

# REGIONAL AEROSPACE CLUSTER DEVELOPMENT BUSINESS PLAN: MAINTENANCE REPAIR OVERHAUL CENTER

This document was prepared under contract with the East Central Wisconsin Regional Planning Commission, with funding support from the Office of Economic Adjustment, Department of Defense. The content reflects the views of the East Central Wisconsin Regional Planning Commission and does not necessarily reflect the views of the Office of Economic Adjustment.

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December 2015

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## I. PROJECT HISTORY

What is now called the “I-41 Corridor Region” of Wisconsin spans from Green Bay at its northern edge to Fond du Lac on its southern and includes the additional communities of Neenah, Menasha, Appleton and Oshkosh (Region). As the state’s third largest population center, it is an important part of Wisconsin’s economy. The Region has a long history of industrial activity and still ranks at the top of the country in terms of manufacturing jobs per capita. (Source: EMSI: “The states where manufacturing jobs matter the most”, September 2, 2013). More than 20% of the Region’s workers are employed in manufacturing, the most of any industry, and the industry has also reported the largest gains in job growth over the past five years. (Source: Economic Overview I-41 Corridor July 2015).

The area has been historically known as the “Paper Valley” because of the location of many paper and pulp mills in the region. This industry provided many needed jobs over the years, but that industry has changed considerably in the last two decades with consolidation driving much of this industry overseas. (Source: World Pulp and Paper “Consolidation in the Pulp and Paper Industry” 2015).

The Region’s past is in paper and lumber, but the strong manufacturing economy can serve as the base of a future in high tech industry – in particular aviation and aerospace. The idea of fostering the development of aerospace and aviation businesses in the Region is not a new one. Many have long believed the Region is uniquely positioned to foster business in this industry, due to incredible assets such as the world headquarters of the Experimental Aircraft Association (EAA) and the annual AirVenture fly-in, a network of four airports with a wide array of services and facilities, aviation education programming at Fox Valley Technical College (FVTC) and the University of Wisconsin Oshkosh (UW Oshkosh), a strong workforce and established supply chain - and an already existing aviation business cluster.

Beginning in 2009, an Oshkosh-based economic development organization, Chamco, recognized the need to diversify the local economy and began efforts to establish an aviation-focused business park at Wittman Regional Airport in Oshkosh and develop

an aviation/aerospace focused business cluster. The Chamco Aviation Development Committee was active in furthering the aviation cluster initiative until December 2014, when Chamco transferred its economic development responsibilities to a new economic development organization serving the Oshkosh area – the Greater Oshkosh Economic Development Corporation (Greater Oshkosh EDC). The Greater Oshkosh EDC Aviation Development Committee (Aviation Development Committee) took over Chamco's responsibilities to provide oversight, direction and leadership to the aerospace cluster development project.

The wisdom of the idea of advancing the development of aviation/aerospace businesses was also embraced by UW Oshkosh as it founded the AeroInnovate program in 2008 to foster innovation in aerospace and aviation. Further bolstering the idea of fostering aviation/aerospace business development came from several economic development studies conducted in the Region over the past five years which concluded that aviation should be an industry of focus (**Exhibit A**).

The state of Wisconsin has also been supportive of the development of an aviation/aerospace business cluster as one of four priority cluster industries promoted by the Wisconsin Economic Development Corporation (WEDC). WEDC is also working with industry to establish the Wisconsin Aerospace Partners (WAP), an industry-led organization with a mission to foster growth in the Wisconsin aviation/aerospace industry. Wisconsin's Lieutenant Governor, Rebecca Kleefisch chairs the Manufacturing Committee of the Aerospace States Association and has been a strong advocate for the industry.

Grants from the U.S. Economic Development Administration (EDA) and the Department of Defense, Office of Economic Adjustment (DoD-OEA) have provided funding support for advancement of the aerospace cluster initiative. East Central Wisconsin Regional Planning Commission (ECWRPC), with Chamco, the City of Oshkosh and UW Oshkosh, successfully applied in 2012 for the City of Oshkosh to receive a \$2,000,000 grant from the EDA to provide funding assistance to put in necessary infrastructure at the Oshkosh Aviation Business Park. In 2013, following cuts in defense

spending, which resulted in the loss of more than 2000 direct jobs at Oshkosh-based DoD contractor Oshkosh Corporation and hundreds more in the regional economy, the region was awarded a planning grant from DoD-OEA (ORDIDI grant). The purpose of the grant was twofold: to provide direct assistance to suppliers and employees in Oshkosh and other impacted communities in the surrounding area and to assist with economy diversification efforts already underway. One such diversification effort was the aerospace development cluster project. A portion of the ORDIDI grant was allocated to provide funding to conduct an aerospace cluster study in Oshkosh (and develop this associated business plan). Supplemental funding was secured in 2014 from DoD-OEA to expand the study to include the communities of Green Bay, Appleton and Fond du Lac – the four communities in the region with airports, aviation-focused business parks and a desire to build an aerospace business cluster (Project Partners). The aerospace cluster study's objective was to assist the Region with determining which areas of the aerospace/aviation industry to focus efforts, based on industry trends, market opportunities and assets in the Region to support the cluster development.

Explorer Solutions, an aerospace consultant based in Quebec, Canada, was chosen following an RFP process to conduct the aerospace cluster study for the City of Oshkosh. Explorer Solutions' work provided much of the background industry research that supports this business plan. Mid-way through the ORDIDI grant period, the Aviation Development Committee and the City of Oshkosh determined Explorer Solutions had provided all that was needed for the local project partners to take over ownership of the development of a cluster development strategy and business plan. Greater Oshkosh EDC was hired to complete the study process, which in turn hired NextJen Studios to provide additional industry specific research to supplement the Explorer Solutions work. The City of Oshkosh also contracted with Elizabeth Hartman, former CEO of Chamco, who has been engaged in the aerospace cluster development project since 2009, to coordinate completion of this business plan.

Throughout the study process, the Aviation Development Committee has provided oversight, direction and leadership to the cluster development plan. A listing of the members of the Aviation Development Committee is found at **Exhibit B**.

Based on the research provided by Explorer Solutions, the Aviation Development Committee concluded that the I-41 Corridor Region was best positioned to focus on fostering growth in the Maintenance, Repair and Overhaul (MRO) sector of the aviation/aerospace industry and create the I-41 Corridor Region MRO Cluster (Cluster) as a near term strategy and Aerospace Additive Manufacturing, as a long term strategy for the Region (subject of a separate business plan). The background research provided by Explorer Solutions supporting the Committee's conclusion is attached at **Exhibit C**.

Below sets forth information on the Cluster's vision/mission/objectives, summary of key research findings, Cluster development strategy, market information, description of regional assets, and Cluster operations.

## II. CLUSTER VISION/MISSION/OBJECTIVES

- A. Vision: The I-41 Corridor Region MRO Cluster will be recognized as the premier comprehensive MRO center in the Midwest and become the preferred partner of general and business aviation aircraft owners and operators for their maintenance needs.
- B. Mission: The I-41 Corridor Region MRO Cluster is a one-stop shop maintenance and services hub project in Wisconsin, spanning from Green Bay to Fond du Lac and including airports and business parks in Green Bay, Appleton, Oshkosh and Fond du Lac, Wisconsin. Building on the Region's reputation, supply chain, qualified workforce and existing MRO businesses, the regional cluster will offer a centralized cost-effective MRO solution for the entire general aviation market – business jets, turboprops, piston, vintage, warbirds and experimental aircraft.
- C. Cluster Objectives
- Brand and promote the I-41 Corridor Region as a general aviation(GA)/business aviation (BA) full maintenance center from experimental to business jets
  - Offer a one-stop shop location for GA/BA aircraft with a complete range of services
  - Build a strong marketing effort to market the services and competencies of the cluster to potential clients
  - Develop assets, staff and infrastructure required by the Cluster to be competitive in the marketplace

### III. SUMMARY OF KEY RESEARCH FINDINGS

The following summarizes several sources, including research conducted by Explorer Solutions, more than 100 interviews conducted by NextJen Studios of aerospace/aviation companies operating in the Region and also around the country, information provided by FVTC, strategy sessions of the Aviation Development Committee and trade publications. The findings and recommendations are divided into the following categories:

- A) Workforce Development
- B) Supply Chain
- C) Business Development and
- D) Entrepreneurship and Innovation.

#### A. Summary of Key Findings - Workforce Development

*To support the Cluster activities, the Region will need aircraft mechanics and technicians. The Region has a skilled workforce and supportive aviation educational programming but even though there are and will be jobs, there are not enough workers getting trained as aircraft mechanics and technicians to meet future demand.*

In the national labor market, 80% of Aircraft Mechanics and Technicians are 40 years old or older. By 2030, North America will require 109,000 additional new qualified technicians to replace retiring workers and support the maintenance needs of the growing global market. |Source: Aircraft Maintenance Technology (August 2014); Boeing's Pilot and Technician Outlook Report (2014) |

Locally, we see a similar trend. The Aviation Development Committee partnered with FVTC to summarize Wisconsin aviation employment trends and needs. Below are some of the findings (full report attached as **Exhibit D**).

- Aircraft Mechanics and Service Technicians are number 25 on the list of Wisconsin's "High-Growth Occupations", projected to increase from 1484 jobs to 1640 jobs from now until 2022, a 25.8% increase since 2012 – not including jobs created by the Cluster.
- FVTC offers training programs in Airframe and Powerplant Mechanics, Aircraft Electronics, and Aeronautics – Pilot Training.

- These programs have a high job placement rate (85% or higher within 6 months of graduation) and a higher average wage than the average wage rate across all occupations in the four counties involved in the aerospace cluster study, table below:

	Mean (all wages)	Median (all wages)	Mean (Aircraft Mechanics/Technicians)	Mean (Avionics Technicians)	Mean (Airline, Pilots, Copilots, Flight Engineers)	Mean (Airfield Operations Specialists)	Mean (Aircraft Cargo Handling Supervisors)
Brown	\$41,578	\$34,080					
Fond du Lac	\$40,486	\$33,290					
Outagamie	\$41,784	\$33,915					
Winnebago	\$41,556	\$34,319	\$45,440				
Statewide			\$52,490	\$53,530	\$82,350	\$33,800	\$49,210

Note: in blank space, no data was provided or insufficient data present

- All FVTC aviation training programs have capacity for students – some programs are operating at 60% capacity.

In addition, interviews with aviation employers revealed the following:

- Historically, baby boomers had a high number of employees in skilled trades. The generations following the baby boomers were encouraged to attend college and pursue careers other than trades. Large generational gap here.
- Engineer positions were also downsized over the last 20 years as those jobs were streamlined. The industry is now realizing that the engineering positions create the opportunities for the skilled workforce. The US is far behind some European countries in its engineering curriculum. We need more engineers and engineering programming.
- UW Oshkosh has a newly-created engineering technology degree program with three areas of focus: environmental engineering, electrical engineering and mechanical engineering.
- Recently the skilled trades have made headway as students realize that a four-year degree may not be required for occupational success.
- There is a need to gain interest from the potential workforce and make them aware of the many and varied aerospace careers earlier. Some companies are willing to financially support outreach programs to students and/or provide internships.
- Younger employees are more likely to change careers sooner and are not as willing to work their way up. They don't always see the paths of opportunity that exist by

staying within a company. Different approaches need to be taken with different generations of workers.

- Regionally, several of the bigger aviation companies are directly competing with other local manufacturing/skilled labor companies in all industries for employees.

### Recommendations

- Opportunity to raise awareness earlier in K-12 schools
  - Where automotive was 20 years ago – no programs for mechanics to get trained, industry provided impetus for technical educational programming tailored specifically for automotive mechanics
  - Aerospace opportunities need to be a part of STEM programs
  - Tap into interest of companies to financially support outreach
- Provide internship opportunities
  - Replicate successful internship programs currently being implemented to attract young workforce
  - Help companies educate younger workers about the value of staying – demonstrate career path progression
- Help provide opportunities for military
  - Make the paperwork easier to get into programs
  - Give credit for experience to fast track programs
- Industry and education must partner to create tailored programming and increase awareness of opportunities; opportunity for aerospace-focused engineering program at UW Oshkosh.
- Employers need opportunities to share best practices in recruitment, development and retention.

### B. Summary of Findings - Supply Chain Status and Gaps

*The Cluster will need a strong supply chain throughout the Region and state. As a whole, there are few issues with the supply chain operating in Wisconsin. Existing aerospace/aviation industry suppliers need better awareness of the capabilities and opportunities that exist regionally and statewide, and need better connectivity between suppliers.*

- Throughout Wisconsin, manufacturers have access to outsourcing work as needed

- Several regional and local machine shops
- Component work
- Assembly work
- Several manufacturers make parts using their in-house machine shops
  - These may be very specialized parts
  - Oftentimes there is not a need for enough of these parts to go to outside vendors for higher quantities
  - Some of these parts need to meet FAA regulation standards creating challenges to using outside suppliers
- Most companies do at least some ordering of parts/materials
  - Used or new specialized component parts
  - They are sourced from online marketplace or direct from the manufacturer
  - Through modern shipping methods including: air, rail and trucking, it is easy to get parts shipped in
- Some companies do keep used component parts on hand, others recycle materials/parts
  - For own use
  - To sell to others as needed
- Along the I-41 Corridor, several companies expressed the desire to have closer access to painting, avionics, and interior capabilities for aviation
- Many were surprised by capabilities that exist within the Region that they were not aware of

#### Recommendations

- Opportunity to raise awareness of the outsourcing components/materials capabilities (match making between companies)
  - Quick ordering capabilities of parts that are not readily available within a company
  - Part component capabilities nearby
  - Assembly capability

- Product development expertise outsourcing capability (schools, internship, military, 3D printing, additive manufacturing)
- Opportunity to raise awareness outside the state of the supply chain capability that already exists here
- Potential need for more suppliers with FAA certification

#### C. Summary of Findings – Business Development

*As a whole, the Region and Wisconsin have a lot of location advantages, but many outside the Region are not aware of these positives, in particular the great quality of life, the strong supply chain, tax incentives and that weather is not an issue for those businesses located here.*

#### Location

- Why companies are at their specific locations
  - Acquisition opportunity
  - Local business needed an aviation team
  - Provide service to this area
  - Provide career path to the area
  - Originally from the area and want to stay here or return here
  - Expanding presence
- Buildings/facilities – “if you build it they will come”
- Aviation tax breaks and incentives are important
  - Can make the difference of doing business or not
  - Needs to be more widely communicated. Not sure how aware others out-of-state are aware of this – manufacturing and agriculture tax credits, aviation specific tax credits
- Non-union environment is seen as an advantage
- “Let business do business” – many businesses located here, particularly those on the airports, felt that the airports and communities in which they were located were supportive and largely left them alone to do business
  - Be enabling, supportive of business needs, airport grounds upkeep, etc.
  - Let those hired do their jobs, don’t micromanage decisions

- Not too many covenants/restrictions that can make it unprofitable to do business
- Locally, positive comments on current airport directors enabling business, but were concerns of county micromanagement, desire for more T-hangers, better Fixed Base Operator (FBO) services, and more MRO businesses.

Positive attributes for being in this region:

- Cost of living is very good compared to neighboring states
- Great for family
- Strong sense of community
- Highly rated education system
- High quality healthcare system
- Low crime, safe environment especially for kids
- Outdoor recreational activities

Challenges for being in this region:

- Cold weather is a challenge to some, but overall this was not seen as a big issue
- Some companies with younger employees without families expressed the need for more social activities for this group
- High rate of sex offenders in the area (Oshkosh/ Appleton)

Recommendations

- Create awareness of what a great place the Region is to work, live and play
  - Aerospace focused trade shows
  - AirVenture booth
  - Airport/ Aviation Business Park Directory
  - Marketing materials – one page sell sheet on infrastructure, workforce, incentives (including tax incentives for aviation and manufacturing), supply chain, customer base
  - Opportunities to partner with convention and visitors' bureaus in Region
- Ensure the positives stay positives

#### D. Summary of Findings – Entrepreneurship and Innovation

*The Region has sources of entrepreneurship and innovation but need more resources, support and better connectivity.*

- The AeroInnovate program is a source of entrepreneurs and innovation. Existing companies in the Region/state which work in the aerospace sector can also be source of innovation (i.e. Plexus, Astronautics). How do we help AeroInnovate companies choose to grow their business in the Region? How do we help connect innovations occurring in industry with opportunities?
  - Better access to capital – incentive to grow here, bridge from startup phase
  - Develop talent pool for aviation/aerospace startups – i.e., executive level leadership
  - Build mentor pool
  - Better connectivity between strategic partners, share best practices, etc.
  - Funding for programs supporting entrepreneurship
  - Get innovative companies in aerospace together to showcase new innovations, particularly in additive manufacturing

#### IV. CLUSTER DEVELOPMENT STRATEGY

Based on the findings, the Project Partners have developed the following strategy:

- A. Build a network among the aviation-focused business parks located on the four Partner Airports – Wittman Regional Airport, Fond du Lac County Airport, Appleton International Airport, Austin Straubel International Airport - through regional collaboration and joint marketing efforts.
- B. Build capacity for the Cluster by
  - 1. dedicating staff to Cluster development
  - 2. fostering entrepreneurship and innovation by
    - increasing access to capital with aerospace focused investment fund
    - increasing the mentor and talent pool for new companies
    - getting established companies together to share innovations – i.e., additive manufacturing conference
  - 3. building the workforce by
    - getting students interested in careers in aviation through a talent upload event and partnering with K-12 on increasing awareness at that level
    - holding events designed to help employers in aviation and aerospace to share and learn about best practices in recruitment, retention and development (best practices series)
    - exploring possibilities of additional aviation specific educational programming with FVTC and UW Oshkosh - aerospace engineering in particular
    - working with industry to develop internship programs
  - 4. increasing awareness and building connections in the supply chain
    - holding aerospace/aviation manufacturers roundtable
    - holding aerospace supplier forum
    - holding additive manufacturing symposium

- fostering connectivity by working with industry and New North on populating the supply chain directory with aerospace companies and their capabilities
- 5. understanding if there is a need for additional suppliers with FAA certification and develop strategy to increase certifications
- 6. engaging in business development efforts
  - developing a comprehensive branding and marketing strategy to promote Region's strengths and build awareness of advantages of doing business and living here
- C. Learn from other aviation/ aerospace focused clusters
  - 1. What has worked/not worked for other aviation focused business clusters?  
Who are we competing with?
    - The Greater Waco Aviation Alliance – successful cluster
    - RAAN – Rockford Area Aerospace Network – successful cluster
    - Wichita – less successful cluster
    - Bend, Oregon – cluster development in process

## V. MARKET AND COMPETITION

### A. Market Projections

Compound annual growth rates (CAGR) for the piston/light sport/experimental aircraft, turboprop aircraft and business jet fleets are expected to increase overall 2015-2024 with the following breakdown:

- Piston aircraft: -0.5% CAGR (although a modest decrease, piston aircraft remain by far the largest component of GA)
- Light sport aircraft: +5.1% CAGR
- Experimental aircraft: +1.4% CAGR
- Turboprop aircraft: +1.9% CAGR
- Business jets: +3.1% CAGR

The MRO market associated with turboprops is expected to grow at 1.5% CAGR 2015-2024, while the business jets MRO market is expected to grow at 7.2%, through 2018.

### B. Market Opportunities

Wisconsin's fleet size is comparable to that of other states, but in comparison with most surrounding states, Wisconsin has a lower repair capacity meaning there is likely potential migration of Wisconsin based aircraft out of state for repair. It is imbedded in a region (Zone A and B, below) which houses almost a third of the US GA/BA fleet - 55,800 piston aircraft, 2,313 turboprops and 3,682 business jets. The market data suggests that there is a need for a GA maintenance hub that would concentrate maintenance services in the state of Wisconsin to address local, regional and national demand.

Zone A - Primary Market (10 states):

- Wisconsin
- Illinois
- Minnesota
- Michigan
- Iowa
- Indiana
- Ohio

- Pennsylvania
- New York
- New Jersey

#### Zone B – Secondary Market (11 states)

- North Dakota
- South Dakota
- Nebraska
- Kansas
- Missouri
- Kentucky
- West Virginia
- Virginia
- Tennessee
- North Carolina
- South Carolina

#### C. Targeted Market

Turboprop and business jet markets are particularly fragmented (3,848 owners). The Cluster would seek to secure anchor clients with larger fleets for volume and market visibility. These anchor tenants would likely be those owning 3-10 aircraft; owners with more than 10 aircraft likely have in house maintenance services. (Exhibit E).

#### D. Competition

There are 849 repair stations in Wisconsin and 13 surrounding states. A vast majority of these have limited ratings from the FAA, which means they only service a particular type of airframe, powerplant, propeller, radio, instrument or accessory or performs only specialized maintenance – suggesting a one-stop shop MRO solution in the Region could be attractive to a wide variety of aircraft owners.

Wisconsin has a low repair station to aircraft ratio, and no authorized service centers for Embraer, Hawker, Beechcraft or Bombardier, suggesting there is an existing market of Wisconsin aircraft owners who are not able to get their aircraft serviced. (Exhibit C).

## VI. REGIONAL ASSETS

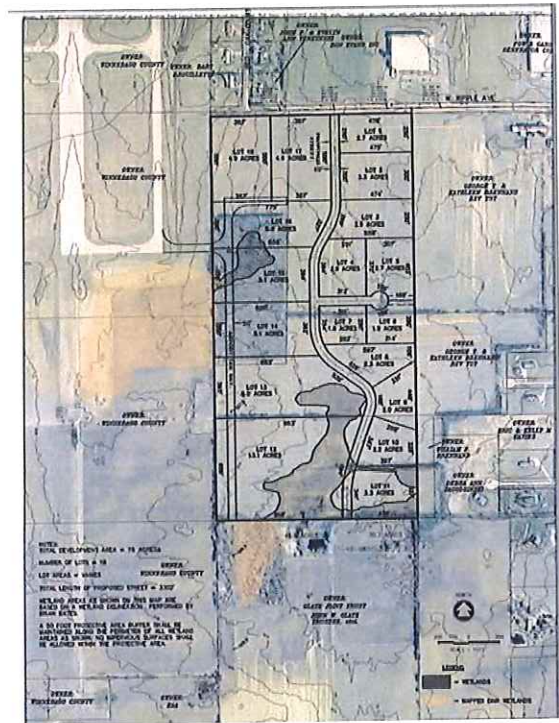
### A. The Four Partner Airports at a Glance

Airport	Wittman Regional Airport	Fond du Lac County Airport	Appleton International Airport	Austin Straubel International Airport
Airport Size	1450 acres	586 acres	1638 acres	2500 acres
Type	GA	GA	Commercial Allegiant, Delta and United; 7 non stop destinations; Enplanements 2014 - 245,485	Commercial American, United, Delta; Enplanements 2014 - 624,261
Aircraft Operations (annual)	63,697	63,145	32,968	41,853
Runways	Runway 18/36 8,002ft x 150ft Runway 9/27 6179ft x 150ft Runway 5/23 3,697ft x 75ft Runway 13/31 3,061ft x 75ft	Runway 18 5941ft x 100ft Runway 36 5941ft x 100ft Runway 9 3602ft x 75ft Runway 27 3602ft x 75ft	Runway 3/21 8002ft x 150ft Runway 12/30 6501ft x 150ft	Runway 18/36 8,700ft x 150ft Runway 6/24 7,700ft x 150ft Runway 6/36 Runway 24 Runway 18
Based aircraft	164	68	71	112
FBO	Basler Flight Service: Shell Aviation distributor; fuel/lubricants, line service, maintenance, aircraft charter/cargo arrangements, aircraft hangaring; full	Fond du Lac Skyport: aviation fuel; aviation parking; hangars; hangar leasing/sales; GPU/power cart; passenger lounge; flight training	Platinum Flight Center - Nation's 1 <sup>st</sup> Net-Zero Airport facility; Ground service; refueling; pilot lounge; Wx planning; flight school offering a four year	Executive Air, Jet Air - full service FBOs ; hangars; Customs; training; maintenance; avionics; trash disposal; charter; aircraft rentals; aviation

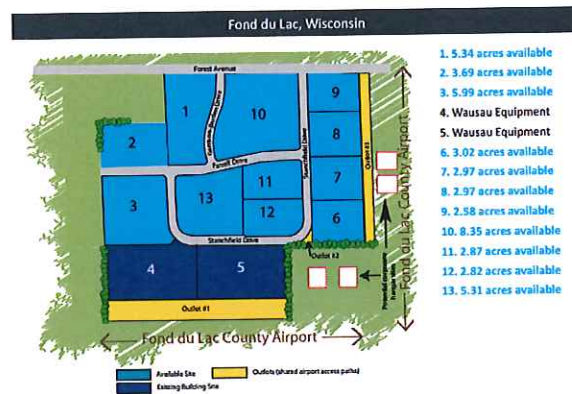
	and self-serve fuel available		degree; aircraft maintenance	medial exams; heated storage
Tenants	Sonex Aircraft, Basler Turbo Conversions, Myers Aviation, D'Shannon Aviation, New View Technologies, FVTC Spanbauer Campus	Wausau Equipment	Gulfstream, Air Wisconsin, FedEx, MaxAir, Pro-Aire Cargo and Consulting, FVTC public safety training center	JetAir, Executive Air, CAVU Aviation, Frontline Aviat
Tower	6am-10pm daily	NA	Continuous	5am-10pm daily
Features	24 hr ARFF service; Foreign Trade Zone	Excellent winter runway conditions; all weather instrument approach	US Customs	ASR Radar on site; US Customs; National Weather Service; TSA

## B. The Business Parks

- Oshkosh Aviation Business Park – Wittman Regional Airport
  - 80 acres jointly owned by the city and county
  - Taxiway construction 2016
  - Other park infrastructure 2016 – water, gas, electric, sanitary sewer, road (\$2,000,000 EDA grant 2012)



- Aeronautical Business Park – Fond du Lac County Airport
  - 46 acres available for development adjacent to the airport
  - Telecommunications and utilities in place



- ATW Business Park - Appleton International Airport
  - 75 acres
  - High-speed/broadband/tele-communications access
  - Utilities in place: water, sewer, electric and natural gas lines



- Aviation Business Park - Austin Straubel International Airport
  - 36 acres for air cargo development
  - 356 acres for aeronautical development
  - 70 acres for future private/corporation aviation development
  - Site-certified by the Wisconsin Economic Development Corporation

(See Exhibit J)



### C. Additional Resources, Strengths and Competitive Advantages

The 1-41 Corridor Region has many strengths and competitive advantages which position it well for developing growth in aviation-related business.

1. Proximity to AirVenture. Oshkosh is home to the world headquarters of the Experimental Aircraft Association (EAA), which hosts AirVenture every year. For one week each summer, EAA members and aviation enthusiasts totaling more than 500,000 from more than 60 countries, 800 exhibitors and 10,000 airplanes attend EAA AirVenture at Wittman Regional Airport in Oshkosh, where they rekindle friendships and celebrate the past, present and future in the world of flight. For one week a year, Oshkosh's Wittman Regional Airport is the busiest in the world – 500,000 aviation enthusiasts come to Oshkosh that week. EAA calls AirVenture the “world's largest general aviation marketplace.” Many consider Oshkosh to be the “mecca” of general aviation.
2. The Region is supportive of innovation in aviation. AeroInnovate of UW-Oshkosh, first conceptualized in 2007, brings in aviation-related entrepreneurs from across the globe that are starting and growing aviation-related businesses and bringing new technologies to the marketplace. Its goal is to facilitate the alignment of innovators to develop new aircraft, aviation products and services that will be commercialized and create global opportunities in aviation. AeroInnovate does this by bringing innovators and entrepreneurs together and offering top-notch educational forums, aligning the best companies with investors and industry leaders, exposing technology through technology showcases and connecting aviation-related entrepreneurs to people and resources. AeroInnovate recently launched a comprehensive start up accelerator program.
3. The Region has aviation focused educational programs. Educational institutions in the region offer aviation education programming. FVTC, serving the region, has education programming in pilot training, aircraft electronics and airframe

power plant mechanics. UW Oshkosh, in collaboration with FVTC, offers a degree in Bachelor of Applied Studies in Aviation Management.

4. The Region also has a strong manufacturing labor force and aerospace supply chain, as summarized in **Section IV, A and B and Exhibit A**.
5. The Region has complementary MRO businesses, such as:
  - Gulfstream Aerospace Corporation – completion center for large cabin Gulfstream aircraft and service center
  - Basler Turbo Conversions – DC 3 remanufacturing
  - Myers Aviation – aircraft maintenance and rebuilding, insurance repairs, salvage, parts and services
  - NewView Technologies – aircraft window repair
  - D'Shannon Aviation – Beechcraft modifications
  - Pac Air Maintenance – repairs, modifications, pre-purchase inspections
  - Jet-Air – inspections, parts, turbine shop, propeller balancing and vibration analysis

(A listing of additional Wisconsin MRO businesses is found at **Exhibit F**).

6. The Region is committed to collaboration. The Project Partners have developed a Memorandum of Understanding and Code of Conduct setting forth their commitment to regional collaboration on Cluster development (attached as **Exhibit G**). Many see regional collaboration as a key to the Region's economic development success and it is seen as an advantage by site selectors. (See Green Bay Press Gazette article at **Exhibit H**).

## VII. CLUSTER OFFERINGS

The Cluster would concentrate on providing services in three areas:

- A) Maintenance Center – one stop shop for GA/BA maintenance; aircraft services
- B) Aircraft Services – aircraft management & assoc. services for aircraft owners/operators
- C) Replacement & Unique Parts Center–provide quality parts to out-of-production aircraft

A. The Maintenance Center would offer the following:

- 1. Airframe inspection and heavy maintenance
- 2. Engine
- 3. Avionics
- 4. Modifications and refurbishment
- 5. Rebuilds
- 6. Landing gear
- 7. Painting
- 8. Propellers
- 9. Completion and refinishing
- 10. Components repair

B. The Cluster would provide the following Aircraft Services:

- 1. Aircraft purchasing services
- 2. Aircraft insurance
- 3. Aircraft accounting
- 4. Aircraft inspection
- 5. Aircraft sales, brokerage and licensing
- 6. Aircraft financing
- 7. Aircraft recertification
- 8. Aircraft ferrying

C. The Replacement and Unique Parts Center would have the following capabilities:

- 1. Engineering and design
- 2. Manufacturing
- 3. Certification

## **VIII. CLUSTER ORGANIZATIONAL STRUCTURE AND OPERATIONS**

### **A. Governance**

Regional Aerospace Development Council: This is a body to-be-created to provide governance and oversight to the cluster development activities. Each Project Partner shall designate a representative to sit on this Council with voting rights. The Council may become a committee of the Wisconsin Aerospace Partners, once it is formed, so long as WAP has as a strategic priority developing the regional cluster and staff dedicated to the effort. Staff dedicated to the cluster development may report directly to the Council, or to WAP. The Council may form the following subcommittees:

1. Business Development and Marketing – to communicate the importance of aerospace and technology as a priority for business, economy and community and assist current businesses with identifying new opportunities in aerospace and attracting new aerospace businesses to the region.
2. Education and Workforce - to foster education and growth of science, technology and engineering related to aerospace and ensure we have an educated and skilled workforce available for the aerospace industry.
3. Entrepreneurship and Innovation - to foster the growth of new companies and innovation in aerospace in the region and make connections between industry innovations and opportunities.

### **B. Staff**

1. Airport Directors at the Partner Airports – it is anticipated that the airport directors will play a critical role in the Cluster development process as the front line on their Airports, sharing in marketing, prospect handling and tenant relations responsibilities.
2. Economic development professionals in the Region – working closely with the Airport Directors in the Region, economic development professionals will bring their expertise with site selection, incentives and prospect handling to the table.
3. Dedicated staff - the Cluster will hire independent staff to be the point person for Cluster marketing and prospect handling, in collaboration with the Airport

Directors and economic development professionals in the Region; this person will need to have a deep understanding of the industry.

C. Strategic Partners

1. Airports, cities and counties in the Region
2. Economic development organizations in the Region
3. Fox Valley Technical College and UW Oshkosh
4. Wisconsin Economic Development Corporation
5. Wisconsin Aerospace Partners
6. AeroInnovate
7. East Central Wisconsin Regional Planning Commission
8. Department of Defense – Office of Economic Adjustment (proposed funding source for some of the activities outlined in **Section V**)

D. Budget

A three year budget for the Cluster is attached as **Exhibit I**.

E. Success Metrics

1. Number of businesses starting, expanding, locating in the Region as part of the Cluster
2. Number of FTEs employed by businesses in the Cluster
3. Growth of existing businesses in the Region due to Cluster activities
4. The Region being recognized as the premier comprehensive MRO center in the Midwest and is the preferred partner of general and business aviation aircraft owners and operators for their maintenance needs
5. A more diversified Regional economy
6. The “Paper Valley” of the past is transformed into “Aerospace Valley”!

## **Appendix**

**Exhibit A: Summary of Economic Development Studies**

**Exhibit B: Aviation Development Committee**

**Exhibit C: Explorer Solutions Preliminary Report, selected pages**

**Exhibit D: Fox Valley Technical College Workforce Report**

**Exhibit E: Explorer Solutions First Steering Committee Meeting Presentation, selected pages**

**Exhibit F: Wisconsin MRO Companies**

**Exhibit G: Airport MOU and Code of Conduct**

**Exhibit H: Article on Regional Collaboration**

**Exhibit I: Budget**

**Exhibit J: Article on Airport Land 'Development Ready'**

## **Exhibit A**

## **Exhibit A: Summary of Economic Development Studies conducted in the Fox Valley Region**

*From 2010 to present with conclusions related to development aviation businesses*

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The Garner Economics “Ignite Fox Cities” 2011 Economic Report commissioned to identify regional assets for targeted industry development recognized the Fox Valley Region as having a unique and strong presence in the Transportation Equipment Manufacturing industry (NAICS 336), which specifically includes Aerospace Product and Parts Manufacturing (NAICS 3364). This report suggested that the existing skilled labor pool and supporting infrastructure offers a solid competitive advantage over other locations. Aerospace is a recognized industry cluster emerging in the Oshkosh area which ties into Transportation Equipment Manufacturing. For this reason, the Oshkosh Aviation Business Park is tailored specifically towards Transportation Equipment Manufacturing industries, specifically the Aerospace industry.

The Northeast Wisconsin Global Trade Strategy is another recent regional study suggesting that further research on the Transportation Equipment Manufacturing cluster would be valuable to the Northeast Wisconsin Region. East Central Wisconsin Regional Planning Commission (ECWRPC) partnered with Bay Lake RPC and Newmark Knight Frank (NKF, economic consultant) to focus on how Northeast Wisconsin can leverage its core assets and overcome weaknesses to increase exporting capabilities to key foreign markets. Funded in part by an EDA-TAA grant, the Global Trade Strategy identified the Transportation Equipment Manufacturing cluster as an area that merits further research and disaggregation.

The Oshkosh Area Targeted Business & Industry Cluster Analysis, funded in part by an EDA Local Technical Assistance grant, provided research to identify components of company and industry specific issues, scenarios, strategies and actions to be taken to address potential contributions and/or losses within the local economy. They have collected data and conducted interviews to provide specific insights into the potential expansion and growth of existing industry clusters and the current and potential interrelationships between individual companies and industries within the cluster. Aviation was identified as an industry cluster of focus for the Oshkosh area.

## **Exhibit B**

**ORDIDI Aerospace Cluster Committee**

**Planning Grant Co-Chairs:** Meridith Jaeger & Elizabeth Hartman

**Tasks/Responsibilities:** Responsible for ORDIDI Planning grant deliverables as it relates the development of the regional Aerospace Cluster short term & long term strategies. More of an advisory group – not hands on.

**Committee Members:**

Tom Miller ([miller\\_tw@co.brown.wi.us](mailto:miller_tw@co.brown.wi.us))

Abe Weber ([weberaj@co.outagamie.wi.us](mailto:weberaj@co.outagamie.wi.us))

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Sarah Van Buren ([svanburen@ecwrpc.org](mailto:svanburen@ecwrpc.org))

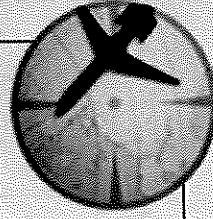
Steve Jenkins ([steve@fcedc.com](mailto:steve@fcedc.com))

## **Exhibit C**

# ELITE

## Wisconsin Maintenance Hub

One-stop shop - full service, high quality  
maintenance hub for GA and BA fixed-wing aircraft



## Elite - Maintenance and Services Hub

### The market

Some of the key issues with maintenance and services are cost and capabilities: while there are a lot of maintenance and services centers in North America, very few are offering a complete and integrated set of capabilities that would enable aircraft owners and operators to find all services in one place. The opportunity we see here is to develop a full service and maintenance center encompassing the three main GA segments: piston aircraft, turboprops and turbine aircraft.

The full scale, renowned maintenance and service center would meet the growing demand for optimized maintenance by eliminating the need to use multiple service providers, thereby minimizing turnaround times and costs for aircraft owners and operators.

This project builds on the existing concentration of aviation businesses and events that create brand reputation for Oshkosh and the entire Fox Valley region. It aims to market the region as a strong MRO destination for GA, further strengthening the brand recognition of Oshkosh/Fox Valley as a general aviation destination and gathering point within the state of Wisconsin, the U.S. and the world.

The following slides will introduce the market potential and market trends for each MRO and GA segment, in addition to further presenting the ELITE cluster.

## MRO activities can be divided into three main segments

### Engine Maintenance

- Routine maintenance
- Hot section inspections
- Nacelle inspections
- APU maintenance
- Repair and Overhaul
- Replacement of Life Limited Parts

### Component Maintenance

- Avionics installation and repair
- Flight Controls Systems
- Navigation & Instruments
- Hydraulics, Pneumatics, Electrics, Landing Gear

### Airframe Maintenance & Modifications

- C Checks – detailed inspections
- Heavy maintenance visits (HMs) – Major reconditioning
- Painting
- Interior Refurbishments
- Conversions
- Completion & Modifications

## Market Potential

**General Aviation (GA) aircraft can be divided in three categories:**

**Turboprops**

**Recreational Aircraft**

- Piston engine aircraft
- Vintage aircraft (pre-1950)
- Warbirds

**Turbine Jets**

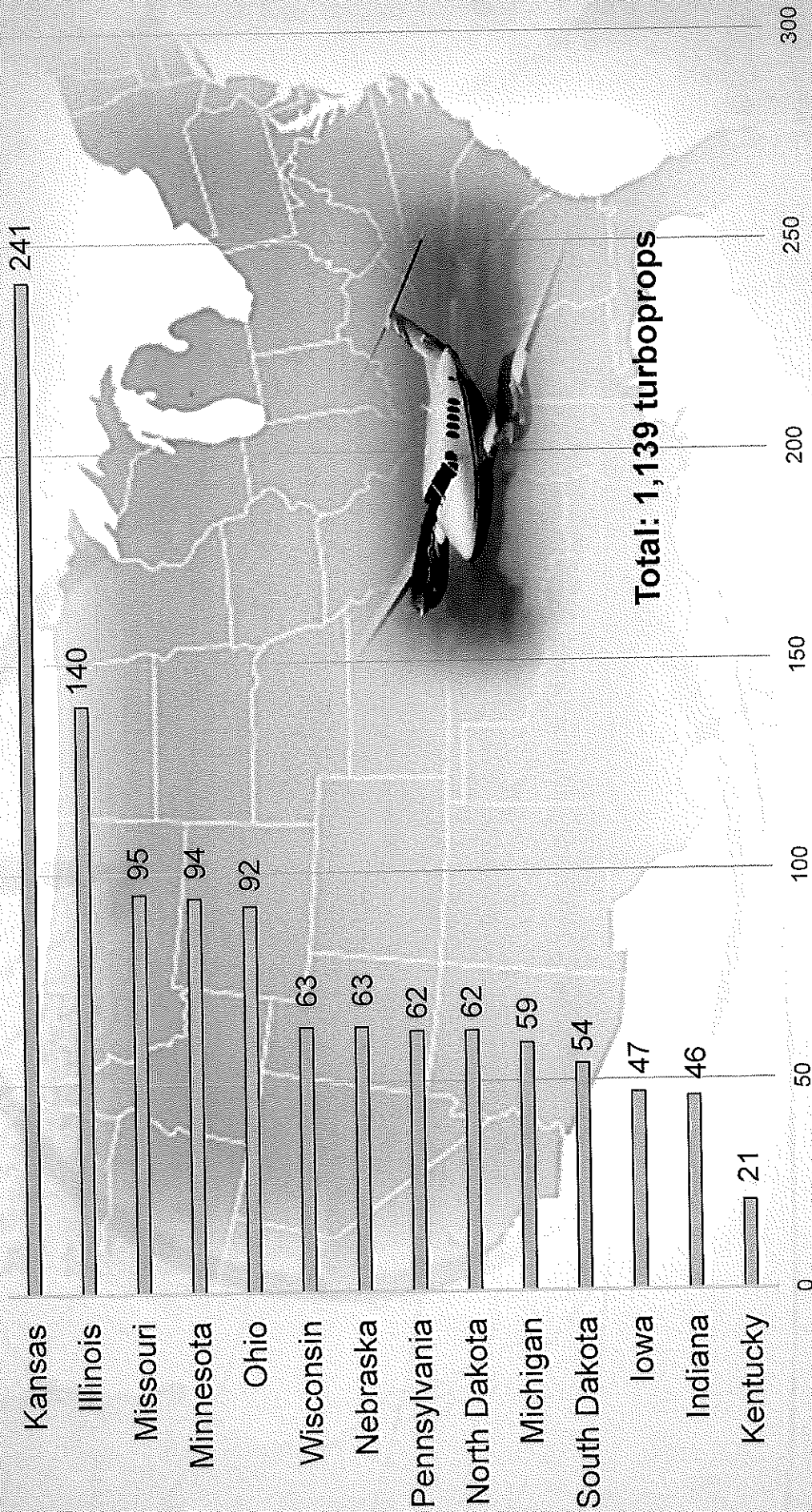
The following slides will present the market trends and potential associated with each of the three GA segments to be served by the Maintenance and Service Hub. We considered the 13 states surrounding Wisconsin and WI itself, plus all Canadian provinces for the turboprops.

# Turboprops

## U.S. Regional Market Size

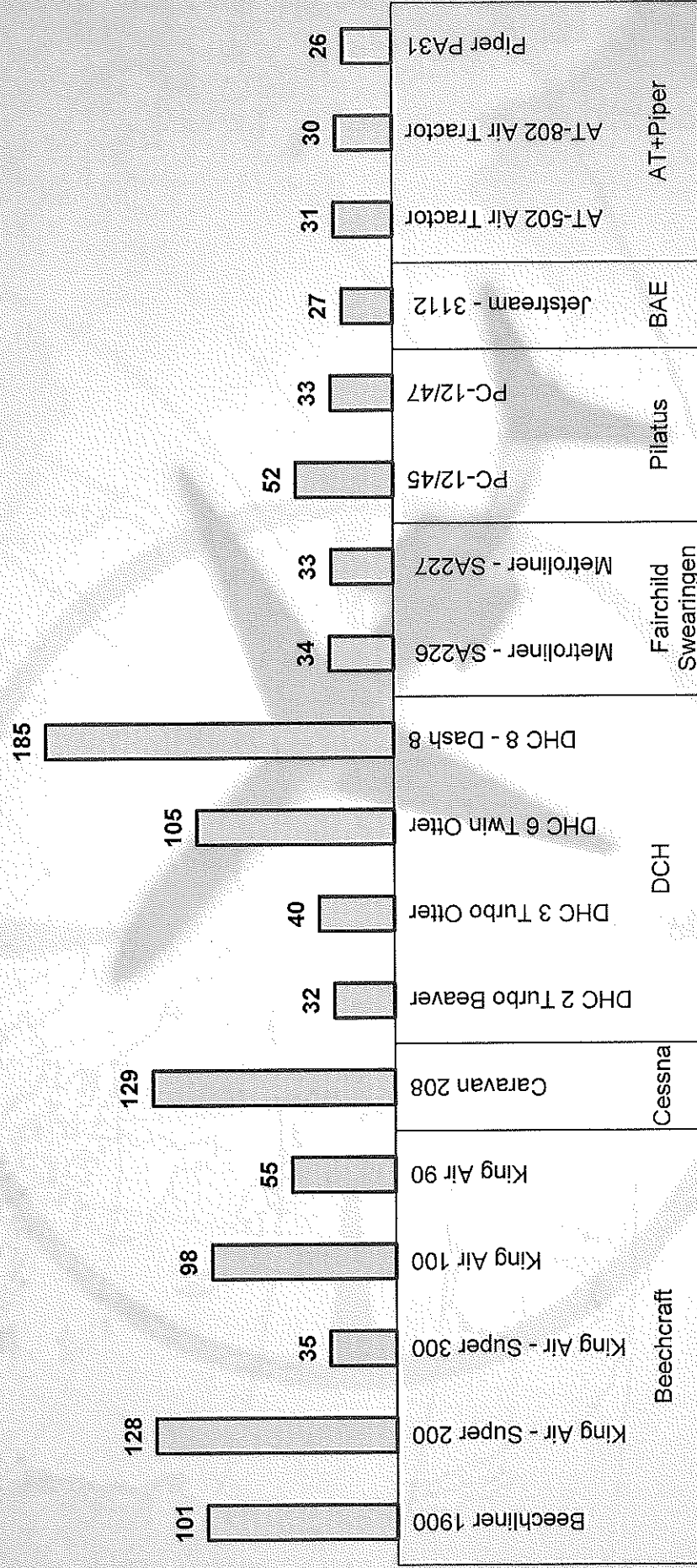
MFR	MODEL	WI	MI	MN	OH	IN	IL	IA	ND	SD	NE	KS	MS	KY	PA	Total
Air Tractor	AT-502 (502)	6	2	26	3	7	19	15	17	24	30	25	8	0	0	182
	AT-802	0	0	6	1	6	11	2	5	7	2	3	18	0	0	61
	B200	10	11	8	4	6	10	8	5	2	2	38	12	4	10	130
	B1900	3	0	1	0	0	0	0	0	0	1	2	1	0	0	8
Beech	B100 (King Air)	1	2	0	3	0	3	0	0	0	0	3	3	2	3	20
	B90 C90 (King Air)	14	17	17	21	11	17	9	11	12	9	66	14	7	15	240
	B300 (Super King Air)	7	7	5	9	4	13	3	0	1	3	43	8	2	4	109
	3101; 3201 (Jetstream)	0	2	0	0	0	0	0	0	0	0	0	5	0	3	10
Cessna	208 (Caravan)	3	6	16	17	0	20	1	5	1	0	37	2	1	1	110
	DHC-8 (Dash 8)	0	0	0	0	4*	4	0	0	0	0	0	0	0	0	4
	DHC-7 (Dash 7)	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	DHC-6 (Twin Otter)	0	0	0	1	0	3	0	0	0	0	0	0	0	0	4
de Havilland	DHC-3 (Turbo Otter)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DHC-2 (Turbo Beaver)	1	0	0	0	0	1	0	0	0	0	0	0	1	0	3
	SA227 / SA226	1	1	5	5	3	23	0	0	3	1	3	8	0	1	32
	PC12	14	8	8	18	7	11	5	17	0	7	5	9	2	14	125
Piper	PA-31T	3	3	2	10	2	5	4	2	4	8	16	6	2	11	78
<b>Total</b>		63	59	94	92	46	140	47	62	54	63	241	95	21	62	1139

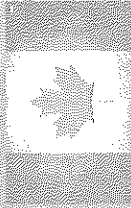
## Turboprops Potential Market by U.S. State



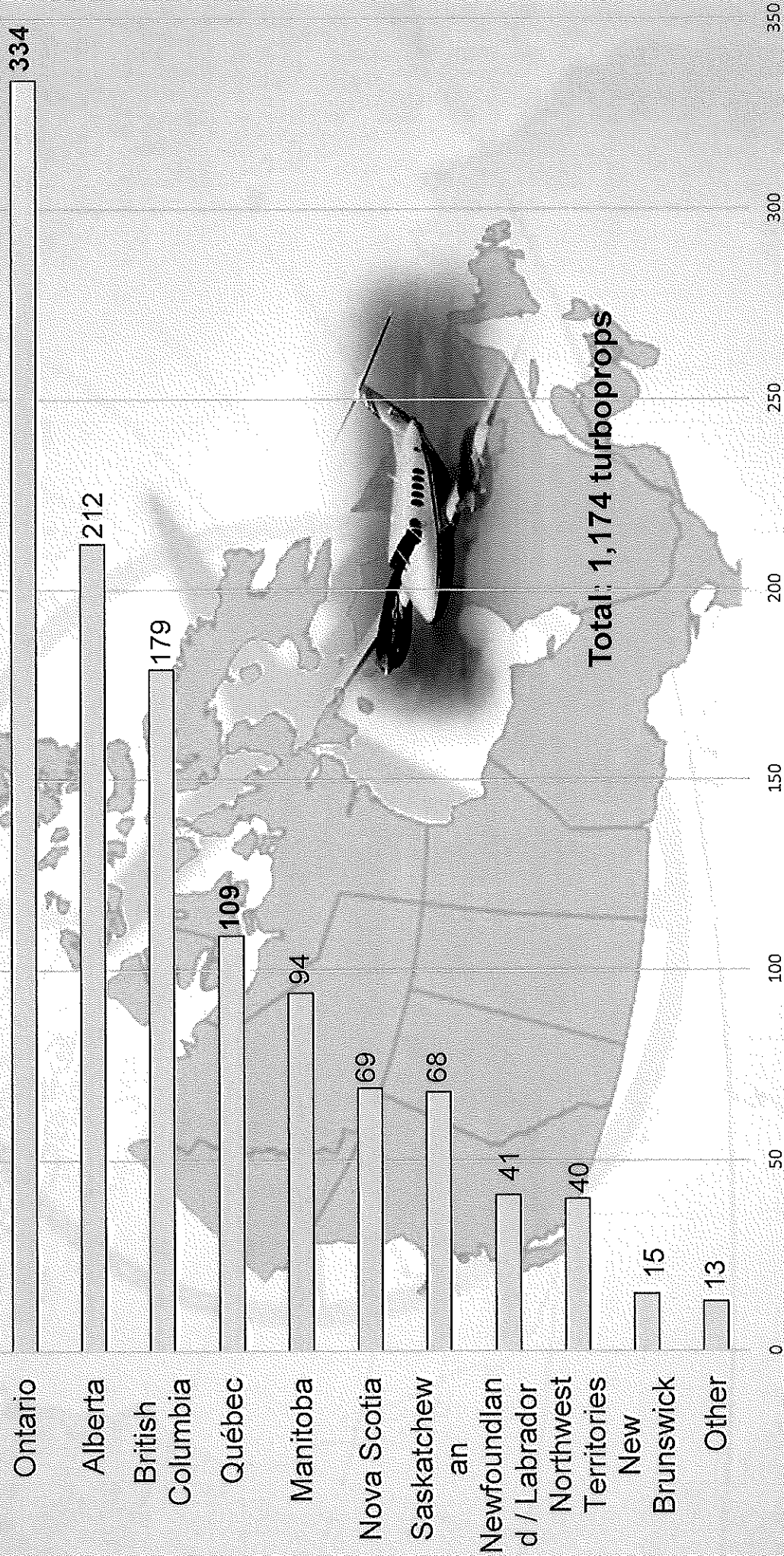


# Turboprops Market Potential by AC type (Canada)





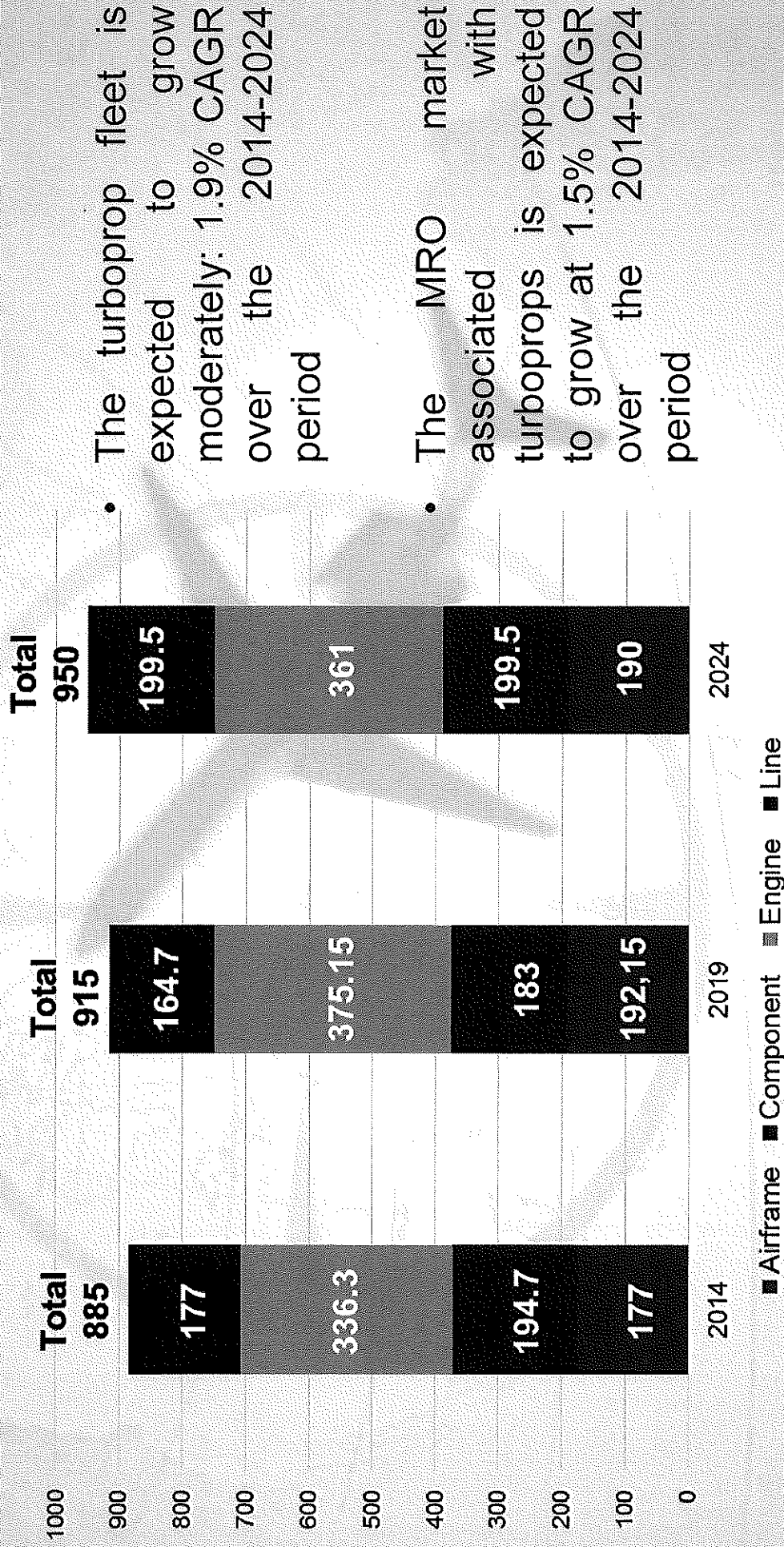
# Turboprops Potential Market by Canadian Province



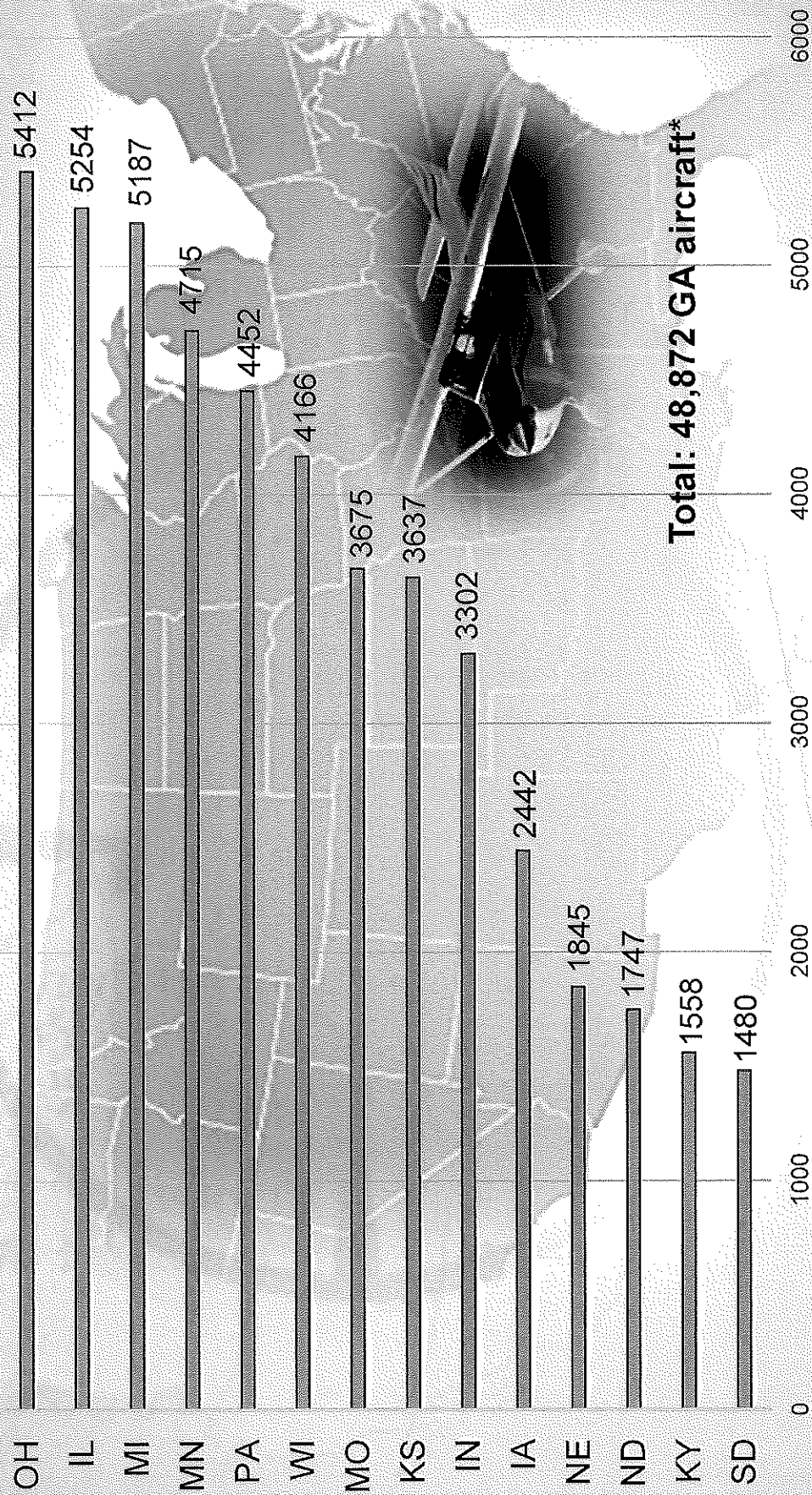
Turboprops

MRO Revenue Forecast

2014-2024 U.S Turboprop MRO Forecast (million USD)

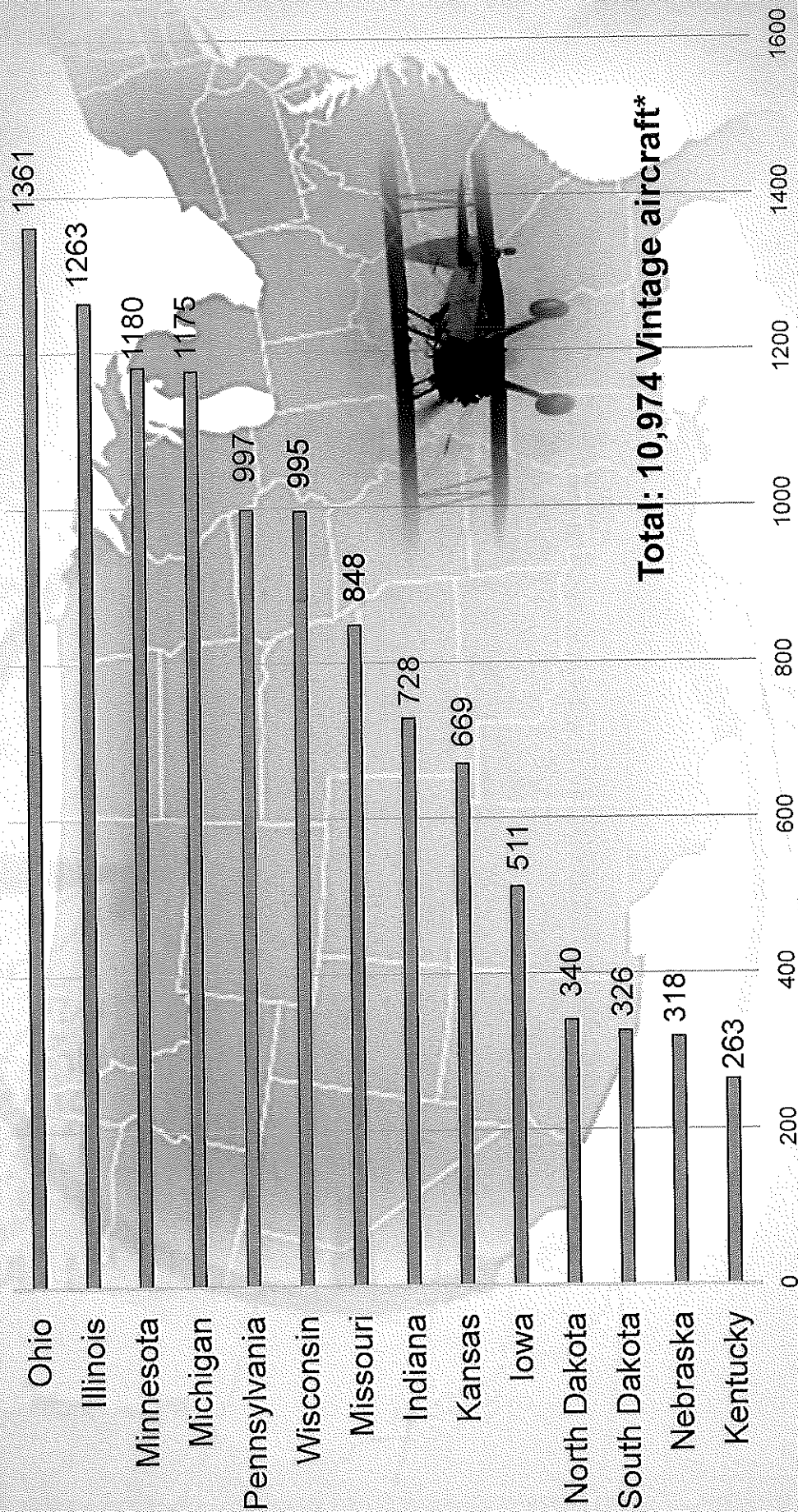


## GA – Piston Aircraft\* Market Potential by State



\*Single and twin piston-engine aircraft data presented here includes those manufactured after 1950 only.

## GA – Vintage Aircraft\* Market Potential by State



\*In the scope of this presentation, vintage aircraft refer to all FAA-registered aircraft manufactured before 1950.

## GA market trends and forecast

2014-2024 FAA Forecast – U.S. Active GA Aircraft

	Piston Aircraft		Sport Aircraft	Experimental	TOTAL
	Single Engine	Multi-Engine			
Forecast					
2014	122,755	14,180	2,240	25,895	165,070
2015	121,850	14,130	2,370	26,415	164,765
2016	121,000	14,075	2,515	26,880	164,470
2017	120,200	14,020	2,690	27,305	164,215
2018	119,435	13,955	2,830	27,705	163,925
2019	118,700	13,890	2,955	28,100	163,645
2020	118,015	13,820	3,080	28,500	163,415
2021	117,365	13,735	3,195	28,900	163,195
2022	116,760	13,655	3,315	29,310	163,040
2023	116,190	13,575	3,450	29,715	162,930
2024	115,660	13,500	3,595	30,130	162,885

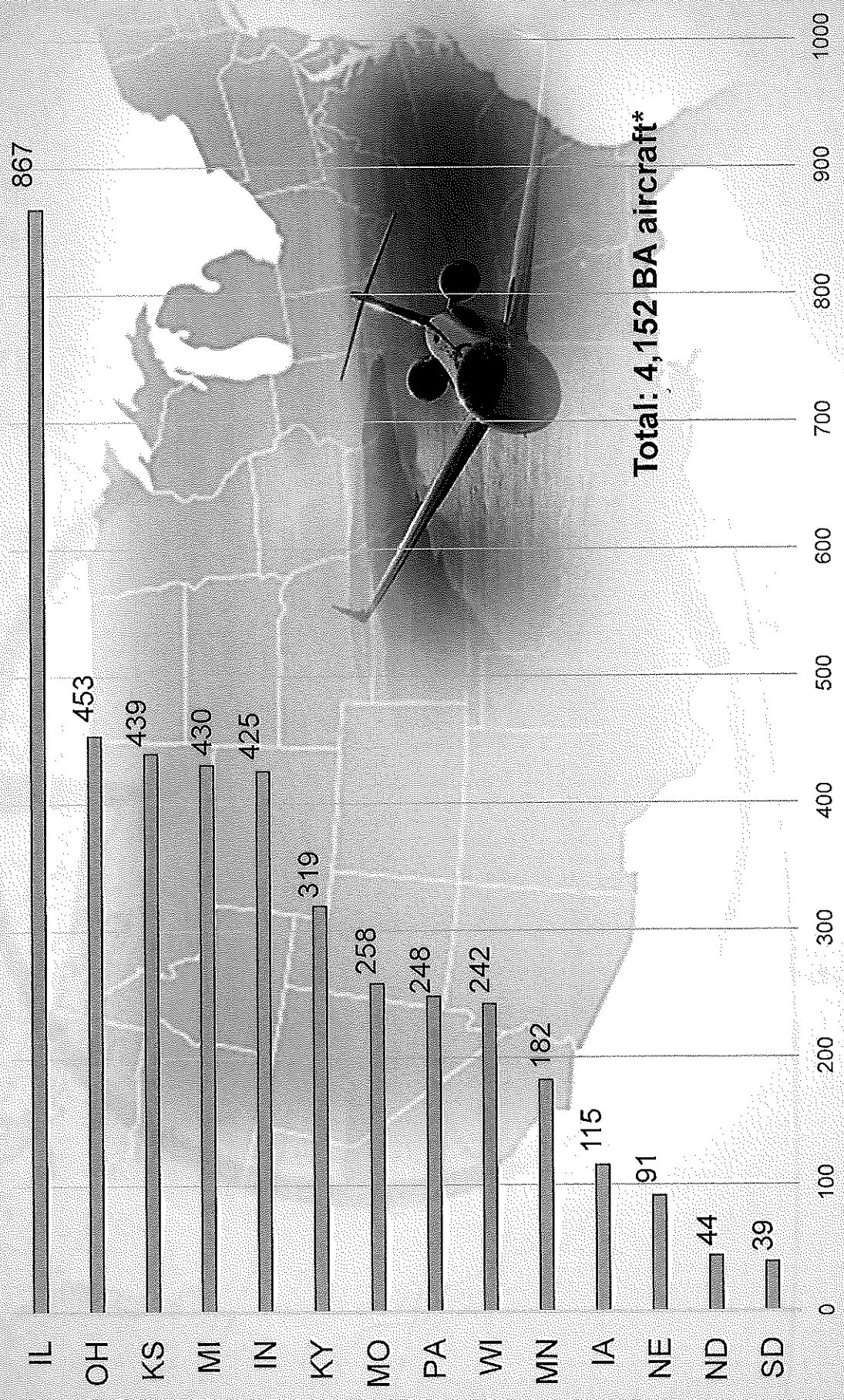
Source: FAA, 2014

### MRO trends

- GA aircraft have traditionally relied on small, independent shops - very good services, but very few have evolved over the years into state-of-the-art facilities offering integrated services
- Most GA aircraft owners are recreational pilots who want to fly as often as possible, and do not want to spend time in multiple maintenance shops.

- While the number of piston-powered aircraft is projected to decrease, they remain by far the biggest component of GA.
- The forecast assumes a 4.1% CAGR for light sport aircraft
- Likewise, experimental aircraft are expected to grow at a 1.6% CAGR.

# BA jets\* Market Potential by State



\*In the scope of this presentation, BA-jet aircraft refers to turbofan and turbojet powered aircraft

# Business Aviation Aircraft Fleet Size Forecast

2014-2024 FAA Forecast - U.S. Active Business Jets

Forecast	BA Jets
2014	12,055
2015	12,250
2016	12,540
2017	12,875
2018	13,225
2019	13,600
2020	14,010
2021	14,425
2022	14,855
2023	15,315
2024	15,800

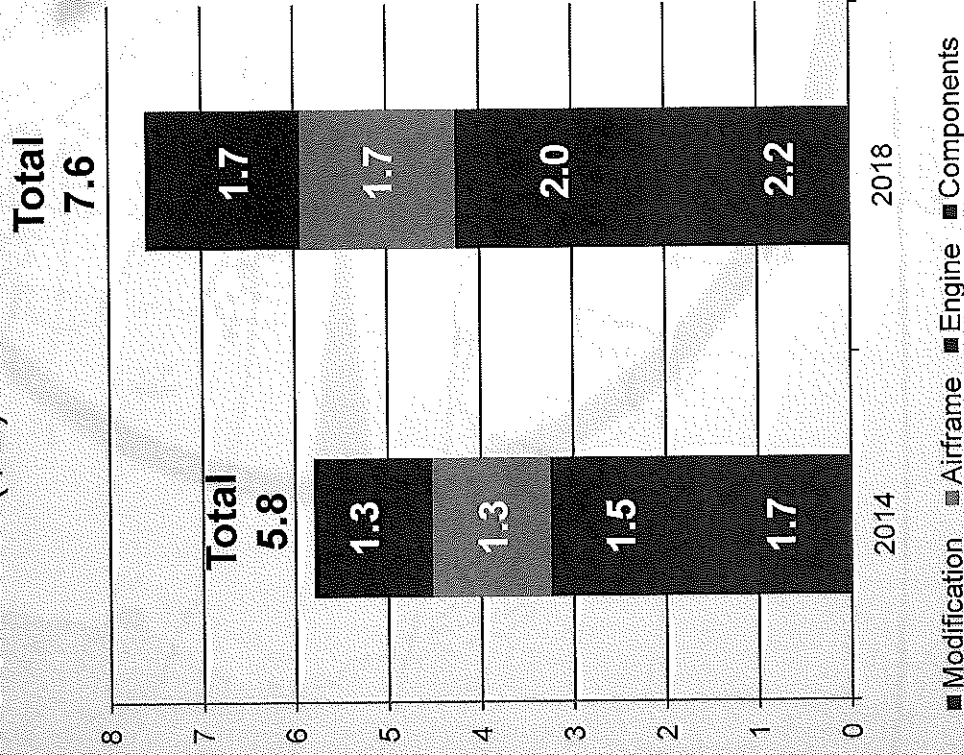
Source: FAA, 2014

- The U.S. active business jet fleet is expected to grow at a healthy 3.1% CAGR over the 2014-2024 period
- The U.S. accounts for about 63% of the global business jet fleet and will represent more than half of projected global demand for the next five years
- The business jet delivery mix is changing, reflecting an ongoing trend toward larger business jet models.

Source: Honeywell Global  
Business Aviation Outlook, 2014

## Business Aviation Aircraft Revenue Forecast

### Global BA MRO Market Forecast (\$B)



- The BA MRO market is expected to grow at 7.2% per year through 2018
- The approximate breakdown per MRO activity is the following:
  - Components – 29%
  - Engine – 27%
  - Airframe – 22%
  - Modifications – 22%

- Fastest growing segments are expected to be:
  - Modifications (9.4% CAGR)
  - Components (8.1% CAGR)
  - Airframe (7.8%)
  - Engine (7.7%)

**7.2% CAGR over the 2014-2018 period**

# Competition - MRO Centers

- Aircraft based in the U.S. are maintained by either:
  - FAA approved facilities certified under FAR 145 or;
  - FAA approved individuals operating under Part 65.
- The FAA does not categorize repair facilities in terms of service to general aviation, business jets, scheduled air carriers or military aircraft.
- We identified 849 repair facilities scattered in Wisconsin and 13 surrounding states\*:

State	→	# Repair Stations	State	→	# Repair Stations
Wisconsin		48	Pennsylvania		94
Michigan		97	Kentucky		39
Illinois		94	Missouri		55
Indiana		57	Kansas		102
Ohio		137	Nebraska		12
Iowa		33	North Dakota		15
Minnesota		51	South Dakota		15

The following slides outline the capabilities and ratings of the repair shops located in each state.

# Competition - MRO Centers FAA Repair Stations

	Class 1	Class 2	Class 3	Class 4	Limited Ratings	More Limited Ratings:
<b>Accessory</b>	Mechanical accessory	Electrical accessory	Electronic accessory	-	Limited Accessory	Emergency Equipment
<b>Airframe</b>	Composite construction small AC	Composite construction of large AC	All-metal construction of small AC	All-metal construction of large AC	Limited Airframe	Aircraft Fabric
<b>Instrument</b>	Mechanical	Electrical	Gyroscopic	Electronic	Limited Instrument	NDT
<b>Powerplant</b>	Reciprocating engines of 400 horsepower or less	Reciprocating engines of more than 400 horsepower	Turbine engines	NA	Limited Powerplant	Floats
<b>Propeller</b>	Fixed-pitch and ground-adjustable propellers (wood, metal or composite)	Other propellers, by make.	NA	NA	Limited Propeller	Specialized Service
<b>Radio</b>	Communication equipment.	Navigational equipment	Radar equipment	NA	Limited Radio	Rotor Blades
						Landing Gear

The FAA may issue a **limited rating to a certificated repair station** that that maintains or alters only a particular type of airframe, powerplant, propeller, radio, instrument, or accessory, or performs only specialized maintenance requiring equipment and skills not ordinarily performed under other repair station ratings. Such a rating may be limited to a specific model aircraft, engine, or constituent part, or to any number of parts made by a particular manufacturer.

## Competition - MRO Centers FAA Repair Stations

Capabilities and ratings of the 849 repair shops\*

	Class 1	Class 2	Class 3	Class 4	Limited	Limited Ratings
Accessory	45	47	47	-	321	Emergency Equipment 18
Airframe	55	3	107	21	415	Aircraft Fabric 10
Instrument	46	43	40	35	276	Non-Destructive Testing 102
Power plant	25	4	4	NA	360	Floats 10
Propeller	7	8	NA	NA	35	Specialized Service 117
Radio	113	115	75	NA	228	Rotor Blades 8
						Landing Gear 17
						Other 0

\*See appendix for the breakdown per state

Competition

MRO Suppliers per State

State	Number of GA Aircraft	Number of Repair Stations (RS)	Aircraft per Repair Station
Wisconsin	5,466	48	114
Michigan	6,851	97	70
Ohio	7,318	137	53
Pennsylvania	5,759	94	61
Illinois	7,524	94	80

In comparison with direct surrounding states, WI has a lower repair capacity (only 48 repair stations), suggesting that some of the WI-based aircraft go out-of-state for repair.

# Competition

## Wisconsin Authorized Centers

	Authorized Services Centers					
	Cessna Caravan (Citation)	Piper	Cirrus	Hawker Beechcraft	Gulfstream	Embraer Bombardier
Wisconsin	4 + (1)	2	3	0	1	0
Minnesota	2 + (1)	2	5	1	0	0
Iowa	0	1	3	1	0	0
Illinois	2 + (1)	1	3	3	1	2
Michigan	1 + (1)	1	5	*1 (piston only)	0	1

No Authorized Services Center for Embraer, Hawker Beechcraft and Bombardier are located in WI. Owners of these types of aircraft that are under warranty must go out-of-state for their repair work.

## Competition - MRO Centers

---

- The Repair Station capabilities and rating table (previous slide) reveals an overwhelming majority of MROs have limited ratings – meaning their service is limited to a specific model of aircraft or parts manufacturers.
  - This suggests that very few MROs offer a complete one-stop shop serving all segments of GA maintenance.
  - Potential MRO gaps include powerplant and propeller services. A more granular competition analysis is necessary to provide more detail on these potential gaps (untapped segments).
- In addition, Wisconsin is one of the states with the lowest repair station/aircraft ratio (one repair station per 114 aircraft); other states show ratios significantly below 100 aircraft per repair station.
- The market data, combined with this preliminary competitive outlook, suggest an opportunity for a GA maintenance hub that would concentrate GA/BA maintenance services in one location in the state of WI.

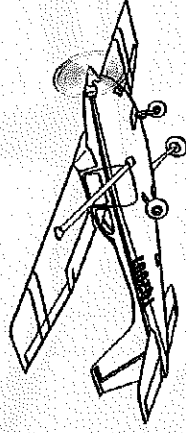
## Maintenance Hub

- Building on these gaps, we recommend developing a full-service maintenance and services hub serving all GA aircraft.
- A maintenance hub conveniently eliminates the need to use multiple service providers, thereby generating cost and time savings - the key decision-making factors for aircraft owners and operators.

### GA Recreational Pilots

Desire to fly as much as possible and make the most of their passion.

Flying from one maintenance shop to another is time-consuming and costly.



### BA

Business aviation is not simply a convenient mode of transport, but an incredibly effective productivity tool and a business strategy in itself.

Business jet owners are busy people and time is an issue. Offering one stop-shop capabilities will be attractive to this clientele.



## Maintenance Hub

### The Concept

The maintenance and services hub will provide aircraft owners and operators, from both the U.S. and Canada, with a One-Stop Center for a complete and reliable range of high quality, high value services under one overarching organization.

Building on the region's reputation and a workforce that is uniquely qualified for aviation-related maintenance and services, the project aims to reinforce the image and recognition of the area as a GA destination and gathering point within the State of Wisconsin, the U.S. and the world.

The maintenance hub will cover all MRO activities for the three main segments of General Aviation:

- Piston engine
- Turboprops
- Turbine Jets

The key be getting clients to know more about the hub. We thus propose to add a sales and marketing group to the concept to structure and bolster business development activities.

## ELITE

Management Team

Marketing & Sales Team

Maintenance  
Centre

Aircraft  
Services  
Team

Airframe Inspection  
& Heavy Mtce

Engine

Avionics

Mods &  
Refurbishment

Propellers

Landing Gear

Painting

Rebuild

Completion &  
Refinishing

Components Repair

Aircraft legal  
purchasing services

Aircraft Insurance

Aircraft accounting  
services

Aircraft inspection

Aircraft sales,  
brokerage & leasing

Aircraft financing

Aircraft  
recertification

Aircraft ferrying

## Targeted Market and Clients

### Piston

Clientele: Aircraft owners, pilots, future owners, brokers and aircraft sales offices

### Turboprop

Clientele: Airlines, Charter companies, leasing companies, private owners and aircraft management companies

### Jet Turbine

Clientele: Charter companies, leasing companies, private owners and aircraft management companies

### Vintage

Clientele: Aircraft owners, pilots, brokers, aircraft sales offices and Vintage aircraft chapters

### Warbird

Clientele: Aircraft owners, pilots, brokers, aircraft sales offices and Warbird aircraft chapters

### Experimental Aircraft

Clientele: Aircraft owners, pilots, brokers and aircraft sales offices

## **Why Fox Valley? Competitive Advantages**

- Presence of key aerospace OEMs – Gulfstream's maintenance & refurbishment operation in ATW. Identified WI-based suppliers.
- Skilled labor – Northern WI is a manufacturing hub with abundant, professional, skilled and competitive labor.
- Brand recognition –Oshkosh is the general aviation world mecca and is renowned across the aviation community.
- Place and promotion – EAA Airventure attracts more than ½ million aviation enthusiasts every year looking for industry knowledge and services. Ideal location to showcase the service offering of the Elite Center.
- Untapped state demand – Research shows that many WI-based aircraft are flying out-of-state for maintenance.

## **Exhibit D**

## Aviation Development Workforce Sub-Committee

### Wisconsin Workforce Projections

#### Summary of Data Mining

**May 2013** – Business and Industry Cluster Analysis - NorthStar Consulting Group

Recommendation – Expand Aviation and Aerospace Cluster in the area.

**May 2014** – Phase1 – Aerospace Cluster Study Launch – Explorer Solutions

Focus – Identify potential, targeted and validate niche clusters, matching the strengths and weakness of the airports and of the Central WI regions.

**May 2015** – Aviation Development and Workforce Sub-Committee formed. – Aviation Development Committee

**Step 1 – Analyze workforce trends and projections in the Aviation and Aerospace cluster in the Oshkosh Region.**

- High – Growth Occupations – Wisconsin's Worknet

[http://worknet.wisconsin.gov/worknet/joblist\\_highgrow.aspx?menuselection=js](http://worknet.wisconsin.gov/worknet/joblist_highgrow.aspx?menuselection=js)

Top 25 High-Growth Occupations to grow the fastest during 2012-2022.

# 25. Aircraft Mechanics and Service Technicians

1,310 employed in 2012

1,640 projected in 2022 – 25.2% increase

- Wisconsin Tech Connect Employment Information System. Number of employer postings 1/20/15 to 6/15/15, by primary program ([www.wisconsintechconnect.com/](http://www.wisconsintechconnect.com/)).

	Unique Employers Statewide	Fulltime Openings Statewide	Part Time Openings Statewide	Unique Employers In-district	Fulltime Openings In-district	Part Time Openings In-district
Aviation Pilot Training	4	12	10	1	1	1
Aviation Professional Pilot	1	6	0	0	0	0
Aircraft Electronics	1	1	0	0	0	0
Airframe & Powerplant Mechanics	6	18	2	1	2	2

**Wisconsin's Worknet** - <http://worknet.wisconsin.gov/worknet>

**Winnebago County Occupation Profile for Aircraft Mechanics and Repair**

Wage Information for Aircraft Mechanics and Service Technicians, 2014:

Wage Level	County Hourly	County Annual	MSA*/BOS** Hourly	MSA*/BOS** Annual	Statewide Hourly	Statewide Annual
Entry	\$18.1	\$37,650	\$18.1	\$37,650	\$17.61	\$36,630
Average	\$21.85	\$45,440	\$21.85	\$45,440	\$25.24	\$52,490
Experienced	\$23.72	\$49,340	\$23.72	\$49,340	\$29.05	\$60,430

**Winnebago County Occupation Profile for Avionics Technicians**

Wage Information for Avionics Technicians, 2014:

Wage Level	County Hourly	County Annual	MSA*/BOS** Hourly	MSA*/BOS** Annual	Statewide Hourly	Statewide Annual
Entry	n/a	n/a	n/a	n/a	\$19.62	\$40,820
Average	n/a	n/a	n/a	n/a	\$25.74	\$53,530
Experienced	n/a	n/a	n/a	n/a	\$28.79	\$59,890

**Outagamie County Occupation Profile for Airline pilots, Copilots, and Flight Engineers**

Wage Information for Airline Pilots, Copilots, and Flight Engineers, 2014:

Wage Level	County Hourly	County Annual	MSA*/BOS** Hourly	MSA*/BOS** Annual	Statewide Hourly	Statewide Annual
Entry	n/a	n/a	n/a	n/a	\$0	\$45,710
Average	n/a	n/a	n/a	n/a	\$0	\$82,350
Experienced	n/a	n/a	n/a	n/a	\$0	\$100,660

Wage Information for Airfield Operations Specialists, 2014:

Wage Level	County Hourly	County Annual	MSA*/BOS** Hourly	MSA*/BOS** Annual	Statewide Hourly	Statewide Annual
Entry	n/a	n/a	n/a	n/a	\$10.57	\$21,990
Average	n/a	n/a	n/a	n/a	\$16.25	\$33,800
Experienced	n/a	n/a	n/a	n/a	\$19.09	\$39,700

Wage Information for Aircraft Cargo Handling Supervisors, 2014:

Wage Level	County Hourly	County Annual	MSA*/BOS** Hourly	MSA*/BOS** Annual	Statewide Hourly	Statewide Annual
Entry	n/a	n/a	n/a	n/a	\$15.17	\$31,560
Average	n/a	n/a	n/a	n/a	\$23.66	\$49,210
Experienced	n/a	n/a	n/a	n/a	\$27.9	\$58,030

Note: FDL County showing n/a in all categories

**Aviation Employers listed under the Industry Transportation and Warehousing:  
Support Activities for Air Transportation.**

**Winnebago County**

<u>Company Name</u>	<u>Industry</u>	<u>City</u>	<u>Employee Size Range</u>
<u>Brennand Airport-79c</u>	Other Airport Operations	Neenah	1 - 4
<u>D'Shannon Aviation</u>	Other Airport Operations	Oshkosh	5 - 9
<u>Gallinger Airport-51wi</u>	Other Airport Operations	Oshkosh	1 - 4
<u>Larson Airport-Wi91</u>	Other Airport Operations	Larsen	1 - 4
<u>Myers Aviation Inc</u>	Other Support Activities for Air Transportation	Oshkosh	5 - 9
<u>New View Technologies</u>	Other Support Activities for Air Transportation	Oshkosh	1 - 4
<u>Sky Diving Airport-64wi</u>	Other Airport Operations	Omro	1 - 4
<u>Skylane Aviation</u>	Other Support Activities for Air Transportation	Oshkosh	1 - 4
<u>Williams Airport-1wi1</u>	Other Airport Operations	Oshkosh	1 - 4
<u>Wittman Regional Airport-Osh</u>			

**Outagamie County**

<u>Company Name</u>	<u>Industry</u>	<u>City</u>	<u>Employee Size Range</u>
<u>Gulfstream Aerospace Corp</u>	Other Support Activities for Air Transportation	Appleton	1000+
<u>Outagamie County Aiport-ATW</u>	Other Airport Operations	Appleton	100 - 249
<u>Rocket City Airport-Wi22</u>	Other Airport Operations	Hortonville	1 - 4
<u>Shiocton Airport-W34</u>	Other Airport Operations	Shiocton	1 - 4
<u>Tate Aviation Svc</u>	Other Support Activities for Air Transportation	Hortonville	1 - 4

FDL County

<u>Company Name</u>	<u>Industry</u>	<u>City</u>	<u>Employee Size Range</u>
<u>Dinnerbell Farm &amp; Landing Strp</u>	Other Airport Operations	Eden	5 - 9
<u>Fond Du Lac County Airport-Fld</u>	Other Airport Operations	Fond Du Lac	5 - 9
<u>J &amp; L Aviation Airport-Ws46</u>	Other Airport Operations	Ripon	1 - 4
<u>Kettle Moraine-1wn1</u>	Other Airport Operations	Campbellsport	1 - 4
<u>Nett Construction Airport-7wi9</u>	Other Airport Operations	Malone	1 - 4

## 2015 – 2009 FVTC Graduate Employment Research Report

### Aeronautics - Pilot Training 104021 Associate in Applied Science Degree

	<i>Class of 2014</i>	<i>Class of 2009</i>	<i>Class of 2009</i>
	<i>6 Months After Graduation</i>	<i>6 Months After Graduation</i>	<i>5 Years After Graduation</i>
Total Number of Graduates	5	11	11
Number Responding	5	10	8
Total Employed	5	9	8
Percent Employed	100%	90%	100%
Related Employment	5	9	7
Unrelated Employment	-	-	1
Seeking Employment	-	1	-
Not in Labor Market	-	-	-
Employed in the District	4 of 5	6 of 9	1 of 8
Median Annual Salary	-	-	45,000
Average Annual Salary	-	-	45,000 (4)
Range of Annual Salary	-	-	40,000 - 50,000
Average Hourly Rate	-	-	21.63 (4)
Average Hours Per Week	-	40 (3)	40 (6)
Employed Full Time	2	3	6
Employed Part Time	3	6	1
Range of Hours Per Week	40 - 40	40 - 40	40 - 40

( ) = number of graduates responding

<b>Job listed in Wisconsin TechConnect</b>	Full-time	Part-time
FVTC District (5 counties):	0	0
New North (FVTC 5 counties + 13 Northeast WI counties):	0	0
Wisconsin:	3	0

#### **Actual positions held by 2014 graduates:**

Flight Instructor, Fox Valley Technical College, Oshkosh, WI

**Aircraft Electronics**  
**104022**  
**Associate in Applied Science Degree**

	<i>Class of 2014</i>	<i>Class of 2009</i>	<i>Class of 2009</i>
	<i>6 Months After Graduation</i>	<i>6 Months After Graduation</i>	<i>5 Years After Graduation</i>
Total Number of Graduates	8	10	10
Number Responding	8	10	8
Total Employed	6	8	7
Percent Employed	86%	89%	88%
Related Employment	5	1	4
Unrelated Employment	1	7	3
Seeking Employment	1	1	1
Not in Labor Market	1	1	-
Employed in the District	2 of 6	7 of 8	2 of 7
Median Annual Salary	34,840	-	51,960
Average Annual Salary	35,360 (4)	-	54,058 (4)
Range of Annual Salary	31,200 - 40,560	-	45,760 - 66,550
Average Hourly Rate	17.00 (4)	-	25.99 (4)
Average Hours Per Week	40 (4)	-	46 (4)
Employed Full Time	4	1	4
Employed Part Time	1	-	-
Range of Hours Per Week	40 - 40	-	40 - 50

( ) = number of graduates responding

<b>Job listed in Wisconsin TechConnect</b>	<b>Full-time</b>	<b>Part-time</b>
FVTC District (5 counties):	1	0
New North (FVTC 5 counties + 13 Northeast WI counties):	1	1
Wisconsin:	9	2

**Actual positions held by 2014 graduates:**

Aircraft Mechanic, New View Technologies, Oshkosh, WI  
FAA Helicopter Mechanic, Bristow Academy Inc., New Iberia, LA  
Maintenance Technician, AAR Corporation, Duluth, MN

**Airframe & Powerplant Mechanics**  
**324021**  
**Technical Diploma**

	<i>Class of 2014</i>	<i>Class of 2009</i>	<i>Class of 2009</i>
	<i>6 Months After Graduation</i>	<i>6 Months After Graduation</i>	<i>5 Years After Graduation</i>
Total Number of Graduates	14	11	11
Number Responding	11	11	7
Total Employed	11	4	7
Percent Employed	100%	67%	100%
Related Employment	11	2	3
Unrelated Employment	-	2	4
Seeking Employment	-	2	-
Not in Labor Market	-	5	-
Employed in the District	6 of 11	2 of 4	2 of 7
Median Annual Salary	36,920	-	-
Average Annual Salary	36,768 (10)	-	54,327 (3)
Range of Annual Salary	29,120 - 47,840	-	50,000 - 58,900
Average Hourly Rate	17.68 (10)	-	26.12 (3)
Average Hours Per Week	40 (11)	-	40 (3)
Employed Full Time	11	2	3
Employed Part Time	-	-	-
Range of Hours Per Week	40 - 45	40 - 40	40 - 40

( ) = number of graduates responding

<b>Job listed in Wisconsin TechConnect</b>	<b>Full-time</b>	<b>Part-time</b>
FVTC District (5 counties):	4	0
New North (FVTC 5 counties + 13 Northeast WI counties):	5	2
Wisconsin:	13	5

**Actual positions held by 2014 graduates:**

Aircraft Mechanic, Basler Turbo Conversions LLC, Oshkosh, WI  
Aircraft Mechanic, Gibson Aviation Services LLC, Menominee, WI  
Aircraft Mechanic, Gulfstream Aerospace Corp., Appleton, WI  
Aircraft Mechanic, New View Technologies, Oshkosh, WI  
Aircraft Technician 1, Gulfstream Aerospace Corp., Appleton, WI (3)  
Airframe & Powerplant Mechanic, Gibson Aviation Service LLC, Menominee, WI  
Airframe & Powerplant Mechanic, Midwest Turbine Service LLC, Hartford, WI (2)  
FAA Helicopter Mechanic, Bristow Academy Inc., New Iberia, LA

### FVTC 1<sup>st</sup> and 2<sup>nd</sup> Year Enrollments

2015	1 <sup>st</sup> Year		2 <sup>nd</sup> Year		Total Enrolled	Total Capacity
	Enrolled	Capacity	Enrolled	Capacity		
Airframe & Powerplant	15	18	17-18	18	32-33	36
Aircraft Electronics	12-13	18	8-9	18	20-22	36

### FVTC Aviation Program Graduates

<i>Capacity</i>	18	16	8	8
<b>Graduates</b>	<b>Airframe &amp; Powerplant</b>	<b>Aircraft Electronics</b>	<b>Pilot AAS</b>	<b>Pilot TD</b>
2007	15	5	6	
2008	10	11	3	
2009	11	7	9	
2010	16	8	3	
2011	13	11	4	
2012	10	8	3	7
2013	15	7	4	9
2014	13	9	5	3
<b>TOTAL Graduates 8yrs</b>	<b>103</b>	<b>66</b>	<b>37</b>	<b>19</b>

### Additional information

1. A statewide search of employers found 377 businesses under Transportation and Warehousing: Support Activities for Air Transportation
2. When searching Wisconsin Worknet's Industry Long Term Projections for Manufacturing, "Aerospace Production and Parts Manufacturing" is noted as a sector, however it was asterisked with "no data available". Assumption being, either none reporting or none existing.

June 2015

## Aviation Industry Cluster in U.S. Metros Is Your Community Ready to Take-Off?



*In this brief we examine U.S. Bureau of Labor Statistics data regarding the three primary employment sectors that comprise the Aviation Cluster: Aerospace Product and Parts Manufacturing (NAICS 3364); Air Transportation (NAICS 481); and Support Activities for Air Transportation (NAICS 4881).*

Jay Garner, President | email [jay@garnereconomics.com](mailto:jay@garnereconomics.com) | web [www.garnereconomics.com](http://www.garnereconomics.com)

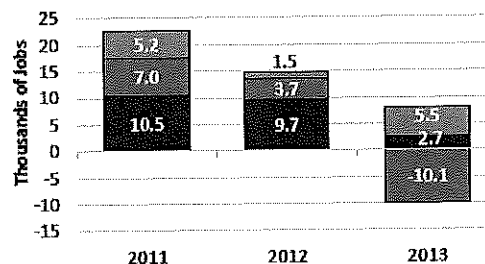
The Aviation Cluster, comprising Aerospace Manufacturing, Air Transportation and Support Activities has seen drastic change over the last ten years, with recent growth in achieving pre-recession levels nationally in two out of the three sectors. Between 2011 and 2013, Aerospace manufacturing has added about 22,800 jobs nationally, a growth rate of 4.8 percent. Air Transportation has been somewhat volatile, adding and contracting 10,000 jobs with a net gain of only 500 jobs overall (a .01% growth rate). Support Activities for Air Transportation increased over 12,000 jobs at a 5.9% growth rate. Collectively, these three employment sectors added more than 35,000 jobs in the United States over the last few years to a total employment level of almost 1.16 million.

Although this represents only 1% of US employment, the Aviation Cluster is sought for the high wages and high impact this industry brings. Annual salaries of employees in the private sector for 2013 averaged \$91,813 for Aerospace Manufacturing; \$71,340 for Air Transportation; and \$45,746 for Support Activities for Air Transportation. As for high impact, the FAA released a report in June 2014 stating that civil aviation contributed 5.4 percent to the US economy in 2012. When all impacts were included, civil aviation-related goods and services amounted to a total output of \$1.5 trillion generating nearly 12 million jobs and earnings of \$459 billion.<sup>1</sup>

The top 10 metro areas for aviation employment combining all three aviation NAICS codes encompassing aerospace manufacturing, air transportation and support for air transportation are listed below.

**Employment Change in Aviation Sectors  
U.S. Totals, Average Annual 2011-2013**

■ Support Activities for Air Transportation (NAICS 4881)  
■ Air Transportation (NAICS 481)  
■ Aerospace Product and Parts Manufacturing (NAICS 3364)



Source: Bureau of Labor Statistics, QCEW

<sup>1</sup> The Economic Impact of Civil Aviation on the U.S. Economy, June 2014, US Department of Transportation Federal Aviation Administration

See Link:

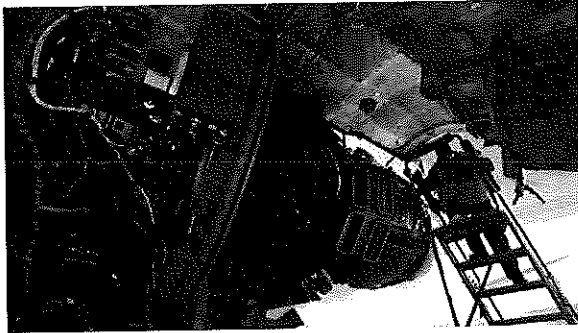
<http://www.garnereconomics.com/pdf/Garner%20Economics%20Aviation%20Cluster%202015%20final.pdf>

# Skills Shortage Ahead for Aircraft Technicians

Agence France-Presse

Jul 20, 2015

The additional staff will be needed to run a projected 38,000 new aircraft added to the global fleet over the next 20 years, Boeing said.



Getty Images

NEW YORK -- Commercial airlines will need to recruit and train 609,000 new aircraft maintenance technicians over the next 20 years to meet rising demand, according to a Boeing forecast released Monday.

The demand is similar for pilots: Boeing predicts there will be a need for 558,000 new pilots over the same time period.

Asia Pacific will see the largest growth, according to the report.

The additional staff will be needed to run a projected 38,000 new aircraft added to the global fleet over the next 20 years, the U.S. aerospace giant said. Boeing has 17 training campuses worldwide.

## Related:

[The Skills Gap? More Like the Grand Canyon](#)

[Boeing on Track for a Record Year](#)

"The challenge of meeting the global demand for airline professionals will not be solved by one company alone," said Sherry Carbary, vice president of Boeing Flight Services.

"Aircraft manufacturers, airlines, training equipment manufacturers, training delivery organizations, regulatory agencies and educational institutions are all stepping up to meet the increasing need to train and certify pilots and technicians."

Compared with the company's 2014 outlook, demand for technicians rose about 5%, and pilot demand, 4%.

After Asia Pacific, North America was second as far as new technician staff needed with 113,000, followed by Europe (+101,000), Middle East (+66,000), Latin America (+47,000) and Africa and Russia/CIS (both +22,000).

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## Parameters

### Occupations

Code	Description
49-3011	Aircraft Mechanics and Service Technicians

### Regions

Code	Description
55015	Calumet County, WI
55087	Outagamie County, WI
55135	Waupaca County, WI
55137	Waushara County, WI
55139	Winnebago County, WI

### Timeframe

2013 - 2014

### Datarun

2015.1 – QCEW Employees

### Aircraft Mechanics and Service Technicians in 5 Counties

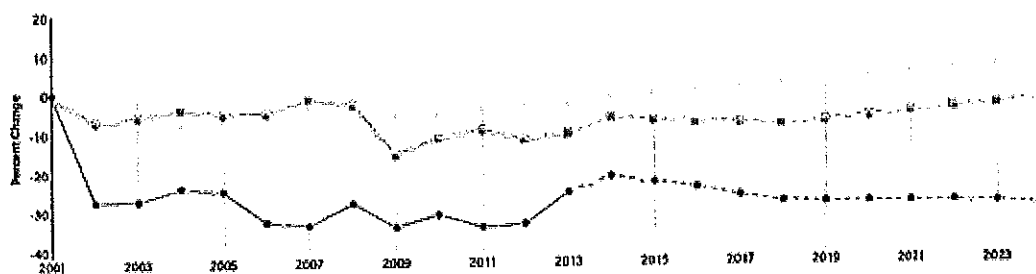
**Aircraft Mechanics and Service Technicians (SOC 49-3011):** Diagnose, adjust, repair, or overhaul aircraft engines and assemblies, such as hydraulic and pneumatic systems. Includes helicopter and aircraft engine specialists. Excludes "Avionics Technician" (49-2091).

**Related O\*NET Occupation:** Aircraft Mechanics and Service Technicians (49-3011.00)

## Occupation Summary for Aircraft Mechanics and Service Technicians

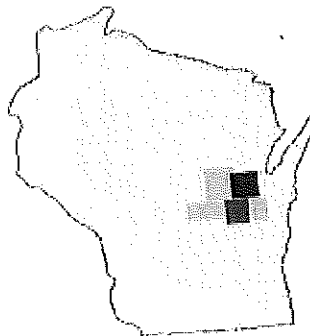
<b>272</b>	<b>5.3%</b>	<b>\$27.72/hr</b>
Jobs (2014)	% Change (2013-2014)	Median Earnings
35% above National average	Nation: 1.6%	Nation: \$26.91/hr

## Regional Trends



	Region	2013 Jobs	2014 Jobs	% Change
•	Region	250	272	5.0%
•	State	1,229	1,286	4.6%
•	Nation	116,437	118,245	1.6%

## Regional Breakdown

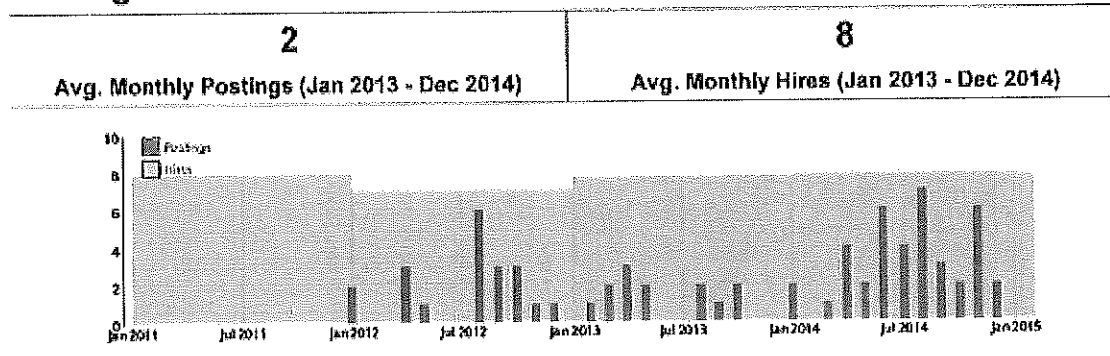


County	2014 Jobs
Outagamie County, WI	213
Winnebago County, WI	50
Waupaca County, WI	<10
Calumet County, WI	<10
Waushara County, WI	<10

## Job Postings Summary

<b>0</b> Unique Postings (Feb 2015) 0 Total Postings	<b>n/a</b> Posting Intensity (Feb 2015)
--	--

## Postings vs. Hires



Occupation	Avg Monthly Postings (Jan 2013 - Dec 2014)	Avg Monthly Hires (Jan 2013 - Dec 2014)
Aircraft Mechanics and Service Technicians	2	8

## Occupation Gender Breakdown



Gender	2014 Jobs	2014 Percent
Males	256	94.0%
Females	16	6.0%

## Occupation Age Breakdown



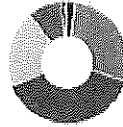
	Age	2014 Jobs	2014 Percent
•	14-18	0	0.1%
•	19-24	13	4.9%
•	25-34	55	20.1%
•	35-44	65	24.0%
•	45-54	89	32.7%
•	55-64	43	15.7%
•	65+	7	2.5%

## Occupation Race/Ethnicity Breakdown



	Race/Ethnicity	2014 Jobs	2014 Percent
•	White (Not Hispanic or Latino)	260	95.7%
•	Hispanic or Latino (All Races)	5	1.7%
•	Asian (Not Hispanic or Latino)	4	1.4%
•	Black or African American (Not Hispanic or Latino)	2	0.8%
•	Two or More Races (Not Hispanic or Latino)	1	0.2%
•	American Indian or Alaska Native (Not Hispanic or Latino)	0	0.1%
•	Native Hawaiian or Other Pacific Islander (Not Hispanic or Latino)	0	0.0%

## National Educational Attainment



	Education Level	2014 Percent
•	Less than high school diploma	2.4%
•	High school diploma or equivalent	27.6%
•	Some college, no degree	38.9%
•	Associate's degree	20.7%
•	Bachelor's degree	9.2%
•	Master's degree	0.8%
•	Doctoral or professional degree	0.5%

## Occupational Programs

	2 Programs (2013)	20 Completions (2013)	21 Openings (2013)
CIP Code	Program		Completions (2013)
47.0607	Airframe Mechanics and Aircraft Maintenance Technology/Technician		14
01.0205	Agricultural Mechanics and Equipment/Machine Technology		6

## Industries Employing Aircraft Mechanics and Service Technicians

Industry	Occupation Jobs in Industry (2014)	% of Occupation in Industry (2014)	% of Total Jobs in Industry (2014)
Scheduled Passenger Air Transportation	118	43.5%	32.1%
Aircraft Manufacturing	62	22.8%	9.6%
Other Support Activities for Air Transportation	28	10.4%	40.4%
Couriers and Express Delivery Services	10	3.8%	1.5%
Nonscheduled Chartered Passenger Air Transportation	<10	2.8%	29.2%

## **Exhibit E**

# Market Outlook: Fleet Growth\* and Volume



## Piston-Engine and Recreational aircraft

U.S Active^ GA\* Fleet  
-0.11% CAGR

U.S Active^ Piston-Engine Fleet  
-0.5% CAGR

U.S Active^ Light Sport Aircraft Fleet  
5.1% CAGR

U.S Active^ Experimental Fleet  
1.4% CAGR



## Turboprop Aircraft

Global Active Turboprop^ Fleet Growth  
1.9% CAGR  
(Aeronautical Repair Station Association)



## Business Jet Aircraft

U.S Active^ Business Jet Fleet Growth  
3.1% CAGR (Honeywell)



The U.S. accounts for about **63%** of the global business jet fleet and will represent more than half of projected global demand for the next five years

**Current U.S Volume**  
**164,765 active^ aircraft (FAA)**

**Current U.S Volume**  
**9,619 aircraft (GAMA)**

**Current U.S Volume**  
**12,055 aircraft (FAA)**

Note: \*Compounded Annual Growth Rates (CAGR) over 2014-2024 period  
^An active aircraft is one that flies at least one hour during the year

# Market Outlook: Fleet Growth\* and Volume



## Piston-Engine and Recreational aircraft

U.S Active^ GA\* Fleet  
-0.11% CAGR

U.S Active^ Piston-Engine Fleet  
-0.5% CAGR



U.S Active^ Light Sport Aircraft Fleet  
5.1% CAGR

U.S Active^ Experimental Fleet  
1.4% CAGR



## Turboprop Aircraft

Global Active Turboprop^ Fleet Growth  
1.9% CAGR  
(Aeronautical Repair Station Association)



## Business Jet Aircraft

U.S Active^ Business Jet Fleet Growth  
3.1% CAGR (Honeywell)



The U.S. accounts for about **63%** of the global business jet fleet and will represent more than half of projected global demand for the next five years

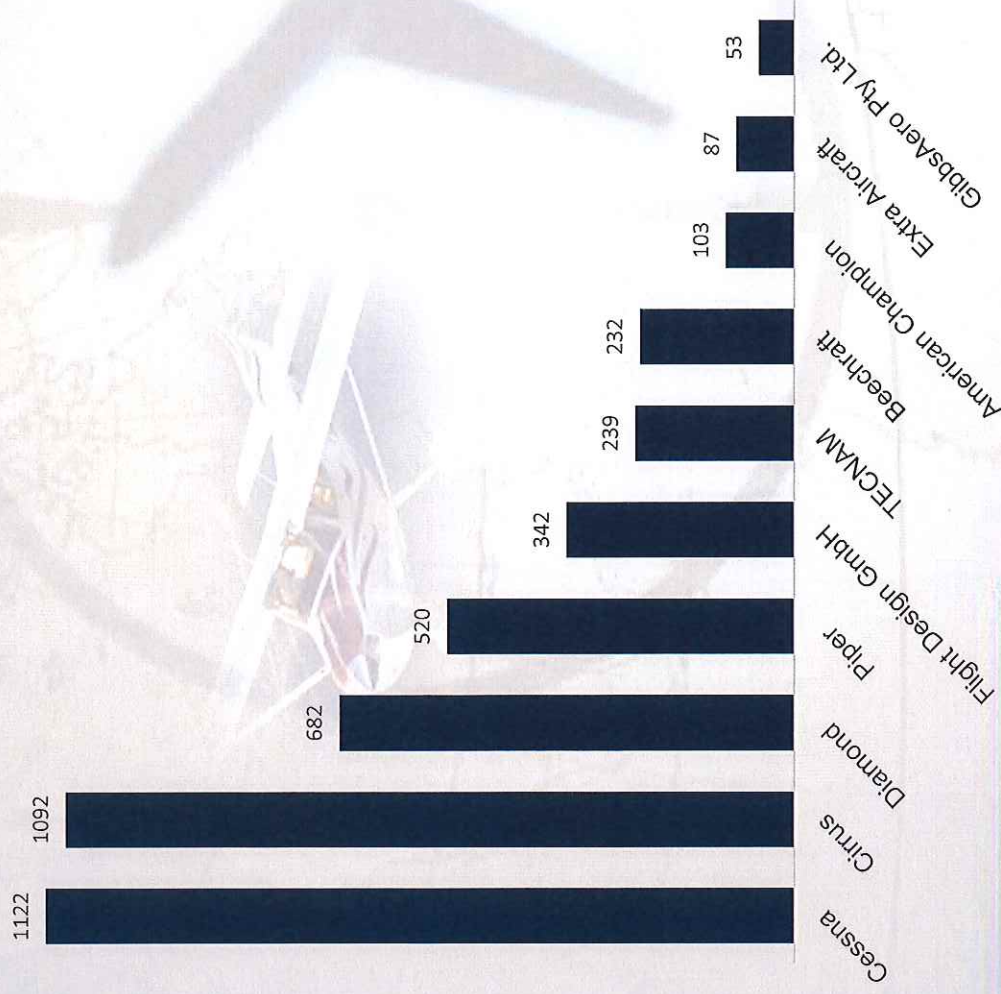
**Current U.S Volume**  
**9,619 aircraft (GAMA)**

**Current U.S Volume**  
**12,055 aircraft (FAA)**

Note: \*Compounded Annual Growth Rates (CAGR) over 2014-2024 period  
^An active aircraft is one that flies at least one hour during the year

## Piston-Engine Aircraft Sales Trends

Worldwide Piston-Engine Airplane Shipments  
By Manufacturer (2011-2014) – units



Worldwide Piston-Engine Airplane Shipments  
By Manufacturer (2011-2014)

	2011	2012	2013	2014
Cessna	413	283	206	220
Cirrus	255	253	276	308
Diamond	185	156	139	202
Piper	104	126	154	136
Flight Design GmbH	89	76	89	88
TECNAM	n/a	n/a	49	190
Beechcraft	54	36	70	72
American Champion	29	18	26	30
Extra Aircraft	n/a	27	29	31
GibbsAero Pty Ltd.	10	14	12	17

Fastest Growing Piston-Engine Aircraft Models

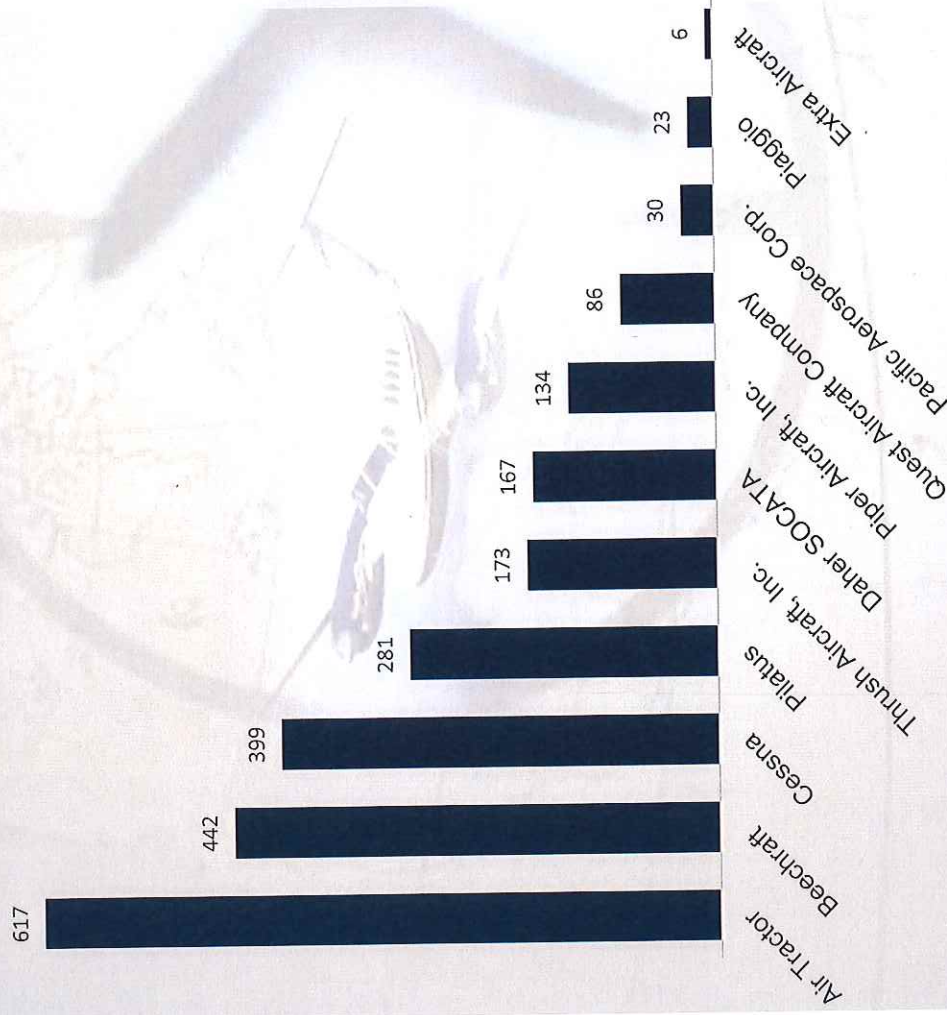
	2011	2012	2013	2014
CE-172S Skyhawk/SP	77	113	106	155
SR22	105	81	112	117
SR22T	102	88	132	160
DA-40	72	93	102	136
PA-28-181 Archer III	2	4	48	45
Tecnam			24	108

Full Breakdown can be found in Appendix B

# Turboprop Aircraft Sales Trends

Worldwide Turboprop Shipments

By Manufacturer (2011-2014) – units



Worldwide Turboprop Shipments

By Manufacturer (2011-2014)

	2011	2012	2013	2014
Air Tractor	130	168	174	145
Beechcraft	92	89	135	126
Cessna	93	107	105	94
Pilatus	69	67	69	76
Thrush Aircraft, Inc.	35	51	51	36
Daher SOCAT	38	38	40	51
Piper Aircraft, Inc.	32	32	34	36
Quest Aircraft	13	15	28	30
Pacific Aerospace	10	10	6	4
Piaggio	14	5	2	2
Extra Aircraft	2	1	1	2

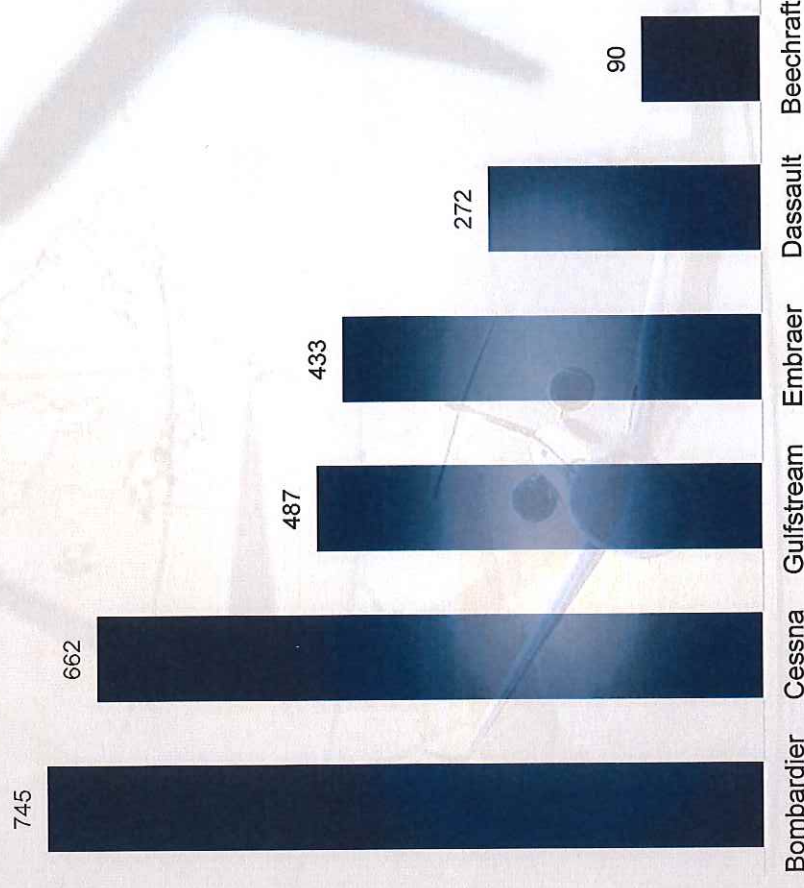
Fastest Growing Turboprop Models

	2011	2012	2013	2014
AT-502B	57	81	70	61
King Air 350	38	40	72	70
CE-208B Grand Caravan	83	96	94	81
PC-12	63	62	65	66
TBM 850 / 900	38	38	40	51

Full Breakdown can be found in Appendix B

# Business Jets Sales Trends

Worldwide Business Jet Shipments  
By Manufacturer (2011-2014) – units



Worldwide Business Jet Shipments  
By Manufacturer (2011-2014)

	2011	2012	2013	2014
Bombardier	182	179	180	204
Cessna	183	181	139	159
Gulfstream	99	94	144	150
Embraer	99	99	119	116
Dassault	63	66	77	66
Beechcraft	52	32	6	n/a

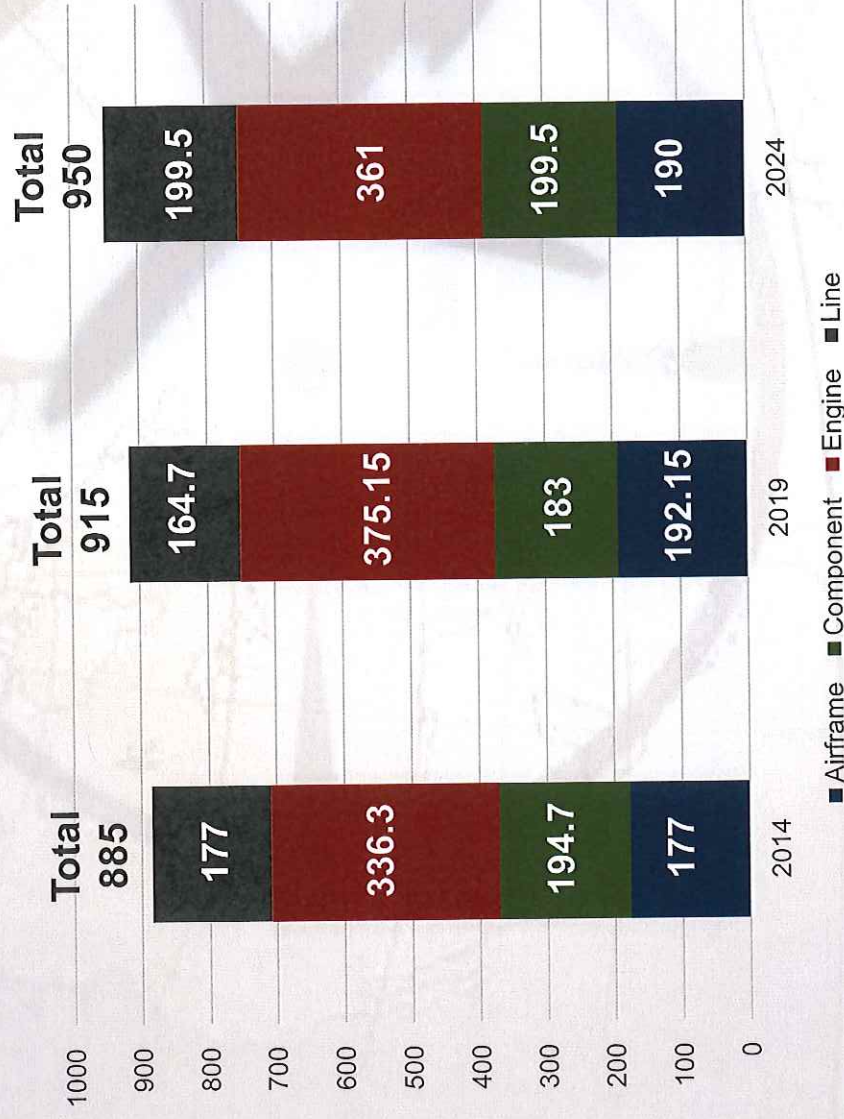
Fastest Growing Business Jet Models

	2011	2012	2013	2014
Challenger 300/350	37	48	55	54
Challenger 604/605	43	34	32	36
G450/650/550	78	83	121	117
Phenom 300	41	48	60	73
Falcon 7X	31	37	43	27
CE-Citation Mustang	43	38	20	8
CE-525 Series	87	84	75	92
CE-560 Citation XLS+	27	31	31	22

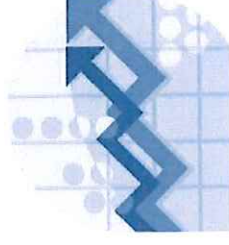
Full Breakdown can be found in Appendix B

# MRO Market Forecast – Turboprops

2014-2024 U.S Turboprop MRO Forecast  
(million USD)



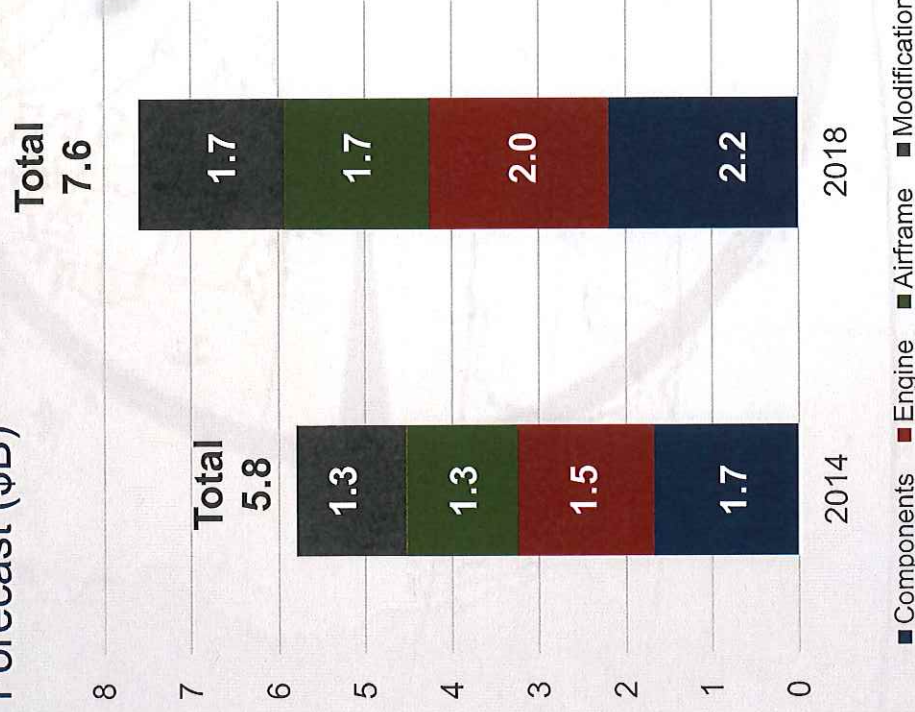
- The MRO market associated with turboprops is expected to grow at **1.5% CAGR** over the 2014-2024 period



**+1.5% CAGR (MRO)**  
**+1.9% CAGR (fleet)**

# MRO Market Forecast – Business Jets

Global BA MRO Market  
Forecast (\$B)

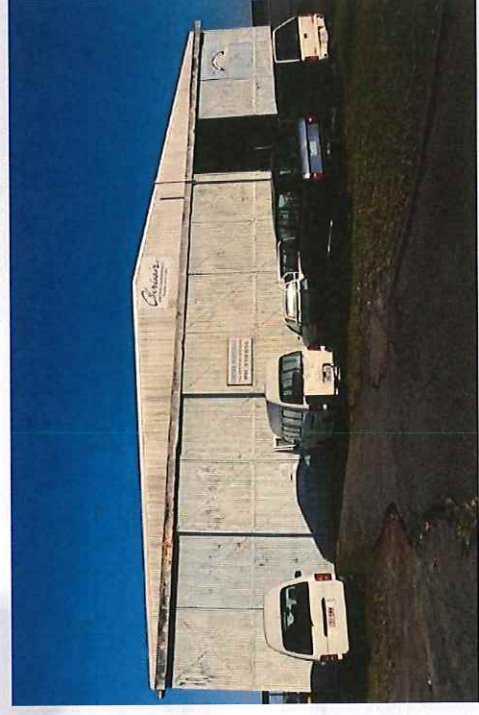


- The BA MRO market is expected to grow at **7.2%** per year through 2018
- The approximate breakdown per MRO activity is the following:
  - Components – 29%
  - Engine – 27%
  - Airframe – 22%
  - Modifications – 22%
- Fastest growing segments are expected to be:
  - Modifications (9.4% CAGR)
  - Components (8.1% CAGR)
  - Airframe (7.8%)
  - Engine (7.7%)

**+7.2% CAGR (MRO)**  
Over the 2014-2018  
period

## MRO Market Forecast – Piston Aircraft

Lack of data makes it hard to estimate MRO market size for this segment: Maintenance for the piston aircraft segment has traditionally been performed by a significant number of smaller businesses making access to public records difficult.



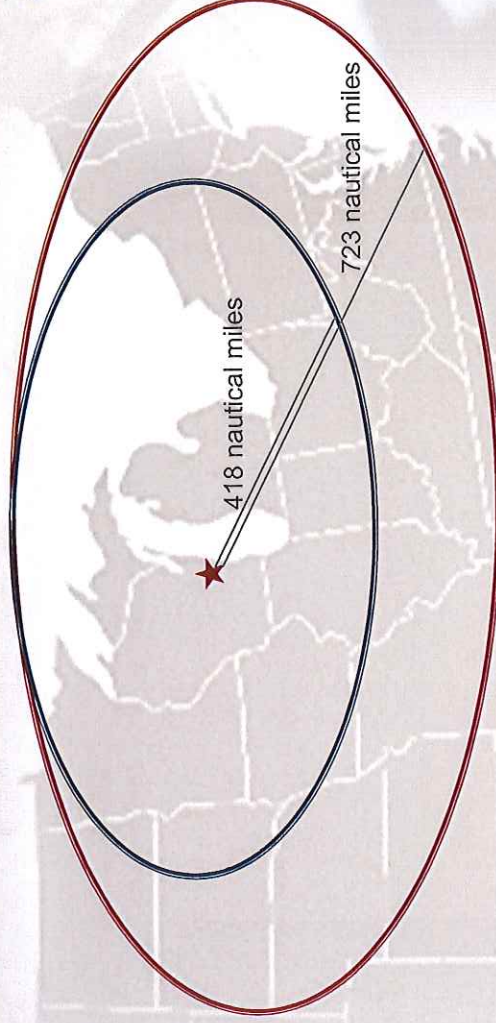
# Targeted Geographic Markets – 21 States

## ZONE A: Primary Market (10)

- Wisconsin
- Illinois
- Minnesota
- Michigan
- Iowa
- Indiana
- Ohio
- Pennsylvania
- New York
- New Jersey

## ZONE B: Secondary Market (11)

- North Dakota
- South Dakota
- Nebraska
- Kansas
- Missouri
- Kentucky
- West Virginia
- Virginia
- Tennessee
- North Carolina
- South Carolina



## ZONE A: Primary Market

## Market Trends and Opportunities

State	Number of Active GA Aircraft	Number of Repair Stations (RS)	Aircraft per Repair Station
Wisconsin	3,846 (5466)	48	80
Ohio	5,132 (7318)	137	38
Illinois	4,958 (7524)	94	53
Michigan	4,829 (6851)	97	50
Minnesota	4,316 (6171)	51	84
New York	4,123	118	35
Pennsylvania	4,116 (5759)	94	44
Iowa	2,206	33	66
New Jersey	2,147	63	34
Indiana	669 (4501)	57	12
*Active and non-active aircraft			

### Based on FAA data

In comparison with most surrounding states, WI has a lower repair capacity (only 1 RS per 80 aircraft),  potential migration of WI-based aircraft to out-of-state RS.

# Market Size

Active Aircraft\* per State

	Primary Geographical Area										Total
	WI	OH	IL	MI	MN	NY	PA	IA	NJ	IN	
Business Jets	192	275	326	308	151	301	247	93	234	220	2,347
Turboprops	93	184	135	131	97	99	109	75	73	156	1,152
Piston	3,561	4,673	4,497	4,390	4,068	3,723	3,760	2,038	1,840	293	32,841
<b>Total</b>	<b>3,846</b>	<b>5,132</b>	<b>4,958</b>	<b>4,829</b>	<b>4,316</b>	<b>4,123</b>	<b>4,116</b>	<b>2,206</b>	<b>2,147</b>	<b>669</b>	<b>36,340</b>

	Secondary Geographical Area										Total
	NC	MO	KS	VA	TN	SC	NE	ND	KY	SD	WV
Business Jets	236	201	196	169	220	71	90	41	71	24	16
Turboprops	185	138	183	240	122	67	54	62	52	48	10
Piston	3,704	3,121	2,971	2,837	2,725	1,505	1,492	1,440	1,256	1,246	661
<b>Total</b>	<b>4,125</b>	<b>3,460</b>	<b>3,350</b>	<b>3,246</b>	<b>3,067</b>	<b>1,643</b>	<b>1,636</b>	<b>1,543</b>	<b>1,379</b>	<b>1,318</b>	<b>687</b>



## Piston

Zone A: 21 states:  
**32,841 aircraft** **55,800 aircraft**



## Turboprops

21 states:  
**2,313 aircraft**



## Business Jets

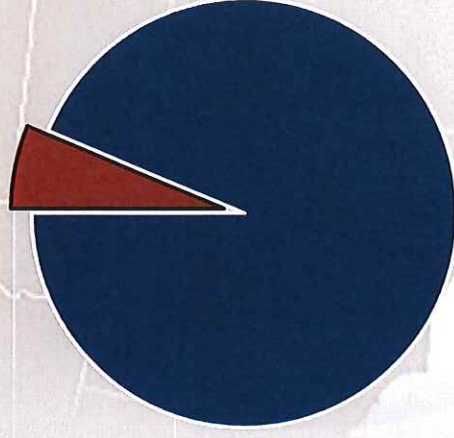
21 states:  
**3,682 aircraft**

## Market Size: WI vs Targeted States

GA Aircraft in Zone A and B (units)

**3,846**  
**(6.2%)**

**57,949**  
**(93.8%)**



■ WI ■ 20 other targeted States

### Piston

WI represents 6.4% (3,561 AC) of the Piston fleet based in zone A and B

### Turboprops

WI represents 4.0% (93 AC) of the Turboprop fleet based in zone A and B

### Business Jets

WI represents 5.2% (192 AC) of the Business Jet fleet based in zone A and B

### State-based aircraft volume:

WI fleet is comparable to other surrounding states

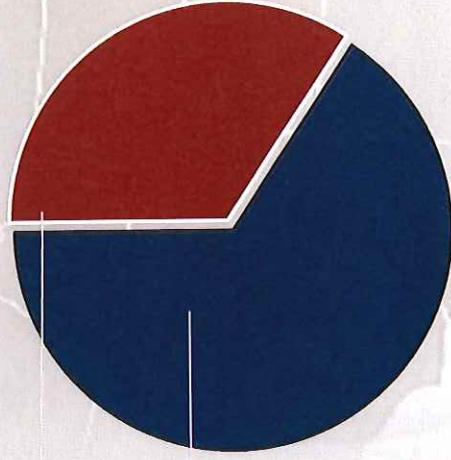
*WI Share: 6.2% of total fleet of aircraft based in zone A and zone B*

## Market Size: Targeted States vs U.S

GA Aircraft in the U.S (Units)

61,795  
(34%)

119,982  
(66%)



■ 21 States ■ Rest of the US

### Piston

Zone A and B represent 34% (55,800 AC) of the US Piston fleet

### Turboprops

Zone A and B represent 37.1% (2,313 AC) of the US Turboprop fleet

### Business Jets

Zone A and B represent 34.2% (3,682 AC) of the US Business Jet fleet

WI is embedded in a region (zone A and B) that hosts **34%** of the total U.S turboprop and business jet fleets

## Market Trends and Opportunities

### Key Takeaways

All together, Wisconsin is embedded in a Region (defined in zone A and B) that houses almost a third (34%) of the U.S GA/BA fleet.

With a 6.2% share, Wisconsin's GA fleet is comparable to (or sometimes greater than) other states situated in the Midwest. However, with 1 repair station per 80 aircraft, the State has one of the lowest aircraft/repair station ratio in the Midwest.

The 10 states comprising the primary geographic area (referred to as Zone A) total 36,340 GA/BA aircraft.

The market data suggest a need for a GA maintenance hub that would concentrate maintenance services in the state of Wisconsin to address local, regional and national demand.

## Targeted Clientele\*

### WI

1 to 2 AC  
(184 owners)  
192 AC

3+ AC  
(8 owners)  
33 AC

4.3% of WI turboprops and business jet owners own 14.4% of WI fleet

### Zone A + B

1 to 2 AC  
(3,679 owners)  
4,084 AC

3+ AC  
(169 owners)  
(2,010 AC)

4.4% of turboprops and business jet owners own 32.9% of the Region's fleet

## Key Takeaways

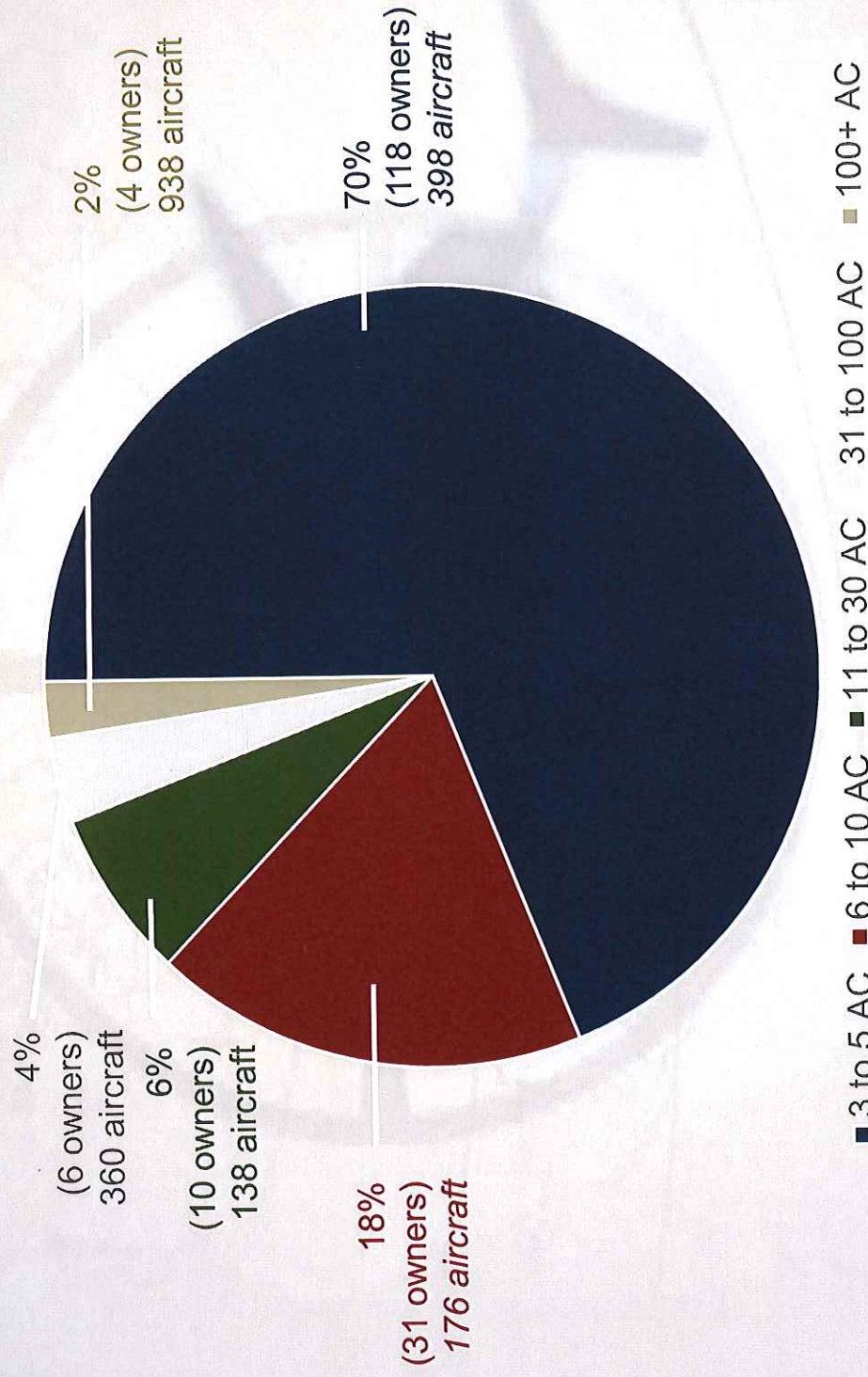
- Turboprop and Business Jet markets are particularly fragmented. 3,848 owners need targeting.
- It is assumed that ELITE will enter the market by securing launch clients with larger fleets.
- Launch clients will provide volume and higher market visibility/credibility.

Source: JETNET

Note: \*Clientele refers to turboprops and business jet owners. Figures do not include piston-engine and other recreational aircraft

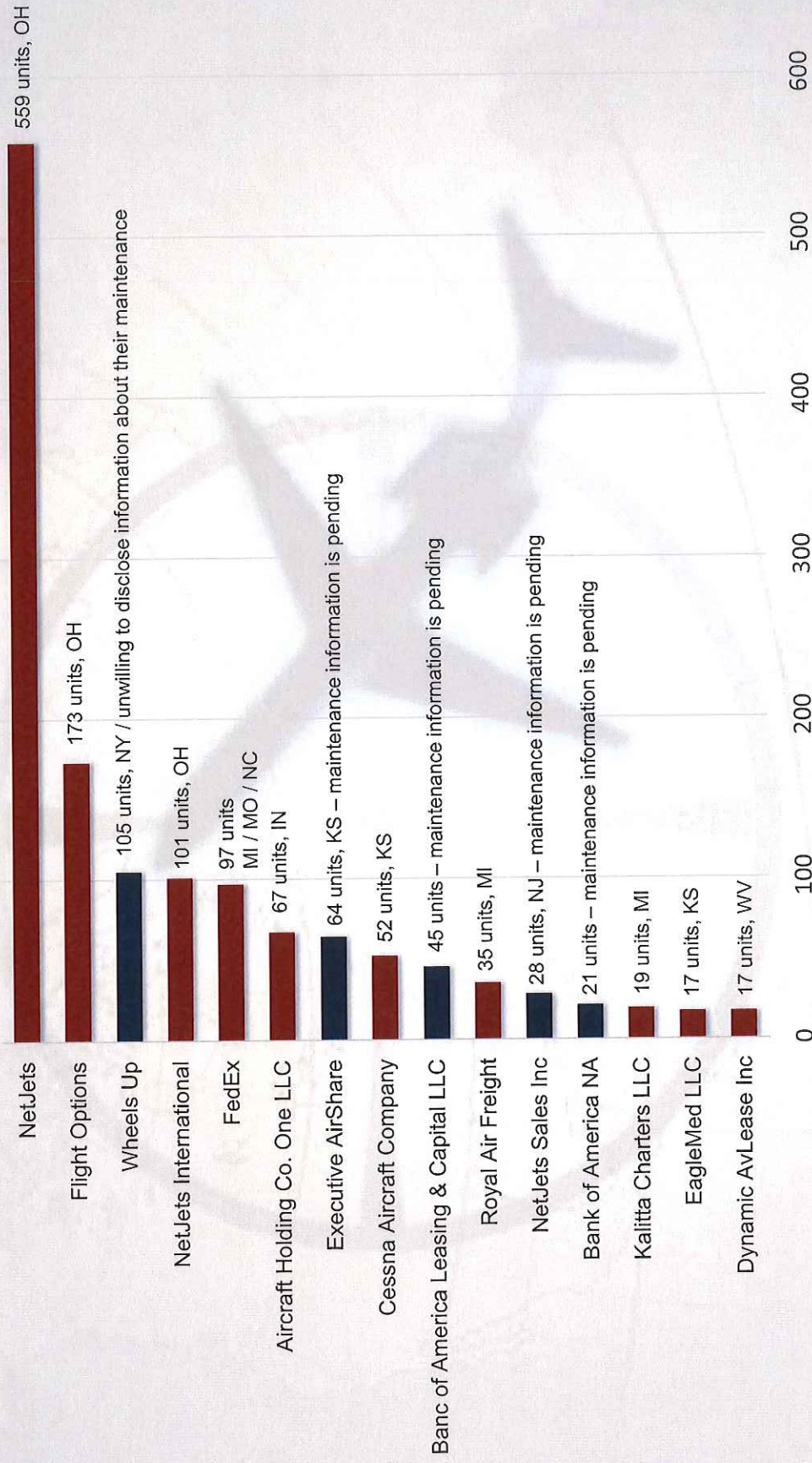
## Targeted Clientele Profile

Owners with 3 Aircraft and more – Targeted Market (Zone A+B)



**NOTE:** Aircraft refers to business jets and turboprops. Figures **do not include** piston-engine and other recreational aircraft.

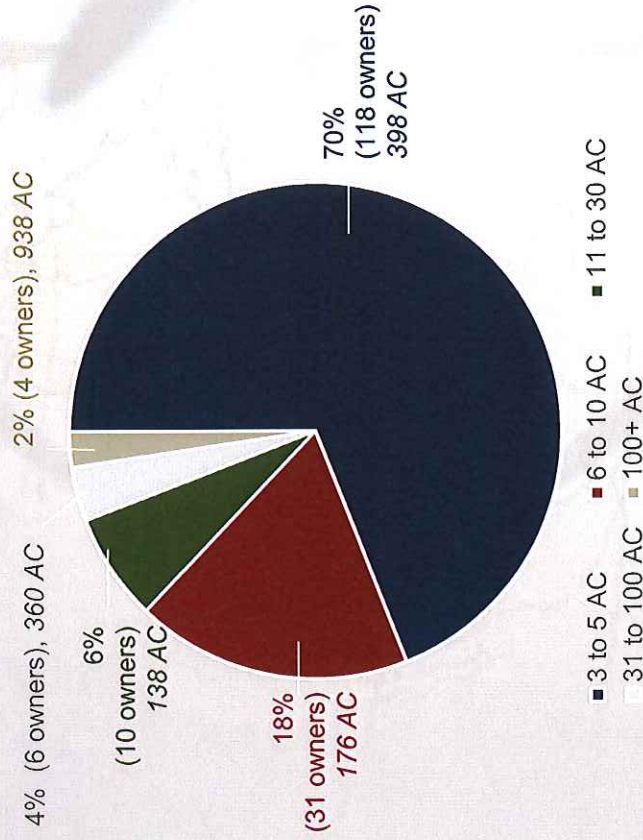
# Top 15 Aircraft Owners



Companies with in-house maintenance

## Targeted Clientele

Clientele with 3 Aircraft and more  
Zone A and B States



**NOTE:** Aircraft refers here to business jets and turboprops

## Takeaways

- Preliminary research and calls suggest that owners with more than 10 aircraft internalize maintenance processes.
- Therefore, ELITE will concentrate efforts on owners whose fleet is comprised of 3 to 10 aircraft to build volume: such fleet sizes do not justify in-house maintenance.
- The size of these client segments has the potential to generate interesting volume.

## Next Steps

- The next weeks will be dedicated to further understanding the target segments and their needs:
  - Identification of owners
  - Contacts and surveys

## Targeted Clientele

Clientele with 3 Aircraft and more  
Zone A and B States



**NOTE:** Aircraft refers here to business jets and turboprops

## Takeaways

- Preliminary research and calls suggest that owners with more than 10 aircraft internalize maintenance processes.
- Therefore, ELITE will concentrate efforts on owners whose fleet is comprised of 3 to 10 aircraft to build volume: such fleet sizes do not justify in-house maintenance.
- The size of these client segments has the potential to generate interesting volume.

## Next Steps

- The next weeks will be dedicated to further understanding the target segments and their needs:
  - Identification of owners
  - Contacts and surveys

# Capabilities Outlook and Opportunities in WI

		Airframe	Engine	Avionics	Landing Gear	Refurb Completion	Paint
Current Capabilities	Piston	<ul style="list-style-type: none"> <li>Major and minor inspections</li> <li>Major and minor structural repairs</li> </ul>	<ul style="list-style-type: none"> <li>Line</li> <li>Hot Section Inspection</li> </ul>	<ul style="list-style-type: none"> <li>Installations, upgrades &amp; modifications</li> <li>Troubleshooting &amp; repair</li> </ul>	<ul style="list-style-type: none"> <li>Inspection &amp; repair</li> </ul>	<ul style="list-style-type: none"> <li>Full service interior shop</li> </ul>	<ul style="list-style-type: none"> <li>Nose to tail aircraft painting</li> </ul>
	Turboprops	<ul style="list-style-type: none"> <li>Major and minor inspections</li> <li>Major and minor structural repairs</li> </ul>	<ul style="list-style-type: none"> <li>Line</li> <li>Hot Section Inspection on PT6</li> <li>Fuel nozzles</li> </ul>	<ul style="list-style-type: none"> <li>Installations, upgrades &amp; modifications</li> <li>Troubleshooting &amp; repair</li> </ul>	<ul style="list-style-type: none"> <li>Inspection &amp; repair</li> </ul>	<ul style="list-style-type: none"> <li>Full service interior shop</li> </ul>	<ul style="list-style-type: none"> <li>Nose to tail aircraft painting</li> </ul>
	Business Jets	<ul style="list-style-type: none"> <li>Major and minor inspections</li> <li>Major and minor structural repairs</li> </ul>	<ul style="list-style-type: none"> <li>Line</li> <li>Hot Section Inspection</li> </ul>	<ul style="list-style-type: none"> <li>Installations, upgrades &amp; modifications</li> </ul>	<ul style="list-style-type: none"> <li>Inspection &amp; repair</li> </ul>	<ul style="list-style-type: none"> <li>Full service interior shop</li> </ul>	<ul style="list-style-type: none"> <li>Nose to tail aircraft painting</li> </ul>
	Warbirds / Vintage	No Specialized Provider in Fox Valley Region					
Experimental		No Specialized Provider in Fox Valley Region					
R/O Additional Capabilities: Observations	Integrated		Major work: Engine overhaul	Bench repair work	Major work: LDG overhaul	Integrated	Integrated

## Exhibit F

**WISCONSIN MRO LISTING**

3rd Millennium Cleaning LLC	Todd	Grafenauer	Prin	2519 S 76th St	Milwaukee	WI	53219	2456	414-321-2247	Aircraft Maintenance & Repair
Adventist World Aviation	Sam	Miller	Prin	9323 W Greenfield Ave	Milwaukee	WI	53214	2733	414-226-5195	Aircraft Maintenance & Repair
Airport Passenger Service	Kevin	Koehn	Owner	1507 Menomonee St	Eau Claire	WI	54703	5982	715-835-0399	Aircraft Maintenance & Repair
Amphib Inc	Tim	McCarter	Pres	9846 52nd St	Kenosha	WI	53144	7429	262-658-4577	Aircraft Maintenance & Repair
Atlantic Aviation Holding Corporation	Harry	Becker	Manager	2525 Aviation Rd	Waukesha	WI	53188	1691	262-549-6150	Aircraft Maintenance & Repair
Aviation Resource	James	Barker	Owner	101 Airport Ave Hngr 2	Cumberland	WI	54829	8708	715-822-5787	Aircraft Maintenance & Repair
Beaver Aircraft Incorporated	Charles	Swain	President	N6469 State Road 26	Juneau	WI	53039	9601	920-386-2636	Aircraft Maintenance & Repair
Blackhawk Aircraft Maintenance Inc	Nicholas	Quint	President	4750 S Columbia Dr	Janesville	WI	53546	9121	608-755-1941	Aircraft Maintenance & Repair
Broderick Summerville	Broderick	Summerville	Owner	10741 W Wren Ave	Milwaukee	WI	53225	2425	262-777-0501	Aircraft Maintenance & Repair
Burlington Air Center Inc	Jake	Remington	President	703 Airport Rd	Burlington	WI	53105	6710	262-763-9500	Aircraft Maintenance & Repair
Claybaugh Aviation	Julia	Claybaugh	Prin	341 Earl Stier Dr	West Bend	WI	53095		262-338-2243	Aircraft Maintenance & Repair
David Flying Service Inc	Don	David	Pres	115 Tennyson St	Potosi	WI	53820	9613	608-763-2707	Aircraft Maintenance & Repair
D'Shannon Aviation				825 W 20th Ave	Oshkosh	WI	54902	6766	920-385-1090	Aircraft Maintenance & Repair
Euroair Aviation	Denis	Stefanek	Owner	1720 E Main St Hngr C30	Reedsburg	WI	53959	1400	608-448-9022	Aircraft Maintenance & Repair
Global Aviation Tech Services Inc	David	Hillila	Owner	7874 S Brill Rd	Superior	WI	54880	8627	715-399-0890	Aircraft Maintenance & Repair
Great Lakes Air Motive Inc				2903 Golf Ave	Racine	WI	53404	1608	262-635-0500	Aircraft Maintenance & Repair
Gulfstream Aerospace Services Corporation	Laura	Meyer	Human Resources	EW6365 Discovery Dr	Appleton	WI	54914	9190	920-735-7000	Aircraft Maintenance & Repair
Guntly Aircraft Repair	Thomas	Guntly	Owner	22031 W 6 Mile Rd	Franksville	WI	53126	9721	262-895-2948	Aircraft Maintenance & Repair
Helicopter Specialties Inc.	James	Freeman	President	4746 S Columbia Dr	Janesville	WI	53546	9121	608-758-1701	Aircraft Maintenance & Repair
Hummingbird Helicopters	John	Feeney	Pres	4750 South Columbia Drive	Janesville	WI	53546	9125	608-290-1568	Aircraft Maintenance & Repair
Kenosha Aero Inc	Robert	Jones	President	9420 52nd St	Kenosha	WI	53144	7498	262-658-2025	Aircraft Maintenance & Repair
M/A Inc				100 N Westhaven Dr # D	Oshkosh	WI	54904		920-426-2001	Aircraft Maintenance & Repair
Merrill Flying Services Inc	Lugino	Dalessandro	President	4556 W Marty Lake Rd	Park Falls	WI	54552	6212	715-583-4533	Aircraft Maintenance & Repair
Midwest Turbine Service, LLC				4200 County Road U	Hartford	WI	53027	9497	262-673-7163	Aircraft Maintenance & Repair
Myers Aviation Inc	Steve	Myers	President	1684 River Mill Rd	Oshkosh	WI	54901	2792	920-231-9772	Aircraft Maintenance & Repair
New Richmond Aviation Inc	Richard	Hoke	Pres	625 W Hanger Rd	New Richmond	WI	54017	6012	715-246-2000	Aircraft Maintenance & Repair
Noble Aviation LLC	Rodger	Shadick	Member	1332 Adams Rd	Eagle River	WI	54521	8023	715-477-0719	Aircraft Maintenance & Repair
Pederson Aircraft Inc	Richard	Pederson	President	N6490 County Road I	Tony	WI	54563	9747	715-532-6276	Aircraft Maintenance & Repair
Plane Safe Aircraft Maintenance Inc	Sam	Cryer	Prin	503 Bluemound Rd	Waukesha	WI	53188	1628	262-547-1800	Aircraft Maintenance & Repair
Point Aviation				3111 County Road B	Mineral Point	WI	53565	9224	608-987-3591	Aircraft Maintenance & Repair
Rapco, Inc.	Michael	White	Chief Executive Officer	445 Cardinal Ln	Hartland	WI	53029	2332	262-367-2292	Aircraft Maintenance & Repair
Rays Aircraft Services	Robert	Seifert	Pres	N8748 Garfield Rd	Holmen	WI	54636	9229	608-526-4899	Aircraft Maintenance & Repair
Seifert Skyways Inc	Doug	Drescher	President, Finance	N1947 670th St	Bay City	WI	54723	8525	715-594-3041	Aircraft Maintenance & Repair
Signature Flight Support Corporation				923 E Layton Ave	Milwaukee	WI	53207	5236	414-294-0409	Aircraft Maintenance & Repair
SOUTHWEST AIRLINES				5300 S Hollow	Milwaukee	WI	53207		262-210-7361	Aircraft Maintenance & Repair
Specialty Aero Services LLC	Patrick	Witzeling	Principal	7070 Mallard King	Waterford	WI	53185	1976	262-895-4840	Aircraft Maintenance & Repair
St Croix Valley Aviation	Clayton	Pugsley	Prin	499 Simmon Dr	Oscoda	WI	54020	5854	715-294-3600	Aircraft Maintenance & Repair
Stol Aviation Inc	Randy	Puen	Owner	1789 112th Ave	Hammond	WI	54015	5417	651-343-9465	Aircraft Maintenance & Repair
Sunshine Aircraft Repair Inc	Howard	Siedlecki	Pres	10460 52nd St	Kenosha	WI	53144	7434	262-656-7051	Aircraft Maintenance & Repair
Sylvania Aero Enterprises Corp	Robert	Demski	Pres	2624 S Sylvania Ave	Sturtevant	WI	53177	2108	800-310-2517	Aircraft Maintenance & Repair
Telford Aviation, Inc.	Anthony	Rodgers	Dir	6135 S Jasper Ave Stop 1	Milwaukee	WI	53207	6286	414-877-1300	Aircraft Maintenance & Repair
Terry's Aero Inc	Terry	Rogers	President	1703 W Airport Rd	Janesville	WI	53546	9123	608-758-2780	Aircraft Maintenance & Repair
The Cessna Aircraft Company	Paul	Boucher	Business Manager	210 E Citation Way	Milwaukee	WI	53207	6291	414-744-1500	Aircraft Maintenance & Repair
Touch & Go Aviation Inc	Rob	Driver	President	W4711 Hwy 59	Monroe	WI	53566		608-329-7777	Aircraft Maintenance & Repair
Tromblay Tool, LLC	William	Tromblay	Member	W2728765 Hillview Dr	Mukwonago	WI	53149	9649	414-313-5542	Aircraft Maintenance & Repair
Vanguard Aerospace LLC	Jerrold	Van Buren	Mng Mbr	813 Ela Ave	Waterford	WI	53185	4237	414-418-9569	Aircraft Maintenance & Repair

## Exhibit G

# FOX VALLEY REGION COLLABORATIVE AEROSPACE CLUSTER DEVELOPMENT MEMORANDUM OF UNDERSTANDING

## I. Background

The East Central Wisconsin Regional Planning Commission was the recipient in 2013 of a federal grant from the Department of Defense, Office of Economic Adjustment (DoD-OEA) following cuts in defense spending which resulted in the loss of more than 2000 direct jobs at Oshkosh-based DoD contractor Oshkosh Corporation and hundreds more in the regional economy. The purpose of the grant was twofold: to provide direct assistance to suppliers and employees in the region and to assist with economy diversification efforts already underway. One such diversification effort was to develop a business cluster focused on aerospace to better leverage significant regional assets to support such a cluster. Leaders in Oshkosh had begun work on this effort in 2009 and financial support for continued planning work on the project was provided through the DoD-OEA grant.

DoD-OEA provided funding support for a study to determine which types of aerospace businesses were best suited for the region and to devise an aerospace cluster development plan. The airports included in the study are Wittman Regional Airport in Oshkosh, Appleton International Airport in Appleton, Fond du Lac County Regional Airport in Fond du Lac and Austin Straubel International Airport in Green Bay (Partner Airports).

DoD-OEA also provided funding for the Partner Airports and the communities in which they are located to determine how best to work with each other collaboratively to develop the aerospace business cluster on a regional level ("Aerospace Cluster"). The Partner Airports and their communities (the "Fox Valley Region") also understand the value of developing the Aerospace Cluster regionally. The Fox Valley Region will be stronger and the Aerospace Cluster more successful if we work together rather than individually or against each other or in competition with each other.

Accordingly, the Partner Airports wish to enter into a Memorandum of Understanding setting forth their agreement with respect to the Aerospace Cluster

(MOU). In addition, the airport directors and economic development professionals in the Fox Valley Region also wish to enter into a Code of Conduct with respect to the Aerospace Cluster, which is set forth as Exhibit A to this MOU.

## **2. Agreement**

A. Collaborative Cluster Development. The Partner Airports agree to collaborate with each other to develop the Aerospace Cluster.

B. Role of Wisconsin Aerospace Partners. It is recognized that a neutral party is needed to assist with Aerospace Cluster development efforts. Wisconsin Aerospace Partners ("WAP") is a state-wide industry-led organization created with the purpose of advancing the development of aerospace businesses, opportunities and resources in Wisconsin. It is an independent, private not for profit corporation funded primarily by industry. The Partner Airports agree that WAP will have responsibility to market the region to advance the Aerospace Cluster and function as the initial point of contact for prospects interested in the region; provided, however, so long that WAP has one or more staff members dedicated to supporting the Fox Valley Region Aerospace Cluster. WAP will share information with prospects about each Partner Airport and it will be up to the prospect to choose its location. Once the prospect has chosen its location, the Partner Airport takes responsibility for handling that prospect. Other Partner Airports will not contact a prospect directly before or after it has made a location decision except at the direction of WAP.

C. Regional Aerospace Cluster Development Council. The Partner Airports agree to join and participate in the Regional Aerospace Cluster Development Council ("Aerospace Cluster Council"), a committee of WAP. Each Partner Airport shall appoint one designee to serve on the Aerospace Cluster Council. The Aerospace Cluster Council shall have responsibility for providing guidance on Aerospace Cluster development efforts.

D. Deal Team Designee. The Partner Airports agree to designate a staff person who will participate on a regional "deal team" which will be the point of contact for Aerospace Cluster activities and a liaison to WAP. The deal team designee will be

responsible for providing WAP information about its Airport and community when requested and work with WAP on Aerospace Cluster marketing efforts.

E. Joint Marketing. The Partner Airports agree to jointly market the region first as a destination for aerospace related businesses, and their individual airport second. Each Partner Airport shall work with WAP to develop marketing materials and to secure funding to support regional marketing.

F. Code of Conduct Approved. The County approves the Code of Conduct, attached, and directs the Airport Director to sign it.

G. Independence Preserved. Nothing in this MOU shall prevent a Partner Airport from promoting and marketing its airport independent from the cluster marketing efforts or from communicating with prospective prospects which contact the respective airport directly for information.

Dated this \_\_\_\_ day of \_\_\_\_, 2016

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Mark L. Harris, Winnebago County Executive

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Allen J. Buechel, Fond du Lac County Executive

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Thomas Nelson, Outagamie County Executive

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Troy Streckenbach, Brown County Executive

# **FOX VALLEY REGION COLLABORATIVE AEROSPACE CLUSTER DEVELOPMENT CODE OF CONDUCT**

## **1. Introduction**

This communities of Oshkosh, Appleton, Fond du Lac and Green Bay, Wisconsin ("Fox Valley Region") have determined that it is desirable to collaborate to establish and develop a regional aerospace business cluster ("Aerospace Cluster"). Each of the counties in which these communities are located have signed a separate Memorandum of Understanding in connection with the Aerospace Cluster which sets forth their agreement with respect to joint marketing of the region and staff support for the Aerospace Cluster (attached as Exhibit A). The airports involved in the Aerospace Cluster development are Wittman Regional Airport, Fond du Lac County Airport, Appleton International Airport, and Austin Straubel International Airport ("Partner Airports").

This Code of Conduct ("CoC") represents the standards that each signatory participating in the Aerospace Cluster supports and practices in its daily conduct of business. The signatories are: Peter Moll, Airport Director, Wittman Regional Airport, Abe Weber, Airport Director, Appleton International Airport, Sam Tobias, Planning Director, Fond du Lac County, Tom Miller, Airport Director, Austin Straubel International Airport, Jason White, CEO, Greater Oshkosh Economic Development Corporation, Steve Jenkins, CEO, Fond du Lac County Economic Development Corporation, Manny Vasquez, Vice President, Fox Cities Regional Partnership and Peter Zaehringer, Vice President, Economic Development, Green Bay Chamber ("Participants")

## **2. Purposes**

The Participants wish to make the Fox Valley Region attractive to aerospace businesses and work collaboratively to develop the Aerospace Cluster. While the Participants want to encourage businesses to locate at their respective airports, they prefer not to do so at the expense of other Partner Airports. Inevitably, some businesses, for their own reasons, will choose to explore relocation between Partner Airports or location in at one Partner Airport over another. In cases of relocation, a

balance should be struck to allow the first Partner Airport the opportunity to retain the business and the second Partner Airport/s the opportunity to attract it. However, if a business has not expressed an interest in relocating, the Participants believe that Partner Airports should not actively pursue or “poach” that business to encourage it to move from its current location.

Also, the Participants recognize that we are a regional economy and the location of a business in one community is not a deterrent to other communities in the region but a benefit to all communities. The Participants also recognize that we will be more attractive to businesses and site selectors if we collaborate and join together as a region, rather than as individual communities.

The Wisconsin Aerospace Partners (“WAP”) is a new industry led consortium with a mission to advance the aerospace industry in Wisconsin. It is believed that WAP will be well positioned to provide assistance in developing the Aerospace Cluster within the next twelve (12) months.

The purpose of this CoC is to: (1) facilitate interactions between the Partner Airports to promote regional aerospace cluster development; (2) agree on attraction protocols or the handling of prospects; (3) express the commitment of the Participants that they will not actively pursue the relocation of a business that has not indicated that it is considering a move from its current location at a Partner Airport; and (4) in instances where a business is exploring a possible move, establish procedures to balance the interests of the business’ home Partner Airport and other Partner Airports.

### **3. Preamble**

We, the Participants, set forth the following guiding principles of behavior, standards of conduct and protocols to guide efforts in promoting the long-term economic health of the Fox Valley Region through collaborative development of the Aerospace Cluster. We fully realize that no Code of Conduct is of value without an inherent level of trust in the integrity of one another and a commitment from each of us to conduct ourselves at the highest levels of professionalism. The Participants acknowledge the trust and respect for one another and in that spirit, set forth this Code of Conduct.

#### **4. Guiding Principles**

- A. Regionalism. We are committed to the promotion of the Fox Valley Region as a desirable business location for new and expanding aerospace related businesses. We understand we will be stronger if we work together as a region rather than individually or against each other. We shall endeavor to sell the Fox Valley Region first and our individual communities and Airports second when it comes to the Aerospace Cluster. We will not engage in attraction efforts that encourage relocation of businesses between Partner Airports or that denigrates a Partner Airport.
- B. Transparency. We are committed to sharing among our Partner Airports as much information as is necessary and prudent on any activity undertaken in connection with the Aerospace Cluster. Our guiding principle shall be that “more information is better than less.”
- C. Business in the Driver’s Seat. Location choices are to be driven by the business seeking to locate (or relocate) in the Region.
- D. Confidentiality. We will keep in confidence information shared by another Partner Airport. We also understand that prospects we are working with may request confidentiality and we each agree to respect that confidentiality and the confidentiality pledges of our Partner Airports.

#### **5. Pledges and Protocols**

- A. Attraction Protocol. We are committed to locating aerospace businesses in the Fox Valley Region. We agree to permit WAP to undertake initial prospect intake to determine the prospect’s needs and share information about each Partner Airport. It is up to the prospect to choose its location. We will not solicit a prospect already working with another Partner Airport/s. In the event that our

Airport/community cannot meet the needs of a particular prospect we shall communicate with our fellow Partner Airports in an effort to meet the prospect's needs elsewhere in the Fox Valley Region.

- B. Anti-Poaching Pledge. We agree that, where a business has not indicated that it is considering a move from its current location at a Partner Airport, we will not actively pursue that business to encourage it to re-locate. "Actively pursue" means to initiate contact with the business directly, with the intent of luring the business, through cold calls, visits, mail solicitations, or marketing directed specifically at that business. This does not preclude a community from generally marketing itself as a good place to do business or generally advising its residents about the benefits of locating their businesses in their home communities.
- C. Relocation Protocol. In the event a business located at another Partner Airport contacts any Participant about a possible location at the Partner Airport in their jurisdiction, we agree we will: 1) advise the business that we want to assist the business so that their needs can be met; 2) advise the business of the terms of this COC; 3) ask the business whether it has advised the Partner Airport or the community in which the Partner Airport is located that they are considering relocation and, if not, whether it objects to our advising the Partner Airport/community of the inquiry, if the business does not object, we will promptly notify the Participants from that community of the Partner Airport in writing of the inquiry; 4) we will not propose or offer incentives to the business in support of a relocation until either the business verifies that it has notified the its home Airport of the possible re-location or we have given that notice to that Airport and the Airport has had an opportunity to respond. This protocol applies only to businesses with five (5) or more employees.

## 6. General

- A. Review, Renewal, Withdrawal. This CoC shall remain in effect with respect to a particular Participant until that Participant advises WAP in writing of its intent to withdraw from the CoC. Such withdrawal shall be effective as of the date of the notice. This CoC shall be reviewed and acknowledged by Participants on an annual basis and such review and acknowledgement shall be communicated in writing to WAP.
- B. Modification. Should any Participant desire a modification to this CoC, it shall advise WAP of this desire in writing. WAP shall then advise all Participants in writing of the proposed modification and request their approval or disapproval of it. Modifications shall be approved by a majority of Participants. If a Participant does not agree with an approved modification, it may withdraw from this CoC.

Agreed to this \_\_\_\_ day of \_\_\_\_\_, 2016 by

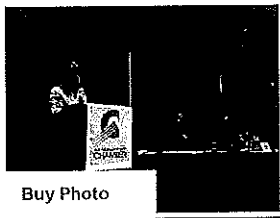
## Exhibit H

# Regional collaboration key to economic development



Jeff Bollier, Press-Gazette Media

7:39 p.m. CDT August 13, 2015



(Photo: Jeff Bollier/Press-Gazette Media)

Stronger collaboration and marketing are needed to boost regional economic development efforts in Brown County and the Fox Valley.

That was the message four site selectors relayed to local and regional economic development leaders Thursday after they spent three days with business executives, educators and community leaders from Green Bay, Appleton, Oshkosh and surrounding communities.

"You've got to talk about your success stories. We went up and down the Fox River in a helicopter, and I didn't know any of that stuff existed. It's just not out there," said Brad Migdal, executive managing director for Transwestern, a Chicago-based commercial real estate firm. "We're bombarded by economic developers on a continual basis trying to share their success stories. You have to share your information."

Based in Chicago, Migdal is one of 275 site selectors in the United States whose job is to help companies find the right community for future factories, offices, call centers and other business operations.

He said Northeastern Wisconsin boasts many of the assets companies seek, including a solid workforce, available land, resources and an improving business climate. But he said the state and region fall far short of states like Michigan and Indiana when it comes to delivering a unified economic development message.

"There's no big problem to fix here, but there's also plenty of room for improvement," Migdal said. "I heard the message from everyone else, but I still don't know what the message from Wisconsin is. These efforts are not led by Green Bay's strategy or Appleton's strategy; it's led by the state. ... You are going to do a lot better if you work together as a regional alliance."

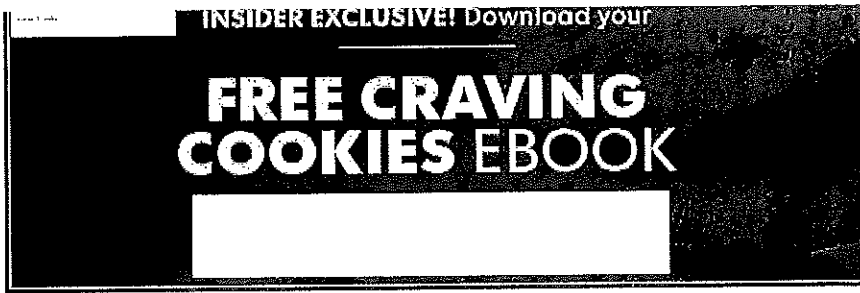
Peter Zaehring, the Greater Green Bay Chamber's vice president of economic development, said he received the site selectors' message loud and clear.

"We have to work on marketing, but we do have the assets and industry to give us some bragging rights," he said. "We also need to get to know (site selectors). If you don't know them, you're not going to be part of the original evaluation process."

Although the site selectors may have called for more collaboration and better marketing, some of that cooperation is already happening, as evidenced by the partnership that helped produce the site selectors' tour of the region, said Fox Cities Regional Partnership Vice President for Existing Industry Services Manny Vasquez.

The tours and Thursday's summit were co-sponsored by the Greater Green Bay Chamber and Fox Cities Regional Partnership.

"It's great when you have two neighboring communities that typically compete for business come together to deliver a cohesive message," Vasquez said. "We hope to continue to do this into the future. We're very excited about what this means to the region and taking it a step further as we continue to collaborate."



Site selectors' role in economic development is relatively low profile, but NCS International President Jim Beatty said companies like his play a role in about 60 percent of business development decisions.

Beatty, an Omaha-based consultant, helps place call centers, offices and information technology operations. The tour of the region was his first experience in Wisconsin, but he said it was a solid first step toward raising the region's profile.

"I would have no hesitation about putting Wisconsin on a list and looking specifically at this area," Beatty said. "A visit like this enhances my ability to represent the area to clientele. Each decision will come down to how an area compares to others, but I would be excited to bring a client here."

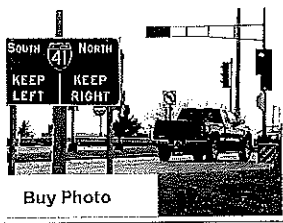
Aliquantus Consulting President Alison Benton, a Dallas-area-based site selector, agreed that the state and the region need to streamline marketing efforts, highlight the workforce's capabilities, speed up the response to companies' needs and plan for future growth.

"Companies need to know there's a pipeline of workers, but also that there's customized labor training when they need to upgrade employee skills," she said.

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# Branding could attract businesses to I-41

Nate Beck, Gannett Wisconsin Media 10:52 a.m. CST December 15, 2015



(Photo: Doug Rafalik/Action Reporter Media)

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Among the factors that impede outside development in the Fox Valley along Interstate 41 is the unknown. Companies unfamiliar with the area don't know the corridor's advantages. It appears as a blank space to them, site selectors say.

The answer to combat this perception — and compete with out-of-state business regions — could be simple: better branding.

For the last few months, economic development leaders from Appleton, Green Bay, Oshkosh, Fond du Lac and in between have met regularly to flesh out how to better market the Fox Valley region. They hope to turn the Interstate 41 corridor into a strip of profitable businesses.

Wanting better branding of the Fox Valley isn't new. But actually doing it has been difficult. Branding strategies have flopped in the past due to sniping among economic development leaders and communities.

Steve Jenkins, president of the Fond du Lac County Economic Development Corporation, said northeast Wisconsin can't compete with neighboring states' business sectors if communities here don't approach economic development as a unit.

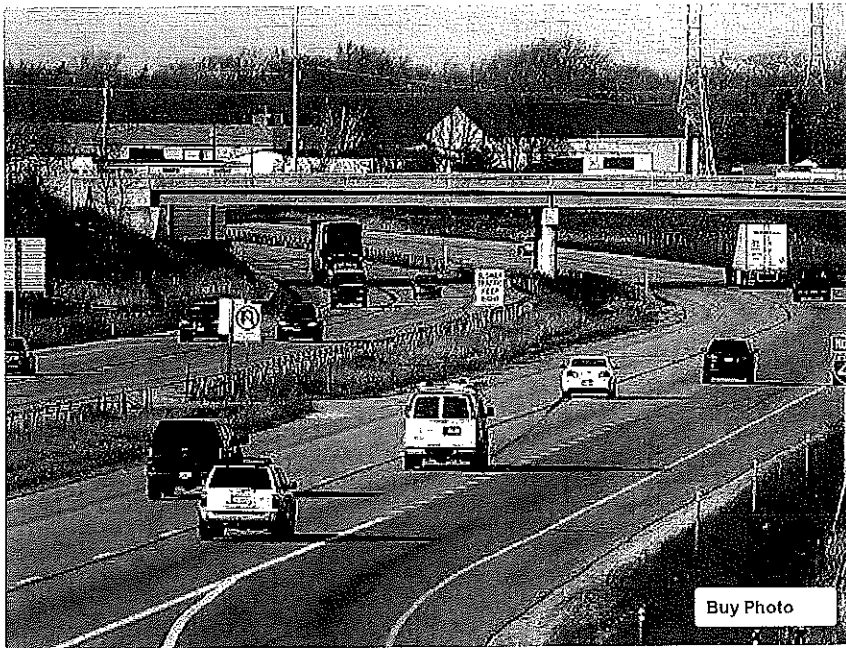
## New protocol

For years, cities in northeast Wisconsin have competed with one another to attract businesses to their area, said Jerry Murphy, executive director of The New North, an economic development firm that covers 18 counties in northeast Wisconsin. But this slowed the process and bred animosity.

Under a new protocol, The New North filters business site proposals submitted by more than 200 lawyers, developers and other professionals who deal in real estate to draft a list of companies that might make a good fit along the Interstate 41 corridor.

Developers answer site inquiries in about 36 hours, down from a wait of up to two weeks, as it used to be, Murphy said. The New North then creates a short list of best sites based on company needs.

That means better service for prospective companies, and less in-fighting among communities across the area, Murphy said. To attract businesses, northeast Wisconsin pitches itself as a region, because a new company, say, in Oshkosh or Fond du Lac benefits cities throughout the Fox Valley.



In the past, cities have worked separately and selfishly when trying to attract out-of-state businesses to drop roots along Interstate 41, experts say. A new protocol has been put in place by an economic development firm that some contend is a more successful approach. (Photo: Doug Raflik/Action Reporter Media)

"We can broadcast the merits of the region," he said. "More is better. We need more people getting involved. More people taking ownership."

Rob Kleman, senior vice president of economic development at the Oshkosh Chamber of Commerce, said that through regular meetings, regional developers hope to figure out how to better tell the Fox Valley's story when marketing outside of Wisconsin.

"We would be developing branding, not to compete but to enhance what we already have," he said. "We have to be aggressive."

Asked how Wisconsin could better compete with surrounding states to attract business, Gov. Scott Walker, speaking Dec. 2 at the New North summit in Oshkosh, said the state remains "heavily dependent" on manufacturing. The state must fortify that industry, while seeking ways to diversify, he said.

"We need to continue to strengthen manufacturing for the 21st century," he said. "At the same time, we need to do more to diversify our economy, whether it's clean water, clean energy, whether it's looking at food and beverage manufacturing. It's a mix of things."

### Marketing the corridor

Wisconsin's technical college system has effectively retrained workers to fill high-demand jobs, and executives are accessible and receptive to growth in new and existing industries, said Brad Migdal, executive managing director for Transwestern, a Houston-based real estate firm, and NCS International President Jim Beatty, an Omaha-based site selector.

But before they toured northeast Wisconsin in August with a group of site selectors, neither Migdal nor Beatty knew that. Northeast Wisconsin hasn't really competed with neighboring states in attracting businesses.

When scouting a location for a company, Beatty chiefly considers a region's available workforce and what skills those workers have. Among the last items on that list are a state's laws that support business and tax incentives — these are "icing on the cake,"

"There is no level of incentives that will make it worth it to relocate," Beatty said.

In general, site selectors don't see the Fox Valley as a place to locate businesses, in part because of poor marketing.

"There had not been an effort to market the region," Beatty said. "This is economic development. If you don't tell the story, you're already behind."

### **Building momentum**

Momentum matters, Beatty said. Site selectors tend to hone in on industry clusters.

Beatty said the region's future could be in industries like food processing — think the Grande Cheese headquarters under construction in Fond du Lac — or advanced manufacturing, which has been hiring people with tech backgrounds.

Migdal said there may be a misconception that the tip of this Interstate 41 corridor ends deep in the Northwoods. Green Bay is less than three hours from Milwaukee, and there's a fairly dense cluster of communities in between.

Wisconsin is moving in the right direction, Migdal said. The state has strong scruples in industries like manufacturing. The challenge, he said, is communicating locally, and broadcasting to industries nationally, that success at a company in Oshkosh and Fond du Lac means success across the valley.

"Wisconsin is a place where people make things with their hands," Migdal said.

"Wisconsin needs to show these stories."

*Reach Nate Beck at ☎ 920-858-9657 or [nbeck@gannett.com](mailto:nbeck@gannett.com); on Twitter: @NateBeck9*

# Exhibit I

	A	B	C	D	E	F	G	H	I
1	<b>Aerospace Cluster Development Budget - MRO and AM 2016-18</b>								
2									
3				2016		2017		2018	
4	Revenue								
5			Department of Defense Grant (applied for)	\$ 565,446.00		\$ 459,554.00		\$ -	
6			City of Oshkosh	\$ 20,601.00	match/in kind	\$ 20,601.00	match/in kind	\$ -	
7			Greater Oshkosh EDC	\$ 36,852.00	match/in kind	\$ 36,852.00	match/in kind	\$ -	
8			Wisconsin Aerospace Partners/WEDC (proposed)	\$ -		\$ -		\$ 100,000.00	
9			Project Partners	\$ 10,000.00	marketing	\$ 20,000.00	marketing	\$ 120,000.00	
10			Revenue from Operations	\$ -				\$ 50,000.00	
11			Reserve	\$ -		\$ -		\$ 868.00	
12			<b>Total</b>	\$ 632,899.00		\$ 537,007.00		\$ 270,868.00	
13	Expenses								
14			<b>Staff</b>						
15			Cluster Director Salary and Benefits	\$ 121,500.00		\$ 127,575.00		\$ 127,575.00	
16			Greater Oshkosh EDC CEO	\$ 44,862.00	match/comp	\$ 45,726.00	match/comp	\$ -	
17			City of Oshkosh Community Dev Dir	\$ 20,601.00	match	\$ 20,601.00	match	\$ -	
18			Greater Oshkosh Comm Dir	\$ 9,936.00		\$ 10,433.00		\$ -	
19			Administrative Support .5	\$ 22,080.00		\$ 23,184.00		\$ 25,000.00	
20			Interns	\$ 10,000.00		\$ 10,000.00		\$ 5,000.00	
21			<b>Contract - Wisconsin Aerospace Partners</b>						
22			Manufacturers' Roundtable	\$ 19,200.00		\$ 19,200.00		\$ 20,000.00	every other year
23			Supplier Forum	\$ 37,100.00		\$ 37,100.00			every other year
24			Additive Manufacturing Symposium	\$ 42,450.00		\$ 59,950.00	incl video	\$ 45,000.00	
25			<b>Contract - Angels on the Water</b>						
26			Aerospace Fund Network Template and Fund	\$ 151,400.00		\$ 43,600.00		\$ -	
27			Talent Upload	\$ 45,000.00		\$ 45,000.00			every other year
28			Employer Best Practices Seminar Series	\$ 30,000.00		\$ 30,000.00		\$ -	
29			Travel conferences and training	\$ 15,000.00		\$ 15,000.00		\$ 5,000.00	
30			Office Costs	\$ 13,770.00	match/comp	\$ 13,770.00	match/comp	\$ 12,000.00	office share
31			Marketing	\$ 10,000.00		\$ 20,000.00		\$ 30,000.00	
32			Professional Services legal accounting website	\$ 30,000.00		\$ 5,000.00		\$ 2,500.00	
33			Memberships	\$ 5,000.00		\$ 5,000.00		\$ 5,000.00	
34			Supplies	\$ 5,000.00		\$ 5,000.00		\$ 5,000.00	
35	<b>Total Expenses</b>			\$ 632,899.00		\$ 536,139.00		\$ 272,075.00	
36									
37	<b>Total Over/Under</b>			\$ -		\$ 868.00		\$ (1,207.00)	

## Exhibit J

# Airport land certified 'development-ready'



Shelby Le Duc, Press-Gazette Media 6:54 p.m. CDT September 8, 2015



Buy Photo

(Photo: File/Press-Gazette Media)

HOBART — The Austin Straubel Commerce District is now home to the state's newest Certified in Wisconsin development-ready site.

The 33.2-acre site designated by the Wisconsin Economic Development Corporation is immediately west of Austin Straubel International Airport in Hobart. It is the 15th certified site in the state of Wisconsin.

Lt. Gov. Rebecca Kleefisch, said the certification answers a growing need for commerce districts to cater to business developers and help them avoid unnecessary risks such as delays in permitting and

approvals. The program, launched in 2012, also aims to boost marketing of development sites by centralizing information about the land, its infrastructure, the area's workforce and more.

The site is located near Interstates 41 and 43 and offers easy commercial and freight air access.

Tom Miller, airport director, said development of the land would help diversify the airport's revenue stream.

"This will make it so we are not so dependent on the number of passengers going through the terminal or how many airplanes land here," Miller said. "We can spread out our income sources and if the number of passengers goes up that's great. If the number goes down we still have some of these other parcels leased out for long periods of time."

Miller said the intent is to lease the land to a single large industrial business, but the district may subdivide the site if necessary. Miller said one business already has expressed interest in the location.

Miller said this certified site also makes other land within the district more appealing to other potential business owners and developers.

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