Customs and Border Protection on the airfield, we can service international traffic, which not only is a convenience to our based tenants and those doing business in the area, but we can connect area businesses to the world. The area politicians recognize and promote the airport as the economic engine that it is and know that when aircraft are moving, it is the sound of commerce.

4. Does your airport have a current economic impact study?

Our latest one was from 2008 and is available on our website.

<http://www.mmuair.com/wp-content/uploads/2011/02/EconomicImpactAssessment.pdf>

5. Please describe the international cargo and/or travel a component of your airport.

As far as cargo, I can only think of a handful of examples. This includes a laser cutter to Mexico. I cannot think of any imports.

We regularly have travel to all the world's continents. A quick look at our customs arrivals list looks like the list of group games at the World Cup.

6. For cargo, can you name industries or companies that are served for exports and imports?

I'm only aware of the charter companies, not the companies using the charters. A lot of stuff is for the automotive industry and healthcare.

7. How important are international cargo or passenger services to the mission/ vitality of your airport?

We are in the service of serving business and today business is truly global—traffic is both inbound and outbound. If it wasn't for our ability to handle the world's traffic we wouldn't be what we are. It's important to note that Novartis (Swiss) and BASF (German) are foreign based companies. Verizon Wireless is part owned by Vodafone (British). Honeywell is a true multinational. We are part of the logistics that makes this happen. We have tenants doing business on all continents on a regular basis. We think globally and therefore we are relevant globally.

8. Is there a difference in how your airport promotes domestic and international cargo and passenger services in the context of the airport's economic role?

We promote ourselves pretty similarly to domestic and international customers. We highlight that we are less than 30 miles from NYC, have U.S. Customs & Border Protection, and many less delays than other area airports. We promote they can connect to the world, quickly and easily and maintain their business momentum.

3.5 Ted Stevens International Airport, Anchorage AK

Name of Contact	Trudy Wassel (Operations Manager) & John Parrott (Airport Manager)
Organization	Ted Stevens International Airport (Anchorage, AK)
Email	trudy.wassel@alaska.gov and john.parrott@alaska.gov
Date of Interview	December 18, 2012

1. Please describe breadth of cargo and passenger services at the airport.

70%-80 percent of our airport revenue is from cargo. We have 500 wide-bodied cargo flights per week into the airport. We are #2 in North America and #4 in the world for cargo/freight.

For passenger service, we have Alaska Air as a primary carrier. Plus, most major carriers have a presence here and we have some regional carriers.

2. Describe the cargo operations of your airport.

80 percent of the cargo that moves on Freighters between Asia & North America comes through here. Cargo categories that are well-represented include garments, electronics, auto parts and oil field equipment. But really, I'm not sure what doesn't come through here. One day, we heard that there were some gorillas in transit. Most cargo is just passing

through and we are a transfer point. From Alaska markets, there is quite a bit of seafood exported.

In the past, airplanes had to land for fuel. Now that is not automatically necessary; but, if it is a freighter fully loaded with cargo, it will still need gas. Most flights chose to be heavy on cargo and stop for gas because they get paid to move cargo. An increase in 100,000 pounds of cargo probably means a \$100,000 increase in profits per airplane. There is a cost to stopping too including landing fees, fuel flowage and ground handlers. It probably adds up to \$5,000 per stop. It is pretty simple math to figure that the profit outweighs the cost.

The Alaska International Airport System offers liberalized cargo transfer requirements as a result of the 2003 Stevens amendment. As of January 2004, the law permits air cargo to or from a foreign country to be transferred to another airline in Alaska without being considered to have broken its international journey. These cargo transfer operations cannot be done in other places except Hawaii. This is a value added operation that is not well understood in the market. There is a lot of opportunity to expand the use of this tool. Also, note that the Alaska International Airport System includes the Anchorage & Fairbanks airports.

3. Describe passenger services at your airport.

The State of Alaska has a total population of 710,000. The Anchorage “bowl” (metro area) accounts for 350,000 people or half of the state’s population. On the cargo side, we are a global player. On the passenger side, we get about 1 million tourist every summer which is more than the state’s total population. Two-thirds of our total passenger business happens in the four months of the summer. Several carriers operate seasonally during the summer. In the airport, the travel day before Thanksgiving Day (a day that is peak in many other places) doesn’t even make our top ten list of busiest travel days. Instead, June, July and August are our busiest time. Alaskans travel by air, also. We have 150,000 to 200,000 residents who travel by air during the winter because it’s too far or too difficult to drive.

4. Please describe how you see the economic role of the airport.

The Airport is an economic engine for the city and state. The Anchorage Airport is responsible for 1 in 10 jobs in the Anchorage area—either directly or indirectly. This means that 1 in 20 jobs in the state are at the airport or related to the airport’s operation. This is still not the equivalent of the oil and seafood industries but is very significant. The airport is also the lifeline to get in and out of Alaska.

5. Does your airport have a current economic impact study?

Yes. Last year. Trudy will email the full report.

6. Please describe the international cargo and/or travel a component of your airport?

When talking about cargo operations, there are three or four different business models. Most cargo movement in Anchorage is done by companies that specialize in moving cargo such as Commodity Forwarders, Inc. These are called master forwarders. They will have a cargo plane and search for businesses that want to ship things. The shipment might be made up of items from several different businesses. Businesses like this are responsible for a majority of cargo activity in Anchorage. There is also regular activity by FedEx and UPS who are “integrators.” Some companies, like Asiana, are a single shipper and carry a single airplane full of cargo from one producer which might be car parts or clothes for the Gap clothing stores. There are also charter flights that might be dealing with oil equipment.

7. How important are international cargo or passenger services to the mission/ vitality of your airport?

International cargo is critical to the operation of our airport. It’s our lifeblood. We are a major node or nexus in the global supply chain. In Anchorage, international passenger traffic dropped of radically in the 1980s when the Russians opened their airspace. If it wasn’t for cargo, we wouldn’t be here today.

8. Is there a difference in how your airport promotes domestic and international cargo and passenger services in the context of the airport’s economic role?

Domestic cargo for us means moving goods through the state as well as a limited amount of seafood that originates in Alaska for export. Otherwise, Alaska is a resource extraction state. We produce oil, lumber, coal and other natural resources and because they are heavy and non-perishable, none of these ship by air.

Something else to remember: Anchorage International Airport is part of a system with Fairbanks called the Alaska International Airport System. Fairbanks is the other airport in the system. The airports use the same accounting systems and have the same fees and paperwork. Activity between the two airports is seamless. Fairbanks also has a brand new terminal building. This system is an important part of providing an alternate airport when weather conditions are not favorable in Anchorage. The two airports have never been closed simultaneously. We’re a system working together and this is part of our marketing outreach to carriers.

Most cargo transfer is tail-to-tail so it doesn’t matter where it is done. There are no specific resources in Anchorage that are needed.

3.6 Rickenbacker Airport, Columbus, OH

Name of Contact	David Whittaker, Vice President of Business Development & Communications
Organization	Columbus Regional Airport Authority, Rickenbacker Inland Port
Email	DWhittaker@ColumbusAirports.com
Date of Interview	December 20, 2012

1. Please describe breadth of cargo and passenger services at the airport.

The Columbus Regional Airport Authority is made up of three airports: Port Columbus (scheduled air service), Rickenbacker (cargo) and Bolton (GA). Rickenbacker is primarily a cargo airport although the growth of less than daily and one-off charters for passenger travel is growing and is being developed as a way to diversify the revenue stream at the airport.

2. Describe the cargo operations of your airport.

Cargo: The integrators are here (Fed Ex and UPS). FedEx building is operating out of the original Flying Tiger facility which is just less than 300,000 square feet in size. Each of the integrators has six flights per day. Rickenbacker is well-positioned geographically between Indianapolis and Memphis. The U.S. Postal Service contracts for service here. AirNet has its national headquarters at Rickenbacker. They are a leading cargo carrier that specializes in the movement of super high priority small goods: organs (as in human organs for transplant) and medical equipment. AirNet got their start moving cancelled checks when those were moved physically and they have changed with the times. Visit their website for more information (<http://www.airnet.com>). Other cargo service is 747 charter flights, mostly from Hong Kong and some from Shanghai. The primary commodity is textiles/fashion. They bring merchandise for the Limited, Abercrombie & Fitch, Tween and many others. Cargo is inbound. There is an aspiration at the airport to add the outbound cargo.

The charters or scheduled charters have been averaging 2-4 flights/week for the past year. Some of the charter companies are Kalitta (Ypsilanti based), Atlas, and Evergreen. These companies are usually commissioned by freight movers and there is a consolidation at Hong Kong.

Rickenbacker is interested in growing shipments of perishables but none of the facilities currently have coolers. That is a potential future exploration. Electronics is growing. (Diversification is good.) Rickenbacker has a “heavy lift” reputation as a place that is able to move generators and engines and other equipment that is usually moved by rail or truck but turns to air when there is a supply chain disruption. The airport has seen movement of Rolls Royce turbine generators, GE aircraft engines, and supplies for Antonov (Russian

aircraft). Forward Air is a major freight forwarder and trucking company at the airport and there are others. Forward Air has 175+ dock doors at Rickenbacker. It is a major transfer point for cargo (44 destinations daily).

3. Describe passenger services at your airport.

121st refueling wing is based here.

Passenger: Rickenbacker is a charter facility with 2 gates and a 48,000 sq. ft. terminal building that was built as a revenue diversification effort at a primarily cargo airport. Rickenbacker has become a niche for vacation/charter flights, less than daily and one-off charters, football events, military charters, and ad hoc events. From an operational standpoint, the passenger activity helps with revenue that comes in from landing fees, parking, etc. This is a high quality market and demand is there. Corporate aircraft including Southeast, Pan Am Charter, and Direct Air are companies that serve that niche. Allegiant Air began service this year and is doing well.

The revenue helps with the cost of running the airport which is physically double the size of the authority's passenger airport.

The airport is slightly south of town and not in the best location for corporate jets. The Ohio State University and the system's GA airport have those. Rickenbacker has an FBO operated by Rickenbacker and the airport also does its own ground handling. This is another revenue diversification effort. Rickenbacker has very few based aircraft.

4. Please describe how you see the economic role of the airport?

Rickenbacker has a very important role in the regional economy. The community recognizes that and is very supportive. It is now called the Rickenbacker Inland Port. A rail intermodal facility was built five years ago adjacent to the airport. It is primarily an international facility, combined with trucking and the airport.

Rickenbacker has a larger impact that just what is happening at the airport. The airport's total output is over \$900 million. The airport's economic impact is exceedingly powerful and important for the region. That impact is widely recognized and appreciated. Other infrastructure investments have been made to improve the flow of goods because the value is recognized.

5. Does your airport have a current economic impact study?

Yes. The November 2012 report titled: *Columbus Regional Airport Authority Economic Impact Study Update Technical Report*.

6. Please describe the international cargo and/or travel a component of your airport.

Domestic air cargo almost does not exist anymore. International flights have usually stopped in Anchorage for fuel. International customs clearance is performed at Rickenbacker. See cargo question above for more information on international cargo. The international cargo is significant enough that there is a U.S. Customs service on site.

7. How important are international cargo or passenger services to the mission/ vitality of your airport?

International cargo is significant and it is about the only market with opportunity for growth.

Thank you so much for you time and perspective. Are there any other airports that you think we should talk with?

4 INTERVIEWS WITH REPRESENTATIVES OF AVIATION ORGANIZATIONS

4.1 General Aviation Manufacturers Association (GAMA)

Name of Contact	Jens Hennig, Vice President of Operations
Organization	GAMA
Email	jhennig@GAMA.aero
Date of Interview	January 14, 2013

1. Can you explain to me the role of your organization as it relates to airports specifically or to aviation as an industry or both? Does your organization focus on a particular sector?

From the website: GAMA is an international trade association representing over 80 of the world's leading manufacturers of general aviation airplanes and rotorcraft, engines, avionics, components and related services. GAMA's members also operate repair stations, fixed based operations, pilot and maintenance training facilities and they manage fleets of aircraft.

Purpose: To foster and advance the general welfare, safety, interests and activities of general aviation. This includes promoting a better understanding of general aviation and the important role it plays in economic growth and in serving the transportation needs of communities, companies and individuals worldwide.

...GAMA represents the interests of its members to government agencies throughout the world. These interests include legislation, safety regulations and standards, market access, development of aviation infrastructure, and aviation security.

GAMA also engages with the International Civil Aviation Organization (ICAO) process on behalf of its members and works with national and international industry groups to promote the interests of general aviation worldwide.

Through its public information and education programs, GAMA promotes better understanding of general aviation and the important role it plays in economic growth and in serving the transportation needs of communities, companies and individuals worldwide.

From telephone interview: GAMA was founded in 1970 and in 2000 expanded to include an international focus. Currently one-quarter to one-third of our members are located outside of the U.S.

From the U.S. and around the world, we work as an advocacy and trade organization plus we advocate to address regulatory issues.

2. Economic impact studies are done for a variety of reasons and they may focus on a variety of different areas. Here are three different examples:

- **A national study of economic impacts**
- **A state airport system impact study**
- **An airport specific impact study**

How would your organization view these differently? Have you used one or more of these for your information or to support your initiatives or inform your decisions?

GAMA has done two economic impact studies that are a national analysis. GAMA did an aggregate national economic impact study for the entire aviation industry in 2003 and another one for the national general aviation industry in 2005. The 2003 aggregate study was conducted with support from 10 other organizations and the GA study was done in cooperation with NASEO. Both have been very useful for presenting messages to Capitol Hill.

We have also supported a study of business aviation as a subcategory of GA in Europe. It generated the same type of data.

More recently, GAMA has developed State economic data sheets that are useful for addressing state audiences including Governors and state legislators. State DOT economic impact studies were used as resources for those reports and were helpful.

3. In your view (organizational/professional), what is the contribution of airports to the overall U.S. economy?

At the risk of sounding too basic, the economic impact of aviation comes primarily from its importance as an integral part of transportation system.

4. When you discuss the national importance of airports and their economic impact on the country, who is your typical audience?

Our typical audience is found on Capitol Hill (Washington, D.C.)—we address the executive and legislative branches primarily. We also address elected officials at the state level at times (governors and legislators). Also, media and journalists sometimes reach out to us looking for statistics and information to add more depth to a local story. For example, a local employer is part of a larger system and the impact of the larger system is “X”. We also

address international audiences but the U.S. data is not especially important there. In Europe, we are primarily making a technical argument rather than the constituent based approach (what's in it for me and the people I represent) that is most persuasive in the U.S.

5. If you address national impacts, what are your main sources of information about the national economic impacts of airports?

GAMA uses our own studies primarily. The FAA studies are helpful at the national level. State DOT studies are helpful for state specific messages.

6. Are there particular benchmarks that you like to use to illustrate the importance of airports?

We have a tagline that has two benchmarks that we use over and over again to talk about the overall impact of GA: 1) Aggregate direct, indirect and induced impact economic impact (\$150 billion in 2005) and 2) portion of GDP and employment (1.265 million employees).

7. Is there additional information you'd like to have about the national economic impacts of airports that is not currently available?

My answer is "no" with respect to additional information, but "yes" with regard to more frequent updates.

Reports tend to be industry funded and FAA only does one every 3 or 4 years. I am a "time series fan." Without using the same methodology, the annual studies cannot be used in a time series approach.

8. Thank you! Is there anyone else in your industry that you think we should speak with? Additional comments?

One editorial comment: It's hard to get people excited about funding and carrying out the economic impact studies but the data that it creates is used quite a bit and people are excited about the use of the results.

4.2 National Business Aviation Associate, Inc. (NBAA)

Name of Contact	Mr. Mike Nichols, CAM, VP, Operational Excellence & Professional Development
Organization	National Business Aviation Association, Inc
Email	mnichols@nbaa.org
Date of Interview	December 21, 2012

1. Can you explain to me the role of your organization as it relates to airports specifically or to aviation as an industry or both? Does your organization focus on a particular sector?

From the website:

Mission Statement. To foster an environment that allows business aviation to thrive in the United States and around the world.

Statement of Purpose. Founded in 1947 and based in Washington, DC, the National Business Aviation Association (NBAA) is the leading organization for companies that rely on general aviation aircraft to help make their businesses more efficient, productive and successful. The Association represents more than 9,000 companies and provides more than 100 products and services to the business aviation community, including the NBAA Annual Meeting & Convention, the world's largest civil aviation trade show.

In the U.S., there are fewer than 500 airports that serve scheduled air service while GA uses 5,000 airports. Our focus is on the community airports and reliever airports where our members prefer to operate and preserving access to those airports. Airports regularly experience pressures to shut down the airport, or shorten business hours and safety considerations are raised regularly. FAA may make recommendations that shorten runways which would reduce access.

We are a trade association so members are companies. Note that typically, when GA aircraft is operating at the larger commercial service airports, it is for one of two reasons: 1) They have operated over the long-term in that location or 2) they provide connections to the commercial service (for example: to get people to international flights).

2. Economic impact studies are done for a variety of reasons and they may focus on a variety of different areas. Here are three different examples:

- **A national study of economic impacts**
- **A state airport system impact study**
- **An airport specific impact study**

How would your organization view these differently? Have you used one or more of these for your information or to support your initiatives or inform your decisions?

Yes. Since we don't commission our own studies, when there are national studies done, they are very helpful. We use them to inform or lobby for policy initiatives—to address politicians who don't understand. Any report that ties GA to its economic benefit is helpful. State aviation studies are also helpful at the state level. An example of one issue that has been addressed by NBAA is the taxation of aircraft. Having data on the value of the GA industry is exceptionally important to what we do. Generally, this organization usually operates at the national or the state level. We do become very involved at specific airports when access is potentially being restricted—especially when it is precedent setting.

In addition to the national staff in Washington DC, we have six regional-level staff people who look more at micro level issues across the country. Our clients include Van Nuys, Burbank and Santa Monica airports.

3. In your view (organizational/professional), what is the contribution of airports to the overall U.S. economy?

I can't answer for the whole industry, but from the GA perspective, without airports, there are no GA operators so our entire analysis would be impacted. We look at GA and its impact on the business economy in this way:

GA creates 1.2 million jobs, and has a \$150 billion impact as an industry annually. (See: www.noplanenogain.org).

In addition, the other component is the productivity advantage of using GA for business. With the use of GA, professionals can be more nimble, can out-perform the competition and be more responsive to customers. Nexa Advisors have done studies to look how companies perform that use business aviation vs. those who don't and have found these statements to be true.

4. When you discuss the national importance of airports and their economic impact on the country, who is your typical audience?

NBAA primarily addresses three groups: Policymakers at the state and federal level, Community organizations and our own industry. In some instances, our members take for granted the existence of airports and we work to raise awareness of threats to access so

members remain vigilant. A good resource for this is our *Airports Handbook* on our website.

5. If you address national impacts, what are your main sources of information about the national economic impacts of airports?

Our main sources of information related to the economic impact of GA come from:

1. Studies commissioned by the Alliance for Aviation Across America (A4A)
2. Nexa Studies commissioned by NBAA
3. A study by the Harris Corporation about typical users of business aviation

6. Are there particular benchmarks that you like to use to illustrate the importance of airports?

GA as an industry provides 1.2 million jobs and a \$150 billion impact. See our *Airports Handbook* for additional benchmarks.

7. Is there additional information you'd like to have about the national economic impacts of airports that is not currently available?

Mike will ask around his organization both for those working with federal policy and state policy and get back to me on this one.

Another note: Mike was interested in coordinating with our project schedule to incorporate it into their annual convention/education schedule. The schedule is done each year by March so early 2014 would be a good time to connect on this.

4.3 Professional Aviation Maintenance Association (PAMA)

Name of Contact	Mr. Dale Forton, President
Organization	Professional Aviation Maintenance Association (PAMA)
Email	president@pama.org
Date of Interview	January 3, 2013

1. Can you explain to me the role of your organization as it relates to airports specifically or to aviation as an industry or both? Does your organization focus on a particular sector?

From the Website: The Professional Aviation Maintenance Association is the premier association for the Aviation Maintenance Technician. PAMA promotes professionalism and recognition for the Aviation Maintenance Technician. PAMA does this by fostering

continuous improvement in aviation safety and community through communication, education, representation, and support.

From the interview: PAMA focuses on regulatory affairs, safety, lifelong learning, and recognition in the aviation maintenance industry. Our membership is made up of Licensed or certificated technicians—certification from the FAA (one of only 2 certifications given by the government)—and also aircraft maintenance repairmen, avionics technicians (instrument panel), etc.

2. Economic impact studies are done for a variety of reasons and they may focus on a variety of different areas. Here are three different examples:

- **A national study of economic impacts**
- **A state airport system impact study**
- **An airport specific impact study**

Have you used one or more of these for your information or to support your initiatives or inform your decisions?

We have never used an economic impact report. Aviation maintenance and dollar value do not go together. Our focus is on safety rather than economic value. The question in this industry is safety.

3. In your view (organizational/professional), what is the contribution of airports to the overall U.S. economy?

It's huge! It's \$20 billion in positive trade against our trade deficit. It begins with the industry selling aircraft, and then beyond that its economic value comes from what it does for business operating in the U.S.

4. When you discuss the national importance of airports and their economic impact on the country, who is your typical audience?

We don't usually have that discussion as an organization. Sometimes we get involved in partnership activity with other organizations or big picture issues. For example, there was an industry push to educate the president when the statement was made about not using corporate aircraft. We participated in that activity.

5. If you address national impacts, what are your main sources of information about the national economic impacts of airports?

We would look to AOPA, NBAA and GAMA for resources.

6. Are there particular benchmarks that you like to use to illustrate the importance of airports?

This is more of a personal answer (because it is not the focus of the organization): The efficiency which aviation provides to a business or a business owner (transportation speed, sales, etc.) and recreation.

7. Is there additional information you'd like to have about the national economic impacts of airports that is not currently available?

No. Not really. We're working on a shortage of technicians and pilots that is coming up. Data and statistics related to the impact of those employment categories and/or the impact of not filling those jobs would be helpful.

8. Thank you! Is there anyone else in your industry that you think we should speak with?

EAA: Experimental Aircraft Association

4.4 Airlines for America®

Name of Contact	Mr. John P. Heimlich, VP and Chief Economist
Organization	Airlines for America®
Email	www.airlines.org
Date of Interview	January 4, 2013

We were joined by:

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1. Can you explain to me the role of your organization as it relates to airports specifically or to aviation as an industry or both? Does your organization focus on a particular sector?

What we do: We vigorously advocate for the American airline industry as a model of safety, customer service and environmental responsibility; and as the indispensable network that drives our nation's economy and global competitiveness.

We represent large certificated airlines with a focus on U.S. carriers. We represent both passenger and cargo (FedEx, UPS, and Atlas plus eight passenger airlines).

2. Economic impact studies are done for a variety of reasons and they may focus on a variety of different areas. Here are three different examples:

- **A national study of economic impacts**
- **A state airport system impact study**
- **An airport specific impact study**

Have you used one or more of these for your information or to support your initiatives or inform your decisions?

Thea Graham at the FAA does annual economic impact studies and MIT has done some work on aviation and the quantitative and qualitative impacts of aviation. The FAA report, broken down by state, is a benchmark—we upgrade our interview methodology but it is fairly consistent. We don't get down to the individual airport level.

University of MD/Brookings Institute/ MIT have all done studies.

Oxford report (sent via email): Look in the table of content to see if the question is already answered there.

ACI North America has also done studies: LiYing is my counterpart at ACI. They made a big splash in a webinar about a year ago. CDM Smith in Cincinnati, Ohio did the study. I'm sending the study to you via email. ACI created a special website for the study (<http://airportsforthefuture.org/>).

Who proposed the TRB / ACRP study question in the first place? The concern is that there is so much work done in this field already that it would be good to make sure that this is adding to the existing body of knowledge rather than duplicating efforts.

The thing that is really lacking in the industry right now is a common methodology for the study approach. It's somewhat of an FAA problem because standards haven't been updated for some time.

Data at the national level is worth the most for A4A. A national study using standard methodology that tells a state impact is the second most valuable. Occasionally we use an airport study or an airport system study. Some state studies—including PA and VA recently—on occasion, but mostly when I'm using those I'm referring other people to them as a resource when they are speaking to a more local audience. Sometimes the state reports will go into the local detail and provide cargo data which can be valuable.

It would be of interest to have a bit more color on the value of incremental international air service to a U.S. airport including the value to the region. Nichols reported seeing something by the Chicagoland Chamber of Commerce on this topic. Passenger vs. flight is a different cut. Lots of cities are trying to bring international service. In general, there is

limited information on cargo. International spending seems to be higher per person for international visitors.

The U.S. Census on foreign merchandise trade is a valuable source of data. It reports on monthly shipments by air. It has information on export/import levels. It is a great data source. USAtrade.gov is another good resource.

3. In your view (organizational/professional), what is the contribution of airports to the overall U.S. economy?

Quite simply, the impact is large. Aviation makes a substantial contribution as an enabler of other sectors to conduct their business and the impact increases as the economy continues to globalize. Aviation impacts both GDP and employment. The FAA is doing some very interesting work on the productivity enhancing qualities of aviation.

The FAA cautions on reports that reach large numbers when describing the economic impact of aviation. This is often an indicator of double-counting, especially on the economic impact analysis. Quantitatively this can be way out of proportion.

Qualitative descriptions of our impact can be especially helpful. Sketches or case studies about how different businesses have used aviation to enhance their own output would be very interesting. For instance, a profile of how Caterpillar uses aviation to travel, ship and manufacture. They have their headquarters in Peoria and operations in Prague. How could they operate without aviation?

Another good example would be to describe all of the things that had to shut down as a result of the Icelandic volcano when planes were grounded for an extended time.

Another interesting topic would be how technology has impacted aviation and improved their ability to operate. Technology is part of the economic drivers of aviation.

4. When you discuss the national importance of airports and their economic impact on the country, who is your typical audience?

Our typical audience is “policymakers” broadly. We interact with regulators, legislators, and the media.

5. If you address national impacts, what are your main sources of information about the national economic impacts of airports?

Our sources of economic information are the reports produced by the FAA, as well as our own organically generated information or information that is reported by our carriers to DOT or other authorities that we compile. Beyond those two, we will look to some of the others already mentioned or provided and we also use reports from the International Air Transport Association (IATA).

FHWA has an annual database that is multimodal so you can see the flow of goods including weight and value that is a good resource, too.

6. Are there particular benchmarks that you like to use to illustrate the importance of airports?

The standard benchmarks that we tend to use are: 1) Commercial aviation drives nearly 10 million U.S. jobs and more than 5 percent of the U.S. GDP and 2) Commercial aviation is ultimately responsible for more than a trillion dollars of economic activity.

7. Is there additional information you'd like to have about the national economic impacts of airports that is not currently available?

It would be helpful to have spending by travelers when they arrive at their destination. Especially for GA airports that are not the huge ones.

4.5 Airports Council International

Name of Contact	Deborah C. McElroy
Organization	Airports Council International – North America
Email	DMcElroy@aci-na.org
Date of Interview	December 11, 2012

ACI was the original group to suggest that ACRP sponsor a national airport economic impact study. ACI represents its member airports and systems of airports to Congress, the executive branch and at the state and local level. At the time, ACI was lobbying to end the FAA shutdown and to promote increases in PFCs as part of the AIP reauthorization. They are always looking for ways to drive home the importance of airports to government and the media. Since ACRP projects take a while, they found some money to have CDM Smith cobble together their data using a bottom up approach. This CDM study only has information about commercial service airports and is based upon 2010 data.

1. When you discuss the national importance of airports and their economic impact on the country, who is your typical audience?

ACI's audience is primarily policy makers at the federal and local level as well as the media. ACI highlights the local economic impact the airport delivers to the local economy and the number of jobs created or sustained. At the national level, an increase in the passenger facility charge would allow airports to build facilities, create construction jobs, and increase the economic impact of the airport on the local economy. For media, the airlines drive most discussions and get most of the credit for whatever happens during the transportation cycle. ACI would like to see data supporting the value of the airport that is separate from the airlines.

When issues arise about general aviation airports, ACI send the request over to the Alliance for Aviation Across America.

2. What is the information that is most persuasive and useful in the ACI Economic Impact Report?

Jobs, jobs, jobs. Jobs and the economic impact on the community are the biggest talking points. Create conditions for more jobs; eliminate conditions that hurt job growth.

3. Are there particular benchmarks that you like to use to illustrate the importance of airports?

Jobs, then indirect and induced economic impacts

4. Is there additional information you'd like to have about the national economic impacts of airports that you don't have, but would like?

ACI's wish list:

- Separate categories that describe the impacts for general aviation, air cargo, and commercial airlines. The CDM study provided aggregate numbers.
- ACI would like to know how domestic airports fit into the whole U.S. national transportation system. How do airports contribute to the U.S. national transportation system versus other modes?
- What percentage of worldwide transportation is driven by U.S. airports? What is the U.S. share of the impact airports have worldwide on the transportation system?
- ACI also would like to be able to separate transportation and non-transportation job categories at airports. For example: 1) transportation jobs might include airline, car rental, and fast food jobs, and 2) non-transportation might include construction and hotels. What are the components of airport activity and how do they contribute to the whole? Lois pointed out that there are really three categories of airport activity: Airline related; passenger dependent and non-aeronautical commercial activity.

Lastly, since ACI will undoubtedly use the results of the ACRP work, they would really like some talking points about how this project is different from the one that CDM Smith put together, especially if the results are different.

5 INTERVIEWS TO REVIEW BENEFITS OF CONNECTIVITY BETWEEN AIRPORTS & MARKETS

Table 1. Participants in the Qualitative Analysis

MSA	Industry	Organization
Atlanta	Economic Development Organization	Invest Atlanta
Atlanta	Waste Management	SWANA Georgia Chapter
Boston	Accommodations & Food Services	Massachusetts Restaurant Association (Boston)
Boston	Chamber of Commerce	Greater Boston Chamber of Commerce
Cincinnati	Management of Companies & Enterprises	Cincinnati USA Regional Chamber
Denver	Economic Development Organization	Metro Denver Economic Development Corporation
Denver	Information	Colorado Technology Assn
Denver	Information	Denver Alliance of IT pros
Denver	Information	Mile High Chapter of AITP
Denver	Information	TEC Integration
Denver	Management of Companies & Enterprises	Denver Metro Chamber of Commerce
Denver	Manufacturing	Bobrick Washroom Equipment Inc.
Denver	Professional Scientific & Technical Services	Foresight West
Denver	Professional Scientific & Technical Services	Riggs, Abney, Neal, Turpen, Orbison & Lewis, PC
Detroit	Economic Development Organization	Detroit Economic Growth Corporation
Golden, CO	Finance and Insurance	American Family Insurance
Nashville	Art, Entertainment & Recreation	Tennessee Arts Commission
Nashville	Art, Entertainment & Recreation	Tennessee Film, Entertainment, & Music Commission (Nashville)
Philadelphia	Finance and Insurance	Financial Planning Assn of Philadelphia
Phoenix	Economic Development Organization	Greater Phoenix Economic Council
Phoenix	Economic Development Organization	Mayor's office
Phoenix	Finance and Insurance	Financial Planning Association of Greater Phoenix
Phoenix	Finance and Insurance	Sky Harbor International Airport
Phoenix	Real Estate, Rental & Leasing	Phoenix Association of Realtors
Pittsburgh	Art, Entertainment & Recreation	Greater Pittsburgh Arts Council
Pittsburgh	Management of Companies & Enterprises	Pittsburgh Airport Area Chamber of Commerce
Portland	Economic Development Organization	Greater Portland Inc.
Portland	Economic Development Organization	Portland Development Commission

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MSA	Industry	Organization
Portland	Economic Development Organization	Portland Development Commission
Portland	Economic Development Organization	TravelPortland
Raleigh - Durham	Chamber of Commerce	Greater <u>Raleigh</u> Chamber of Commerce
Raleigh - Durham	Chamber of Commerce	Winston - Salem Chamber of Commerce
Raleigh - Durham	Real Estate, Rental & Leasing	Apartment Association of North Carolina
Raleigh - Durham	Real Estate, Rental & Leasing	Charlotte Region Commercial Board of Realtors
Raleigh - Durham	Real Estate, Rental & Leasing	<u>Raleigh</u> Regional Association of Realtors
Salt Lake City	Art, Entertainment & Recreation	Salt Lake City Arts Council
Salt Lake City	Economic Development Organization	edcUtah
Salt Lake City	Finance and Insurance	Financial Planning Assn of Salt Lake
San Antonio	Accommodations & Food Services	San Antonio Hotel and Lodging Association
San Diego	Economic Development Organization	San Diego Regional Economic Development Corporation
San Diego	Waste Management	Central Region Landfills
San Francisco	Information	Bay Area Council
St. Louis	Chamber of Commerce	Director of Business Research and Analysis
St. Louis	Waste Management	SWANA Missouri Chapter
Tampa	Economic Development Organization	Tampa Hillsborough EDC
Tampa	Other	Flight 2014 Planning Board

The telephone interviews posed several challenges. The first was to identify an organization or person willing to speak on the relationship between air transport and productivity. To a general audience, the availability of air transport is but one factor that contributes to an industry or company’s productivity. For example, the decision to locate a domestic manufacturing facility is based on a ready labor force (area of high unemployment), availability of existing buildings, and economic incentives offered by local government.

Other factors mentioned as equally or more important than air transport included:

- The availability of highly trained skilled labor
- The price of energy or resources required
- Location of suppliers and capital markets
- Macro-economic conditions impacting demand

Where an econometric model can calibrate the relative importance of variables in a multi-factor analysis, persons interviewed had a much more difficult time isolating the importance of air transport to productivity, except in extreme situations—such as when an airline closes its hub at a particular airport.

5.1 Findings

Value of Passenger Air Service

- Good nonstop air service and good connecting service supports tourism and improves the likelihood of attracting companies to a region.
- Face-to-face meetings with customers, company personnel and suppliers are a vital part of business success and in this context, air service is extremely important.
- The frequency of flights and the number of nonstop flights can improve competitive standing, improve productivity, and reduce costs by optimizing employee time.
- International flights make it possible to develop global markets and partnerships.
- Many location decisions are not dependent necessarily on air access and are determined by the owner's desire to live in a particular place, access to venture capital, and/or the location's desirability to the talent required to produce the product.
- For products designed in the U.S. and manufactured in Asia, business location is driven by access to venture capital (VC). For example, the business is based in San Francisco near its VC firms. The factory in Asia is located within a two-hour drive from a major airport with direct services from SFO. Many VC firms prefer to do business with companies that are within driving distance of the VC's office.

Value of Air Cargo Services

- The availability of international passenger flights also makes it possible to transport high-value air cargo as belly cargo.
- Cargo transportation is a commodity. Shipping decisions are based on cost of transport or scheduled delivery time to the destination. Once a shipment is consigned to a carrier or logistics firm, the firm responsible for transportation makes the decision whether to carry the shipment by air, ground, rail or ship.

Value of Connectivity

Airline Routes

- Air travelers prefer direct flights between their particular city-pairs of choice, and they want a variety of carrier options in order to ensure competitive prices.
- Local government or business revenue guarantees or subsidies can attract new service; however, these routes ultimately have to be profitable without subsidy for sustained service.

- Demand for tourism and travel contribute heavily to an airline’s city-pair decision. For example, inbound tourist travel from Asia to San Francisco has supported an increase in flight frequency. In Boston, 150,000 Chinese travelers arrived via an intermediate city last year—direct service from Beijing started in 2014. Boston is also pursuing a direct flight to Tel Aviv because more than 200 businesses in Massachusetts have Israeli connections. In addition, foreign flag carriers are introducing service to U.S. destinations that are not a U.S. carrier international hub. For example, Japan Airlines, Copa Airlines, Turkish Airlines, Emirates, and Hainan Airlines chose Boston as a new nonstop destination.

Business Travel Priorities

Business travelers have the following priorities:

- Frequent domestic and international service,
- Nonstop domestic and international flights,
- Concentration of flights to and from particular markets during peak hours,
- Ease of rush hour commute to and from the airport, and
- Lower relative ticket costs.

Businesses surveyed indicated that the following attributes for air travel are important:

- A wide choice of competitive carriers, with flights available throughout the day,
- A choice of nonstop domestic and international flights,
- Competition on popular routes in order to reduce fares,
- Short travel time to and from the airport, and
- Reliable schedules with minimal delays. [Air Transport and the Bay Area Economy]

Convention Travel Priorities

- Conventions and smaller corporate and industry meetings constitute a distinct segment of the business travel market.
- Corporate event planners consider accessibility—the choice of flights into and out of a city and the availability of nonstop flights—very important in choosing an event or conference site. Accessibility can also influence event participation, as executives and their travel planners consider the timing and convenience of their arrangements. This is a particularly important consideration for San Francisco, with its large convention and visitor industry.
- Expanding airline service will address many of the priorities of business travelers and convention planners, improving the Bay Area’s competitiveness as a national and

international business center, and as a tourist and convention destination. [Bay Area Economic Forum].

Business Location

- In small to medium businesses with domestic customers, people travel via car to an airport, then to another airport closest to the destination, then via rental car to the destination. Nonstop flight is best. Closer is better. Free checked-bags are better.
- In locations where nonstop service has been discontinued and there is an airport option within driving distance, travelers will often drive to a hub airport in lieu of taking a connecting flight. For example, travelers that formerly used Pittsburgh have opted to drive to Philadelphia or Baltimore to catch a nonstop flight.

Examples of Connectivity Value from Interviews

Atlanta. According to Dr. Eloisa Klementich and Kevin Johnson (Invest Atlanta), Atlanta is the best-connected city in the south and has the busiest airport, Hartsfield-Jackson Atlanta International (ATL) in the nation—and in the world. They also noted that 80% of the U.S. population is within a two-hour flight or a one-day drive of Atlanta, which makes it an ideal location for travelers of all kinds.

Florida. According to Jeff Lucas (Tampa Hillsborough EDC), the Tampa airport is a very easy airport to get to and get through. There are direct flights to JFK, ATL, and SFO. "Additional flights to the Caribbean would be valuable," said Lucas, "because Tampa exports food, consumer goods, and energy to the Caribbean Islands and additional flights would make business easier." In addition, it is not only air connectivity that matters to the area; the Sea Port at Tampa is the largest bulk port on Florida's coast because of their business relationship with the Caribbean.

Tennessee. Airline connections between entertainment hubs like Hollywood and Nashville are extremely important because they make it convenient to produce film, television, and commercial projects in Tennessee. Nashville, Memphis, and Knoxville are Tennessee's film and television nerve centers, and they are home to the state's crew base and vendor services. The airports in these areas facilitate the movement of people (producers, directors, and production staff) and equipment (cameras, props, microphones, etc.) within the state as well as to national production and development destinations such as Los Angeles and New York.

San Diego. There are 12 military bases near San Diego, and the city is home to many companies that provide services to the U.S. military. Nonstop flights to Washington, DC, are important for government contractors traveling on business. Flights to other domestic destinations provide the area's military personnel a way to travel to their home states from

San Diego, and offer a westbound route to Europe. Additionally, direct flights to Japan support the electronics industry.

Boston. According to Erin Trabucco (Greater Boston Chamber of Commerce), the City of Boston, its mayor, and Massport have put Logan International Airport as a top priority and invested significantly in securing nonstop international flights. For example, the city is pursuing a direct flight to Tel Aviv because more than 200 innovation-related businesses in Massachusetts have Israeli connections, and those businesses would prefer to fly direct.

Drawing talented students from around the world is also a focus of the Greater Boston Chamber, and access to direct flights between Boston and students' home cities or regions is important. Ms. Tabucco emphasized the importance for Boston's higher education sector for direct flights that link affluent parents with their children attending the region's many colleges.

Examples of Impacts Associated with Loss of Connectivity

Some cities have experienced loss of flight frequencies and/or loss of airline hub status. Several cities were selected for interviews to explore the impacts of a loss of connectivity.

Pittsburgh

- International companies with facilities in Pittsburgh want year-round direct flights to their main branches around the world; without these connections, the Pittsburgh area is at risk of losing businesses to other regions.
- Companies considering a regional office in Pittsburgh research and evaluate the frequency and number of flights between their main office and the region. If flights between the two locations are not readily available for a reasonable price, these businesses reconsider adding or relocating facilities and/or personnel to the Pittsburgh area.

St. Louis

- The St. Louis area has lost service over the past 20 years due to airline mergers, as well as American Airlines' closing their St. Louis hub. One area representative explained that air service, which was once taken for granted when St. Louis was a hub airport for TWA, is now considered a "cherished resource" as businesses and residents realize the challenges of decreased flight options and frequency.
- Business organizations in St. Louis indicated that the loss of direct flights because of airline dehubbing costs area companies money because employees must travel longer days and have fewer productive hours, and may need to stay overnight (resulting in a hotel room rental and other expenses such as meals).

Cincinnati

- A study participant in Cincinnati gave the example of how—after Delta Airlines dehubbed Cincinnati/Northern Kentucky International Airport—a major produce

distributor relocated from Cincinnati; at least in part to their need to access South America by air for business purposes. The Cincinnati area could not meet the needs of this company and therefore the region was economically impacted by its departure.

Unexpected Findings

While airline flight connectivity is certainly a factor in off-airport business productivity, this study revealed that it is not necessarily the most important one. If it were, then most companies would be located in California, New York, Atlanta, Abu Dhabi (Dubai), or London since those are the best-connected places on earth. In the world of business, there are often other critical factors to consider, including workforce talent, economic or tax incentives, and access to capital.

The Importance of Skilled Talent in Location Decisions

The workforce required to produce a product is as varied as the products themselves. Personnel with the experience required to make durable goods are often located in areas with a rich history of manufacturing. Places like Tennessee, Kentucky, and South Carolina were specifically mentioned in the interviews. High-tech and consumer goods that are designed in the U.S. but manufactured in Asia often situate the design talent on the U.S. West Coast, while the manufacturing talent is located in Asia. Biotech products and research that bridges the Atlantic Ocean often travel between the U.S. East Coast and Europe.

Examples of Specialized Talent Pools

Southeast U.S. Manufacturer. According to David Reed (Bobrick Washroom Equipment, Inc.), small- to medium-sized manufacturing businesses tend to establish their production plants in small towns with good workforces and economic incentives. These southeastern U.S. towns typically do not have commercial airline service; the closest towns with airports often have regional jet service from a hub city, so the loss of flights to small towns increases travel time for this company's people. However, they feel that their chosen locations are more important than any inconvenience caused by a lack of access to air travel.

West-Coast High-Tech. According to Sean Randolph (Bay Area Economic Council), direct service to Asia, particularly China and Japan, is important to west coast based companies that house part of their business on the West coast (e.g., San Francisco or Portland) and do their manufacturing in Asia. He estimated that in most companies personnel travel back and forth 5-10 times a year for meetings and quality control inspections of factories. Changing flights is a barrier to business productivity due its time-consuming nature; although, transferring at a hub airport is usually more convenient. However, attempting to fly to interior cities in China poses a significant challenge, so most major manufacturing facilities in China that have ties to the U.S. are located within a 2-hour drive of a major destination city (e.g., Shanghai or Hong Kong). Even taking into consideration the potential

difficulties of travel to Asia, many businesses still choose their design locations based on the availability of talent rather than the ease of visiting their factories in Asia.

East Coast Bio-Tech. The top draw for businesses on the East Coast (e.g., Boston, Raleigh-Durham) is talent. There are many universities in the east (e.g. Massachusetts Institute Technology and Harvard near Boston, Duke and University of North Carolina near Raleigh-Durham) that attract the types of students who graduate with training in high demand professions. So valuable is this talent that the Greater Boston Chamber works to place students in internships with local business, anticipating that they might be inclined stay after graduation. The capabilities of Boston and Raleigh-Durham to maintain deep pools of talent help these cities draw innovative companies to their locations.

Millennial Talent (early 1980's to early 2000's)

For businesses that rely on millennial talent, a great workspace close to public transit is a high priority. In Philadelphia, for example, James S. Russell reports that at the Urban Outfitters headquarters in Philadelphia, their campus reflects the values of the owner, Richard A. Hayne (63), and serves to attract the kind of talent that has helped the business thrive in spite of the country's economic downturn. Hayne repurposed the defunct 1,200-acre Philadelphia Navy Yard, and spent \$120 million (to date) converting it into an inviting workspace for his creative, dog-loving staff. While working to roll out a chain of house and garden stores called Terrain, employees can walk and play with their dogs in a vast open space on the campus, then have the pets curl up in beds under their desks while they get down to business. [Russell]

The ability to attract millennial talent was also cited as a reason that Salt Lake City is experiencing an economic upturn. Easy access to light rail, close proximity to ski areas, and good weather were cited as reasons that millennials are drawn to the area. Companies are enticed by the talented and multi-lingual (more than 100 languages) workforce. In one contributor's example, a multi-national finance company transferred a call center to their Salt Lake City office because of the wide variety of languages spoken there.

Portland is also a top destination for millennial talent due to its reputation as a clean/green, vibrant, and hip city. It is considered one of the most "bikeable" cities in the country, and public transportation is plentiful. The city prides itself on being host to more artisanal shops than chain stores, and is known as hotbed for innovative thinking. Certain types of businesses are drawn to Portland by the culture and the talent, but the region has other enticements: easy access to Venture Capital (VC) companies in the Bay Area, the low cost of electricity, and easy access to Pacific Rim markets.

Economic Incentives

Venture Capital. The Bay Area has a substantial number of venture capital companies (VCs). San Francisco is first with \$6.9 billion, and San Jose is second at \$3.9 billion [Florida].

Studies have shown that VCs are more apt to do business with people who are located within driving distance of their offices, so companies who want to use that source of capital may open offices on the West Coast and house their management teams there. Of course, some Venture Capital companies invest in Europe and Asia, but the research shows that most prefer to fund businesses based in near the venture capital funding source.

On the other side of the country, the nation's third leading VC city is Boston, with \$3.1 billion. The area's abundance of talent (from MIT, Harvard, and Yale), strong traditional financial sector, and ease of access to an international airport are the top reasons companies locate in the Boston area. Atlanta is home to 14 Fortune 500 companies (third behind Houston and New York), and is 13th in VC funding with \$262 million.

Tax Incentives. The decision to locate a domestic manufacturing facility is often based on a ready labor force (e.g., high unemployment in a third-tier city), existing infrastructure, and economic incentives offered by local government.

Low Cost of Energy. The cost of energy can vary widely across the U.S. and can have a significant impact on a company's expenses. In Portland, OR, the cost per kWh is about 5¢. In Boston, electricity is more than three times that amount (17¢ per kWh). The decision to locate a facility that uses an abundance of electricity (such as a data center) may be persuaded to select a region with lower energy costs. Areas that experience lower seasonal cooling loads, for example Salt Lake City, are able to attract data centers because they don't require the use of energy for cooling during the winter.

5.2 Conclusions

Using a qualitative method to confirm how air service can improve productivity for off-airport businesses is demonstrated best by sectors that are highly dependent on air transportation. For companies where reliance on air travel is moderate or low, the qualitative analysis were less conclusive; as many other factors also are important to location decisions and productivity. For heavily air reliant businesses, the addition or loss of direct air service affects the cost of doing business and the opportunities for market expansion within the U.S. and in other countries. These sectors include manufacturers; professional, scientific, and technical services; finance; and the import/export of perishable foods.

Cities where airlines have closed hubs experienced large losses in connectivity that resulted in many company relocations away from the area and difficulties landing new prospects to relocate to the area.

Cities with expanding hub airports experienced the opposite effects. For example, industries located in Atlanta have been direct beneficiaries of a decision by Delta to build-out connecting flights at the airport.

“Before the bankruptcy, Atlanta was squandered, used largely to connect passengers between the Northeast and Florida—a leisure market with little potential to provide revenue premiums. Now Atlanta has 970 daily departures to 210 destinations including 62 international destinations. Overall, Delta serves 59 countries.” [Forbes]

Airports that serve as international gateways also are magnets for businesses that require direct intercontinental air service.

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6 NON-QUANTIFIABLE IMPACTS

Qualitative benefits of U.S. airports can be recognized at many levels, whether it is local, regional, statewide or national. Similar to the quantitative impacts, these impacts often spread from one level to another. A wide variety of groups and individuals can benefit from these qualitative impacts, depending on the specific aviation operation and activity. Examples include, but are not limited to, airport communities, interest groups, students, remote communities, the ill, farmers, business communities, and the general public.

Airports generate a wide range of activities that do not involve monetary transactions and sponsor activities where the full values of such transactions are often not reflected in money circulated in the economy. Such activities do not result in economic impact benefits or the benefits that are counted understate the full values attributable to airports. An example of the latter is medical air-evacuations. The economic impacts of medical evacuation services can be estimated by accounting for operating costs of the services and the costs of the eventual medical care. However, economic impact analyses (distinct from benefit-cost analyses) do not factor in the value of life or pain and suffering. A common example of non-monetary activities is community outreach by airports in producing air shows offered as free entertainment, which often does not result in dollars being dispersed in a region.

The qualitative impacts of U.S. airports generally fall into one of four main categories:

- 1) Safety
- 2) Health
- 3) Research
- 4) Other

Each of these main categories is discussed in more detail in the following pages, and includes a listing of users, including numerous federal government agencies¹⁴, which rely on U.S. airports every day.

6.1 Safety

Some of the qualitative impacts that fall into safety overlap with those that are classified under Health and vice versa. However those classified under the Safety category are generally related to rescuing or protecting the population from dangerous people, places

¹⁴ Federal agency use captured from <http://www.gsa.gov/portal/content/100060>

and materials, while those classified under the Health category are generally related to protecting the population from disease and transporting lifesaving medicine and organs.

The main types of aviation operations that are related to safety include, but are not limited to:

- Emergency transportation of people and/or goods to and from remote locations
- Transportation of people and/or goods to support regular safety efforts
- Surveillance
- Aerial firefighting
- Law enforcement
- International protection

Multiple federal agencies utilize aviation to protect the safety of the U.S. population. A description on the specific ways in which aviation is used by several of them is included below.

Department of Agriculture (DOA). The United States Forest Service (USFS) is responsible for the protection and management of nearly 200 million acres of National Forest System lands. One of their main tasks is to respond to and suppress wildfires. In order to do so, this agency often uses aircraft to deliver personnel and equipment to remote areas for firefighting operations, and uses aircraft to dispense water and chemical fire-retardants from the air. The USFS documents their operations by using cameras to take aerial photos, video, or infrared imagery. The USFS also uses aviation to support law enforcement efforts, survey lands, and several other activities.

Department of Homeland Security (DHS). Several agencies within the DHS use aviation to carry out their responsibilities. The first is the U.S. Coast Guard (USCG), which operates specialized helicopters and fixed-wing aircraft to conduct search and rescue operations, as well as, to assist in law enforcement, marine safety, environmental response, ice operations, and navigation. The second is Customs and Border Protection (CBP) which is responsible for securing U.S. borders from illegal aliens and materials. They use aircraft mainly to support law enforcement operations, investigations, and drug enforcement.

Department of Defense (DoD). The DoD has an extensive fleet of various aircraft that are used to perform a wide range of functions such as aerial refueling, airborne warning and control, electronic combat, reconnaissance and surveillance. Some of their aircraft include fighter, bomber, attack, airlift, helicopter, and specialized aircraft. This variety allows the department to carry out the various roles and missions of the military services, including:

- US Air Force (land based operations)
- US Navy (carrier-based operations)

- US Marine Corps (land and sea-based operations)
- US Army (air assault, ground attack and combat operations)

Department of Energy (DOE). The DOE has a small fleet of modified aircraft to carry out special missions. Typical operations include the transportation of cargo, sensitive nuclear materials, hazardous materials, and people. In addition to transportation, the DOE uses aviation to monitor power lines and installation, and for photography.

Department of Justice (DOJ). The DOJ supports the U.S. Marshals Service, the Federal Bureau of Investigation, and the Drug Enforcement Administration by operating aircraft for law enforcement (and investigative support) and the transportation of prisoners.

Department of the Interior (DOI). The DOI has eight resource management bureaus including the U.S. Geological Survey (USGS), the National Park Service (NPS), the Bureau of Land Management (BLM), and the U.S. Fish and Wildlife Service (USFWS) that utilize aviation to carry out their responsibilities of protecting cultural and natural resources, as well as visitors to these resources. Typical aviation operations by these agencies include law enforcement, wildlife management (capture and tracking), firefighting, remote access, and others.

Over 90% of the DOI's aviation use is supported by commercial aviation companies, with annual usage fluctuation based largely on the severity of the fire season. In order to maximize efficiency, effectiveness, and safety, the DOI has created a centralized aviation service which provides management oversight, administrative support, and technical expertise to the eight resource management bureaus on aviation matters.

Department of Transportation (DOT). The DOT operates aircraft in conjunction with the national aviation agency, the Federal Aviation Administration (FAA), to conduct flight inspection at airports (to make sure navigational aids, etc. are working properly) as well as training. The mission of the FAA is to ensure the safe, efficient, and effective utilization of the National Airspace System.

6.2 Health

Similar to safety, a number of aviation operations that are health-based involve the transportation of people and/or goods between locations which are sometimes remote. Two of the main emergency transportation operations include those which are moving patients to appropriate medical facilities for life-saving operations, and those that are carrying organs, supplies, and medications for life-saving procedures.

Besides the obvious health-related aviation operations, there are other operations which are not directly related to the saving of lives but are still considered to be health-related. Specifically, agricultural spraying (the aerial application of fertilizers, pesticides, and

fungicides on crops) is necessary for the safe and healthy harvesting of food products for consumption. This practice benefits the airport at which the agricultural spraying aircraft is based at, the communities in which the crops are grown, the communities in which the crops are sold, and the businesses that sell the fertilizers, pesticides, and fungicides to the agricultural sprayer.

Several federal agencies, as an example, utilize aviation to carry out their duties and responsibility to keep the U.S. population healthy. A description on the specific ways in which aviation is used by a couple of agencies is included below.

Department of Agriculture (DOA). The Animal and Plant Health Inspection Service (APHIS), within the DOA, uses its fleet of aircraft for numerous operations, including pest control, emergency pest outbreaks, sterile insect dispersal, wildlife management, predator control, and the monitoring of aerial application contractors.

Department of Health and Human Services (DHHS). Although the DHHS does not own or operate any aircraft for their department as a whole, the Indian Health Service (IHS), within the department, charters aircraft, when needed, to transport emergency medical patients and medical personnel, supplies, and equipment to remote areas of the Western region of the U.S. and Alaska. The Centers for Disease Control (CDC) also lease specially equipped aircraft to carry biological and medical materials when needed.

6.3 Research

Research-related aviation operations are unique, since groups and agencies of all kinds need to conduct research for various purposes. Users can include university students and staff, private companies, local, regional, and federal agencies, individuals, interest groups, and more. Whether the goal is to monitor the growth of specific tree species over time, or to track migration patterns of animals, or to develop new technologies, aviation plays a large part in the research needs of many.

There are numerous federal agencies that utilize aviation to carry out their main missions, and others that conduct research as a small part of their overall responsibilities. A description on the specific ways in which aviation is used by a few agencies is included below.

Department of Agriculture (DOA). The Agricultural Research Service (ARS), within the DOA, is responsible for conducting research on airborne entomological radar systems, as well as delivery systems for the aerial application of agricultural solutions to manage crop pests. One specific operation they conduct includes using an aircraft with insect-collecting devices to monitor the movement of crop insects. In addition, the ARS uses their aircraft to test electronic imaging systems for remote sensing and aerial insect sampling. These aircraft have high-altitude and high-speed photographic capabilities allowing them to acquire aerial

images that are used for research studies in agriculture on rangeland, soil, water quality, and other resources.

Department of Commerce (DOC). The DOC includes the National Oceanic and Atmospheric Administration (NOAA), which operates a wide variety of aircraft for atmospheric research, monitoring air chemistry, aeronautical charting, coastal mapping, snow survey, fishery survey, marine mammal research, LIDAR charting, photogrammetry, and support to other scientific groups. All of NOAA's aircraft are modified and instrumented to perform these diverse missions.

National Science Foundation (NSF). The NSF utilizes a small fleet of aircraft to support research and education related to atmospheric and oceanographic sciences and in polar programs. There are four main missions that the NSF is currently performing with their aircraft:

- 1) Long-range observations over remote tropical and oceanic regions critical to studies of the global climate
- 2) Studies of the kinematic and thermodynamic structure of the troposphere (including boundary layer studies)
- 3) Studies of atmospheric chemistry and aerosols in the troposphere
- 4) Cloud physics including penetration of convective clouds

The DOI, the DOT, and the DOA APHIS are utilizing aircraft for research and development related to their individual missions and responsibilities. The DOE is using special aircraft, primarily unmanned aerial vehicles (UAVs) for atmospheric and energy research.

6.4 Other

While the majority of the qualitative benefits of aviation can be classified under safety, health, or research, certain benefits do not fall under any of those categories. Below are examples of uses that have qualitative impacts, and which may not be commonly recognized.

News Reporting. Broadcast journalism benefits greatly from aviation, as live news coverage of traffic, weather, and breaking news can be transmitted from the air. Aerial broadcasting benefits listeners as can get the information they need much quicker and benefits the host station by providing higher ratings.

Visitation by VIP. VIP guests that travel across the country (such as Presidents, international diplomats, other government officials, celebrities, etc.) support local airports they operate out of by attracting visitors to the area.

6.5 Conclusion

Numerous agencies, individuals, and populations benefit from the qualitative impacts of US airports. These impacts span across various industries, communities, and locations and are important to recognize alongside the quantitative impacts. Whether aviation supports the research of a university group, the saving of a life, or the protection of national borders, it is critical to our health, safety, and welfare in ways that cannot be appropriately reflected in economic impact calculations.

7 DISCUSSION GUIDES USED FOR INTERVIEWS

7.1 Companies in Air Reliant Industries

Name of Contact	
Organization	
Phone #	
Email	
Date of Interview	

Goals of the Interviews

- Affirm the importance of air transport to the industry or example company
- Illustrate how air transport supports a variety of industries

Discussion Guide *(Italics are follow-up prompts to get the person talking.)*

Thank you so much for agreeing to talk with us. To get started, I'd like to describe a few things about our project.

The National Academies of Science has commissioned a study to look at how airports contribute to growth in our economy. This is a 15 month project and we are right now in the early stages.

We are speaking with a number of different industries to explore why and how they use domestic or international air transport.

We know that your association represents many companies so you are in a good position to speak generally without disclosing the particular practices of an individual company.

So let's begin.

1. Please describe the importance of air transportation to the conduct of your business/industry?
(See how they answer this. Listen for terms of scale...i.e. a lot, not much, essential)
2. We want to ask you about both the transport of products and people by air. Let's begin with air cargo. Are there specific goods that typically go by air?

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3. What are the circumstances that lead to the use of air transport for delivery of supplies, parts, or goods?
 - a. *Perishable*
 - b. *Time Sensitive*
 - c. *High Value*
 - d. *Overcome Long Distances*
 - e. *Just-in-Time Logistics*
 - f. *Other ideas?*
4. *If air cargo services were not available, are there any substitutes for air travel that your group uses to transport parts or products*
 - a. *Truck*
 - b. *Rail*
 - c. *Ship*
5. *What would be the effect on your business/industry if you used these other modes?*
6. Are there general reasons which decide how something is shipped?
 - a. *Value*
 - b. *Urgency*
 - c. *Ratio of value to weight*
7. What is the relative importance of transportation costs in the total cost of the product or service?
 - a. *Not much*
 - b. *A significant amount*
 - c. *Very important*
8. Beyond the transport of parts, supplies, and products, is there a lot of passenger travel in your industry?
9. What are the major reasons for air travel?
 - a. *To visit clients*
 - b. *Meetings/conferences*
 - c. *Sales*
 - d. *Sales support*
 - e. *Manufacturing process support*
 - f. *Quality assurance*
 - g. *Repair or maintenance services*
 - h. *Tourism*
 - i. *Other*

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10. If you didn't have access to air transportation what would be the effect on your industry?

- a. *We would substitute truck, train or car for air*
- b. *More internet meetings*

11. How would your business/industry change if air transport were unavailable or unaffordable?

- a. *Looking for answers about the reach of the business/industry. Such as, would be local not national, or would not be able to export but would be ok domestically, or wouldn't exist without air services or a portion of the business would disappear.*

Thank you so much for you time and perspective. Is there anyone else in your industry that you think we should talk with?

Additional Contacts	
Organization	
Phone #	
Email	

Additional Contacts	
Organization	
Phone #	
Email	

Additional Contacts	
Organization	
Phone #	
Email	

7.2 Airport Managers Concerning Air Cargo

Name of Contact	
Organization	
Phone #	
Email	
Date of Interview	

- 1. Please describe breadth of cargo and passenger services at the airport**
Cargo may be cargo-only flights, integrator services and/or belly. Passenger services may be corporate, commercial, personal, or recreational.
- 2. Describe cargo operations of your airport**
Reference specialized products, specialized services at airport, volumes, origins and destinations
- 3. Describe passenger services at your airport**
Reference industries of travelers (if known), major companies with based aircraft, nearby industrial or businesses parks
- 4. Please describe how you see the economic role of the airport?**
- 5. Does your airport have a current economic impact study?**
- 6. Please describe the international cargo and/or travel as a component of your airport?**
*Incoming and outgoing for cargo and passenger.
For cargo, can they name industries or companies that are served for exports and imports?*
- 7. How important are international cargo or passenger services to the mission/ vitality of your airport?**
- 8. Is there a difference in how your airport promotes domestic and international cargo and passenger services in the context of the airport's economic role**
This is about marketing to industries or companies, or providing services on airport to industries or companies

7.3 Interviews with Representatives of Aviation Organizations

Name of Contact	
Organization	
Email	
Date of Interview	

1. Can you explain to me the role of your organization as it relates to airports specifically or to aviation as an industry or both? Does your organization focus on a particular sector?
2. Economic impact studies are done for a variety of reasons and they may focus on a variety of different areas. Here are three different examples:
 - A national study of economic impacts
 - A state airport system impact study
 - An airport specific impact study

How would your organization view these differently? Have you used one or more of these for your information or to support your initiatives or inform your decisions?
3. In your view (organizational/professional), what is the contribution of airports to the overall U.S. economy?
4. When you discuss the national importance of airports and their economic impact on the country, who is your typical audience?
5. If you address national impacts, what are your main sources of information about the national economic impacts of airports?
6. Are there particular benchmarks that you like to use to illustrate the importance of airports?
7. Is there additional information you'd like to have about the national economic impacts of airports that is not currently available?
8. Thank you! Is there anyone else in your industry that you think we should speak with? Additional comments?

7.4 Industry-based Organizations on the Relationship between Air Transport and Productivity

Name of Contact	
Organization	
Phone #	
Email	
Date of Interview	

1. How important are airports to your industry? For passenger service? For cargo service?
2. Which airports are most important for your industry?
3. Does increasing air service (number of destinations/frequencies of flights) help your industry to grow? Based on your observations, how have changes in service affected your industry?
4. Are there any particular flights (origins inbound or destinations outbound) that are especially important?
5. Conversely, has the loss of service affected your industry?
6. Is there anything else you would like to mention about how the airport supports your industry?