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Wisconsin Aviation Past, Present, and Future

Keith W. Gerard, JD

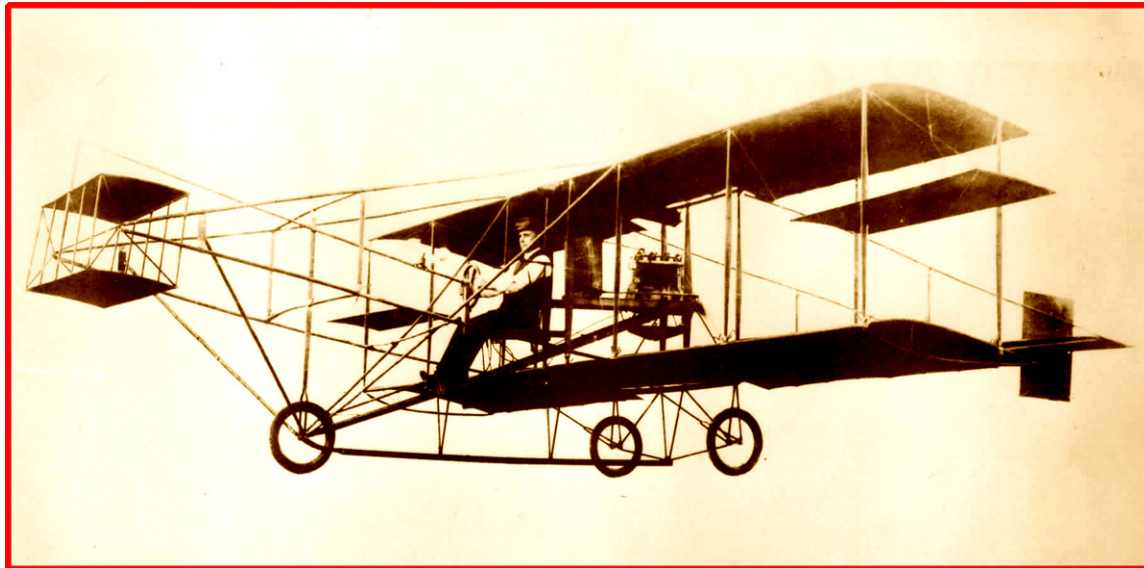
System Planning , Development Programming, Finance, Real Estate



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Wisconsin Aviation "The early years"



- In 1909, Arthur Warner makes Wisconsin's "first powered flight" in Beloit



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Wisconsin Aviation "The early years"



1911

- Wisconsin's first paying passenger
- Bernice Van Nortwick of Appleton
- Pilot Cal Rodgers
- Ticket price - \$25



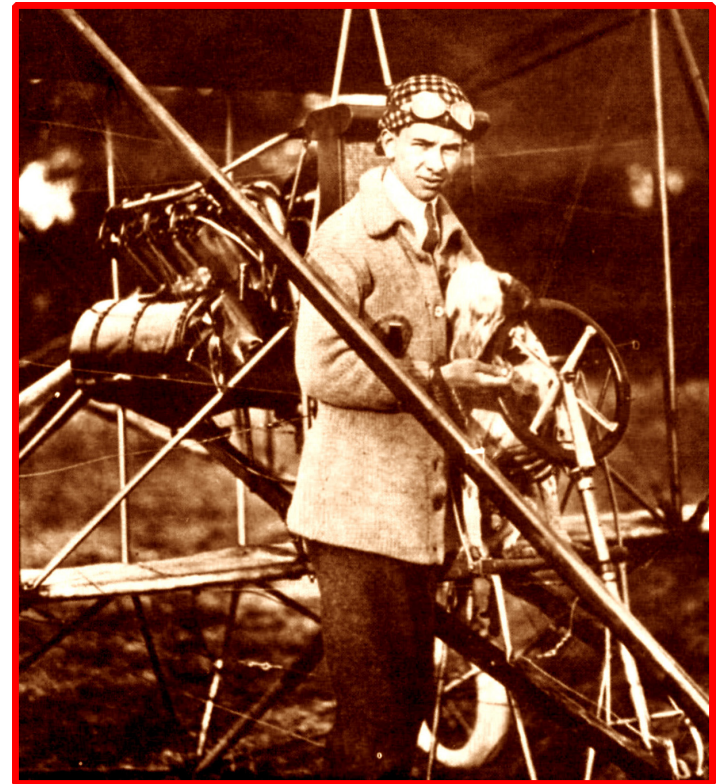
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Wisconsin Aviation **"The early years"**

1912

- Wisconsin's first licensed pilot.
- 16-year old John Kaminsky of Milwaukee





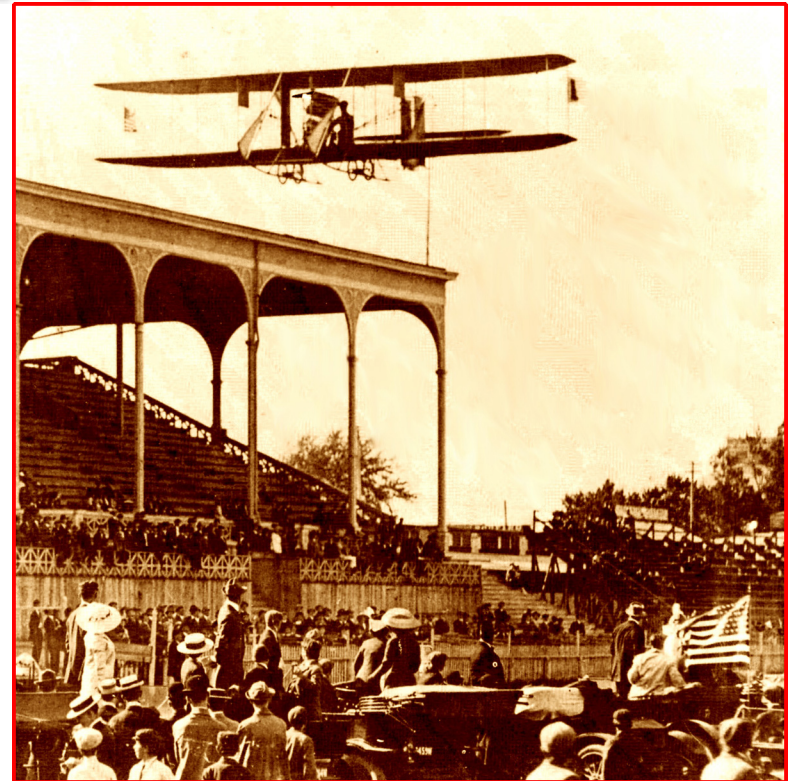
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Wisconsin Aviation **"The early years"**

1912

- Wisconsin's first airmail delivery.
- Farnum T. Fish flies the mail from Chicago to Milwaukee.
- Lands at Milwaukee's Lake Park golf course.
- Two weeks' later carries the mail from Milwaukee to West Allis and lands at State Fair Park.

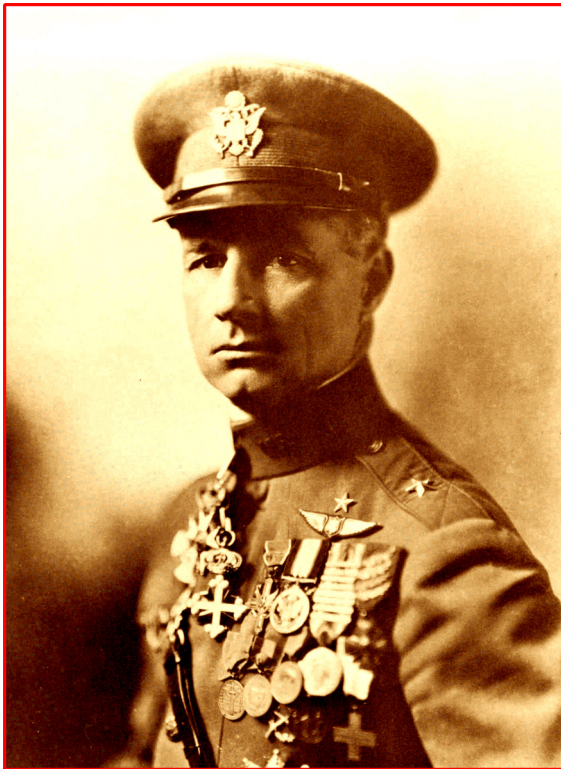




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Wisconsin Aviation **"The early years"**



1918

- Milwaukee's Billy Mitchell is the top Air Corps commander of WW I.
- Between the World Wars, he advocates airpower and a separate air force.
- In 1926 he is court-martialed for his views.
- Vindicated by WW II. Ten years after his death he receives the Medal of Honor and is now known as the "Father of Airpower."



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Wisconsin Aviation

"The early years"



Post WW One

- By the end of "The Great War," the U.S. has more than 3,000 licensed pilots and lots of surplus aircraft.

CURTISS JN-4 "JENNY"



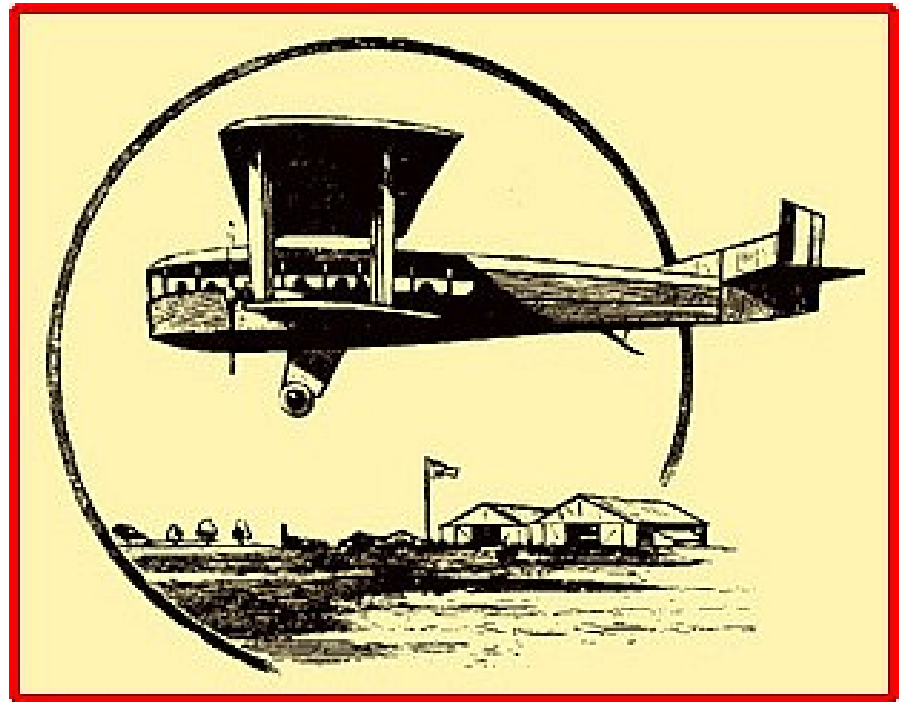
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Wisconsin Aviation "The golden years"

1919

- Milwaukee County Park Commission spends \$25,000 buying 115 acres for Wisconsin's first public airport.



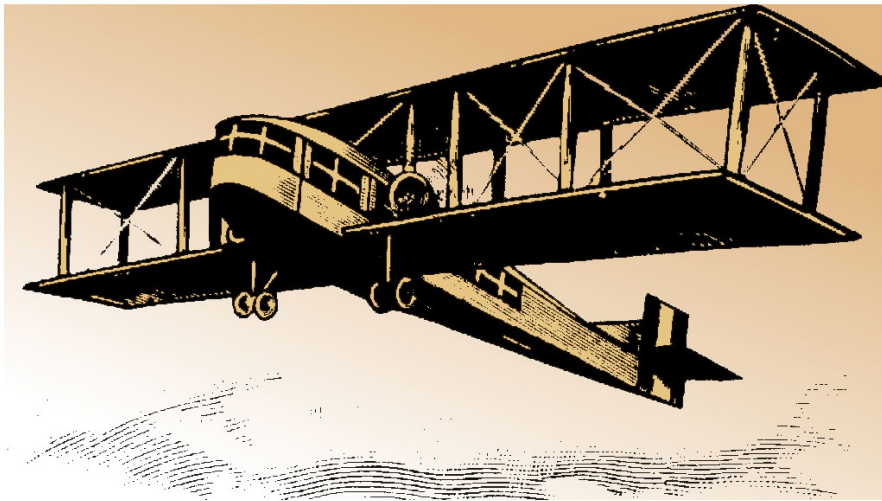
Lawson Airliner flying over the Milwaukee County Airport.



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Wisconsin Aviation "The golden years"



Milwaukee's "Lawson Airliner"

1920

- The Lawson Airplane Company of Milwaukee builds world's first airliner - coins the word "airliner."
- Alfred Lawson plans to make Milwaukee the "Detroit of American Aviation."



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Wisconsin Aviation "The golden years"

- The Air Commerce Act of 1926 establishes the National Airway System.
- In less than a year, Wisconsin is crisscrossed with lines of light beacons marking airways.
- Northwest Airways starts regular service out of Milwaukee, soon adding four other Wisconsin cities.



Early airmail airport



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Wisconsin Aviation "The golden years"

- By the 1930s, Wisconsin has 199 licensed pilots and 200 registered aircraft.
- General aviation airports in Wisconsin become prevalent - by 1928 the state has 53 airports owned by Local Governments.
- Wisconsin legislature creates the Wisconsin Aeronautics Board. All aviators and airports become subject to state registration and supervision.



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Wisconsin Aviation "World War Two"

- 1942 - The US Army Air Forces leases the Milwaukee airport for training and other uses.
- 1942 - The Wisconsin Wing of the Civil Air Patrol is organized.
- 25 Wisconsin women volunteer to fly as Women's Army Service Pilots (WASPs) to test and ferry military aircraft.





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Wisconsin Aviation "World War Two"

- Madison Municipal Airport becomes the Truax Army Airfield.
- Major Richard Bong of Poplar becomes "America's Ace of Aces."
- 1945 - The Wisconsin legislature authorizes the Wisconsin Aeronautics Commission.



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Wisconsin Aviation "World War Two"



"America's Ace of Aces"

- Major Richard Ira Bong of Poplar.
- Shoots down 40 Japanese aircraft in the Pacific Theater of Operations.
- Awarded the Medal of Honor by General Douglas MacArthur.
- Dies on 6 August 1945 testing a P-80 "Shooting Star" jet fighter.



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Wisconsin Aviation "The 50's and 60's"



Land O' Lakes Airport

- Wisconsin grows from 200 aircraft in the 1930's to 1,382 aircraft.
- Regular passenger service begins at Land O' Lakes and many other smaller airports throughout the state.
- Air transportation becomes a routine and accepted way of traveling.



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Wisconsin Aviation "The 50's and 60's"

- Airplanes now considered an essential workhorse for mail, cargo, crop spraying, businesses, and emergency transportation.
- Milwaukee's General Mitchell records more than 500,000 passengers for the first time.
- In the late 1950's, jet airliners begin serving Milwaukee.





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Wisconsin Aviation "The 70's and 80's"

- The EAA moves its annual fly-in to Oshkosh - becomes one the world's largest aviation event.
- Dane County assumes ownership of the Madison airport.
- General Mitchell records 2,000,000 annual passengers.
- The 1978 Airline Deregulation Act removes government control from commercial routes and fares.



Dane County Regional Airport (MSN)



Wisconsin Aviation - Today

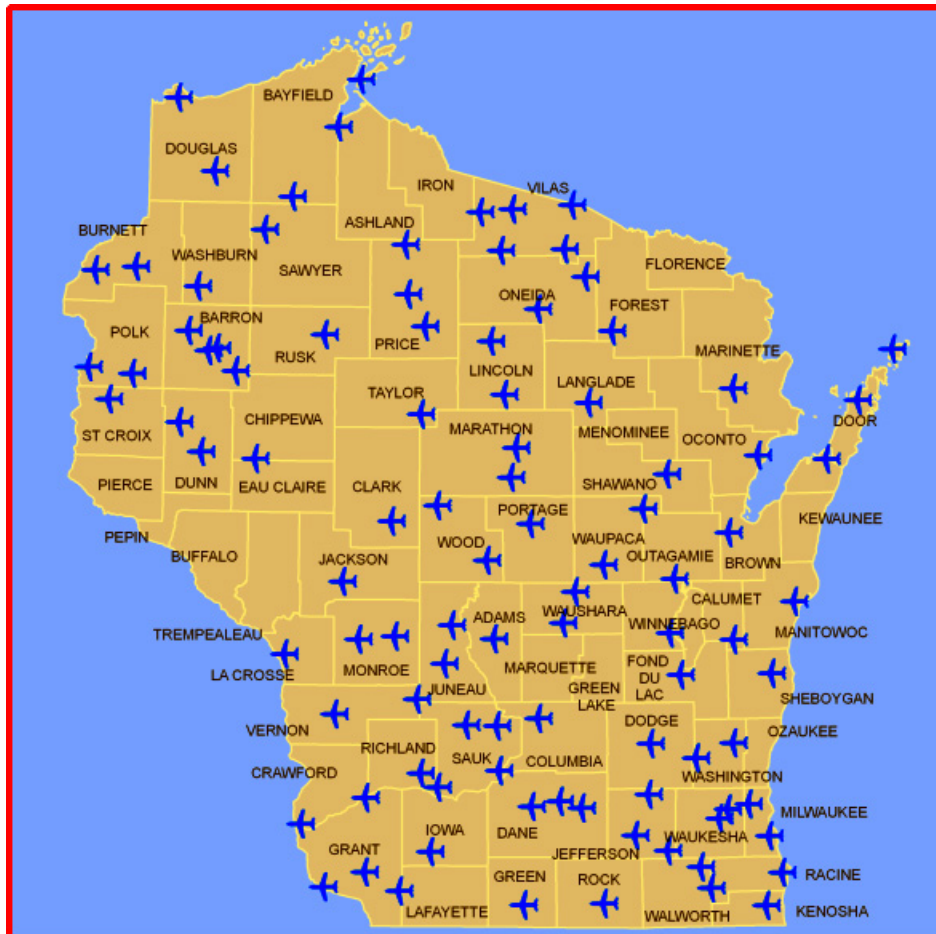
- **12,000** Pilots - **5,000** Aircraft
- **700** landing facilities statewide
 - Public-use, private, helipads, and emergency medical service
- **98** State Airport System Plan airports
- **8** Commercial airports serving 21 airlines
(5 million passengers - 1 million flight operations annually)
- **90** General Aviation airports
(88 publicly-owned - 2 Private-owned - 46 jet capable)



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Wisconsin Aviation - Today

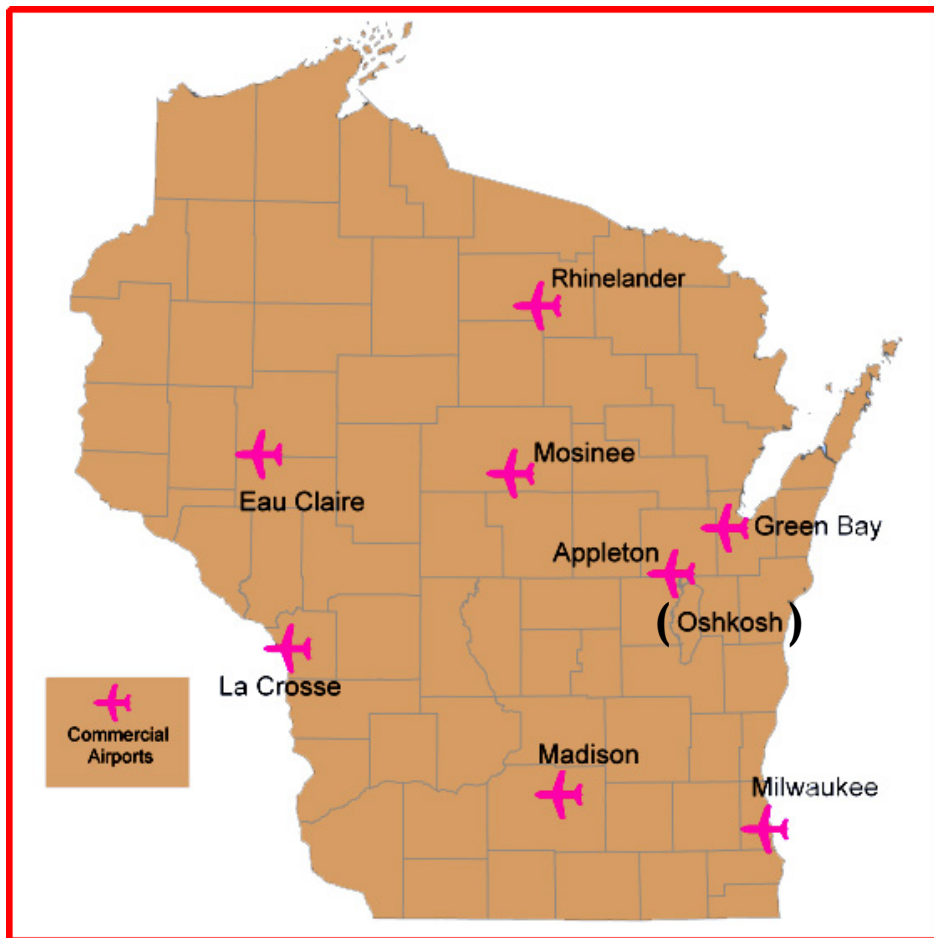


State Airport System

- 90 public -Use GA airports in Wisconsin
- 8 commercial, air-carrier airports



Wisconsin Aviation - Today



Air Carrier Airports

- General Mitchell IAP (MKE) - 530 flts/day
- Dane County Regional (MSN) - 100 flts/day
- Austin Straubel IAP (GRB) - 64 flts/day
- Outagamie County (ATW) - 35 flts/day
- Central Wisconsin (CWA) - 17 flts/day
- La Crosse Municipal (LSE) - 18 flts/day
- Chippewa Valley Regional (EAU) - 9 flts/day



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General Mitchell International Airport (MKE)



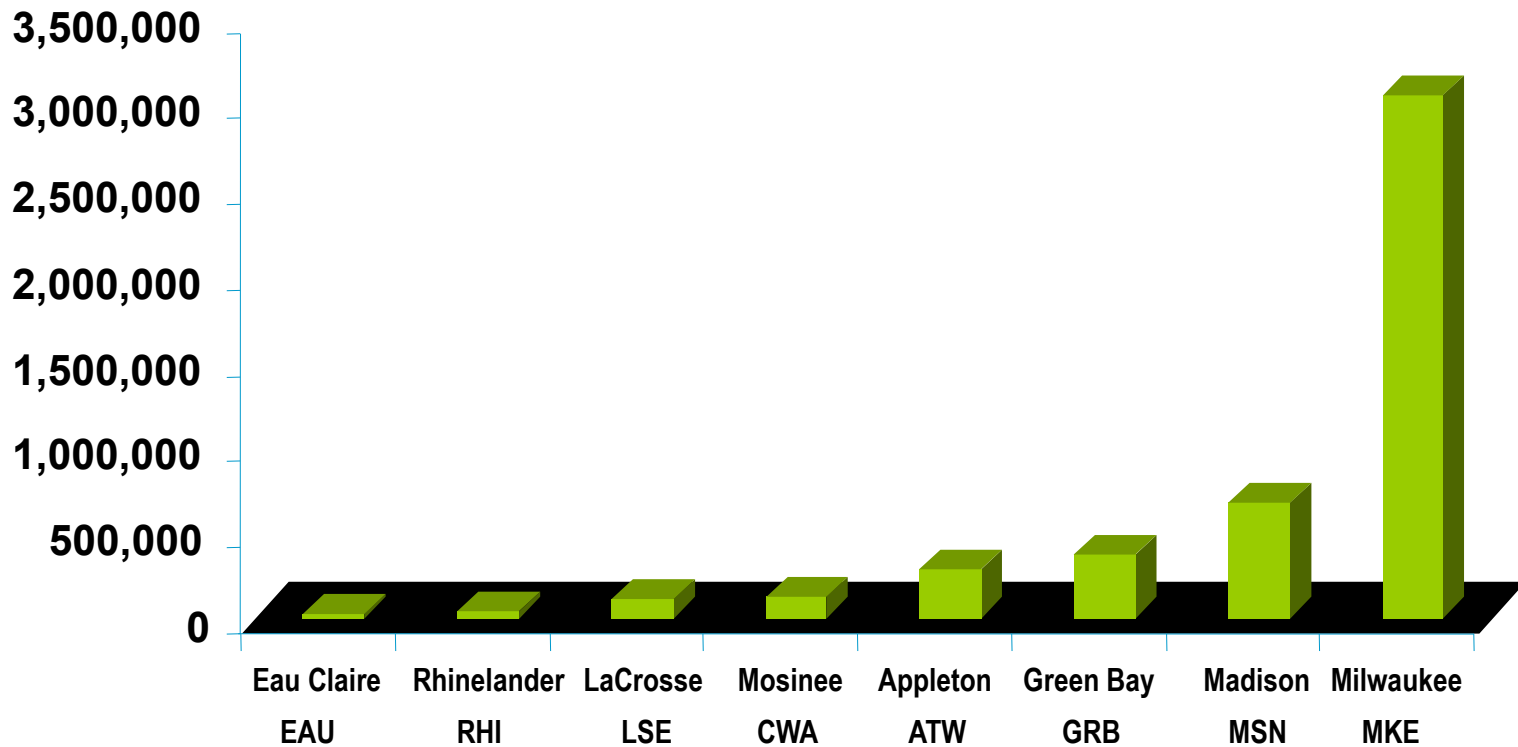
51st Enplanements – 16th in Direct Flights



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Air Carrier Airports Passenger Enplanements





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Midwest Airlines



Headquartered at General Mitchell International Airport (MKE)

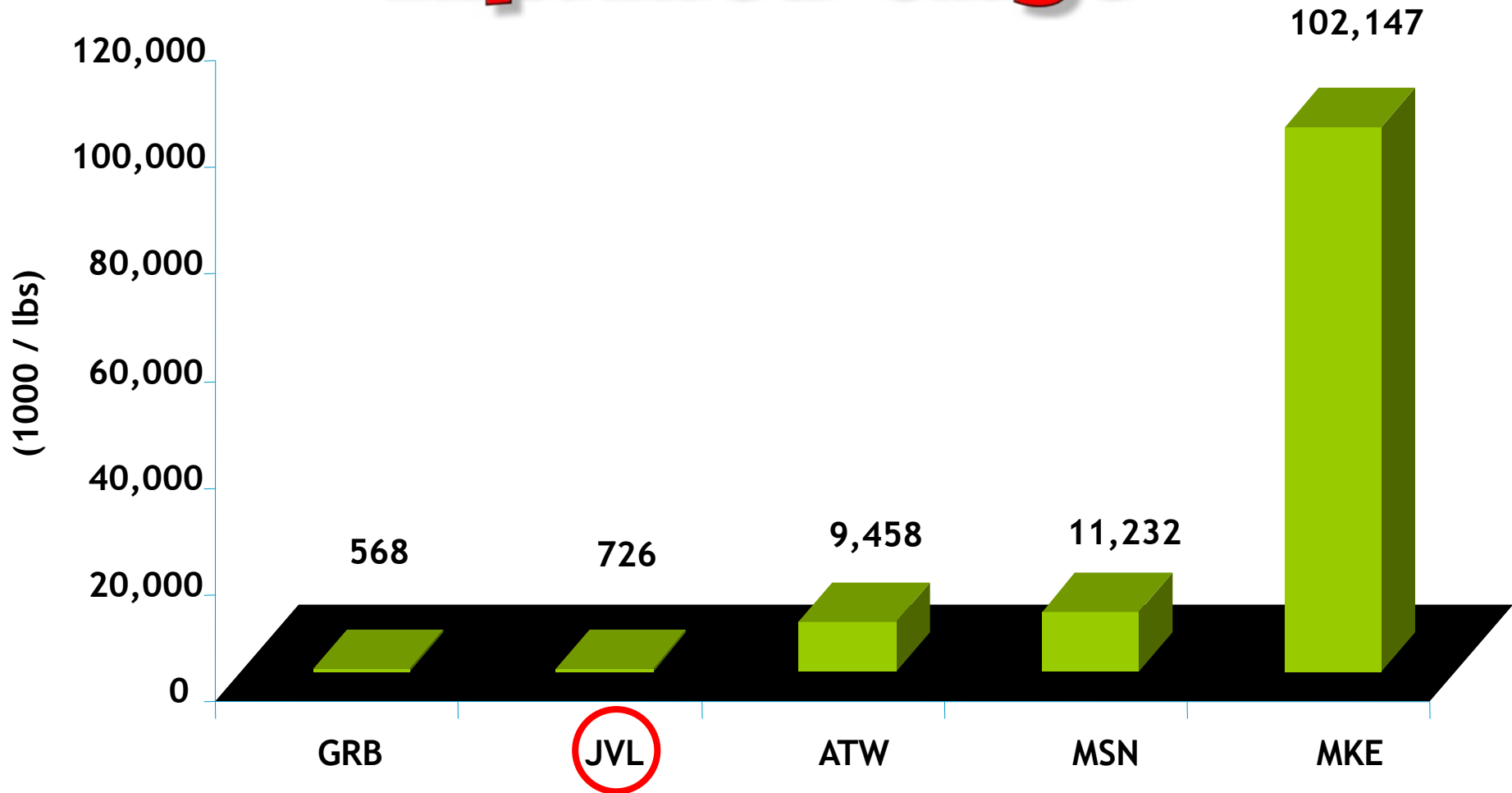
52% Of MKE Enplanements



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Enplaned Cargo





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La Crosse Muni (LSE) World's largest aircraft



- 240 ft wingspan
- 330,000 lb payload

- Antonov An-124, Condor
- Emergency haul to Australia (2004)
- 33-ton heat exchanger from Chart Industries in La Crosse
- Repair power generation station after explosion





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EAA AirVenture Wittman Regional Airport (OSH)



Attracts more than 600,000 visitors to Wisconsin annually.
Injects \$70 - 80 million into the Wisconsin economy each year.



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EAA AirVenture Wittman Regional Airport (OSH)



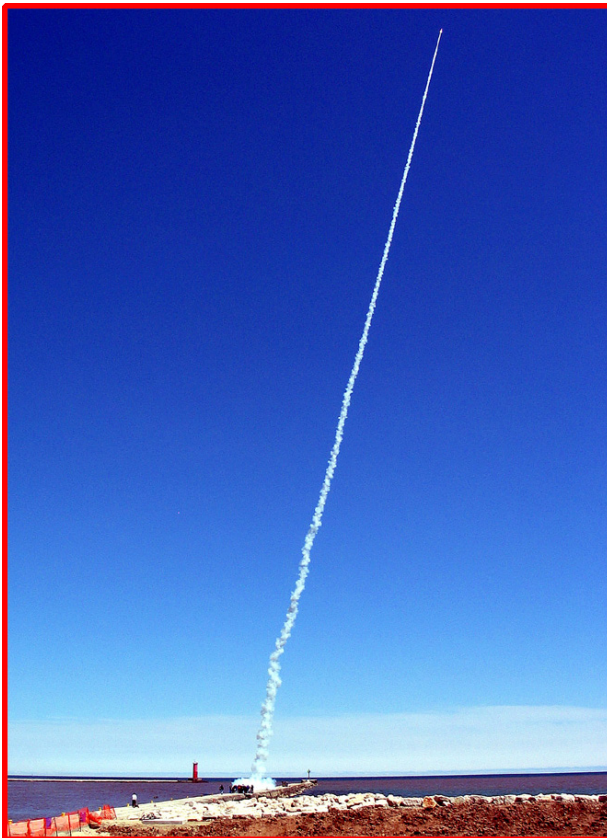
EAA has become the world's premier airshow.



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Spaceport Sheboygan Wisconsin Aerospace Authority



Wisconsin Spaceport Authority

- State legislature authorized in 2006.
- Authorized to issue bonds to create a spaceport and aerospace industry in Sheboygan.
- Great Lakes Aerospace Science & Education Center expected to open in 2008.



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Spaceport Sheboygan Wisconsin Aerospace Authority



Rockets for Schools at Spaceport Sheboygan



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Military Aviation



F-16 Fighting Falcons

115 Fighter Wing (ANG), Madison



C-130 Hercules

440 Airlift Wing (USAFR), Milwaukee

(Scheduled to move to Pope AFB, NC by Sep 2007)



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Military Aviation



KC-135 Stratotanker

128 Air Refueling Wing (ANG), Milwaukee



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Military Aviation



UH-60 Blackhawk

1-147 Aviation Battalion (ARNG), Madison, West Bend



Wisconsin Aviation - The Future

New Realities

- **Growth of air cargo**
 - To support internet commerce
 - The expectation for immediate gratification
 - Changing global markets and the world economy
- **Expanded push for corporate and general aviation**
 - Executives don't like to and won't waste time in airports
 - Lessened security threat and hassle in corporate jets



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Wisconsin Aviation - The Future

New Realities



Chartered jets at SBM during the 2004 PGA

Fractional Ownership and Charters

- Convenience of having a jet available on your schedule.
- Jets available to broader range of small businesses.
- Access to more locations, GA airports - not just the air carrier airports.



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Very Light Jets and Air Taxis



Honda - VL Jet



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Very Light Jets and Air Taxis



Cessna Mustang



FJ33 Turbofan Engine



Williams International

- **High Trust**

- **Low Weight**

- **Low Consumption**

Interior (inches)

Height	57
Width	58.3
Length	176
Volume (cu. ft.)	257
Cabin cross section at first row (sq. ft.)	21

Exterior (feet)

Height	12.9
Length	37.0
Wingspan	40.3
External baggage (cu. ft.)	28.0

Operating Weights (pounds)

Maximum ramp weight	7,210
Maximum takeoff weight	7,160
Maximum landing weight	6,800
Maximum zero fuel weight	5,780
Empty operating weight	4,380
Total usable fuel	2,120
Payload (incl. pilot)	1,400

Performance

Cruise speed at 35,000 ft.	365 ktas \pm 3%
FAA takeoff field length (Balanced field, maximum takeoff weight)	3,000 ft. \pm 5%
FAA landing distance (At maximum landing weight)	3,000 ft. \pm 5%
Range VFR (45 minute reserve, at long range cruise)	1,200 nm \pm 5%
Stall speed (At maximum landing weight)	68 KIAS \pm 5%
Maximum altitude	41,000 ft

The performance figures are based upon ICAO Standard Atmospheric Conditions; level, hard surface, dry runways and zero wind conditions.

Other Design Criteria

Minimum crew	1 pilot
Pressurization	8,000 cabin at certified ceiling
Certification	FAR 23, normal category



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Wisconsin Aviation - The Future

New Realities and Challenges

General Aviation

- **Security Restrictions?**
- **Light Sport Aircraft**
- **Fractional Ownership-** Expands Business Jet to smaller firms.
- **Very Light Jets-** More Business destinations possible, “On Call” Air taxi.
- **GPS-WAAS LPV approaches** will allow “all-weather” access to all airports.
- **Number of airports:** Static.
- **Federal Investment in Infrastructure:** Strengthening



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Very large passenger/cargo jets



Airbus A380

- 600+ passengers
- Will require specially-designed pavements and boarding facilities.
- **MKE 757-300: 225 passengers**



Wisconsin Aviation - The Future

New Realities and Challenges

Schedule Service

- Need for enhanced security infrastructure.
- Spiraling energy costs continue to pressure airlines.
- Airline Over Capacity: High Load Factors - Low Fares.
- FAA and Congress no longer as supportive of Essential Air Service.
- Continuing Hub & Spoke with airline shifts in aircraft size.
- MKE continues as Medium Hub (MWA) surrounded by 3 Large Hubs.
- Number of Airports- potential decline in locations with passenger service.
- Federal Investment in Infrastructure: strengthening.



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References:

Forward in Flight

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Milwaukee Airport Authority - Feasibility Study

KPMG Peat Marwick

Chapter 114 Aeronautics

Wisconsin Statutes