The “Rebirth” of Aviation and Air Transportation in Ohio

On the implementation of the NextGen Air Traffic Management System to enhance air transportation safety, capacity, and environmental sustainability for Ohio’s airspace and airports.

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Ohio: The Birthplace of Aviation Innovation

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NETJETS

GE Aviation

Rickenbacker Logistics Park

Rickenbacker Intermodal Facility

- Direct access to and from industrial parks.
- Expected to handle over 300,000 container transfers a year.
- Creates reduced shipper costs, lower emissions, regional competitiveness.

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Center for Aviation Studies
College of Engineering
Ohio Aviation & Aerospace

• Ranks 15th in Nation in Aviation Economic Output among states
• Nation’s largest supplier to Boeing and Airbus

• 1,200 aviation & aerospace companies
• 100,000 aviation & aerospace jobs

• $25.4 Billion in Economic output
• 2.6% of state GDP
Ohio Airports

- 7 Commercial Service Airports
- 98 Publicly owned public use General Aviation Airports
- 58 Privately owned public use General Aviation Airports

Economic Impact of Airports in Ohio

- 1994: $7.4 billion
- 2004: $10.5 billion
- 2014: $13.3 billion
Ohio Innovation: Operating under a 20th Century Air Traffic Control System
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Infrastructure of Ground Based Analog Radio Frequency Systems

VOR – VHF Omnidirectional Range Radio Beacon

ILS – Instrument Landing System
Ohio Innovation: Operating under a 20th Century Air Traffic Control System

Infrastructure of Ground Based Analog Radio Frequency Systems: Resulting in limited “air routes” around the state (and nation)
Air Traffic Flow in Ohio

Operating within a 20th Century System

Straight line distance: 195 nm

Traditional Routing: 207.5 nm

(6% increase in route distance) using VOR airways
Current ILS technology takes aircraft long straight line approaches

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20th Century Air Traffic Infrastructure continues 20th century challenges

Congestion Costs
Noise Airport Impacts
Fuel Burn
NextGen: Application of Satellite (GPS) navigation system
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**Current Ground Navaids:**
Traditional navigation is ground based and left over from the 1940s. Seemingly random locations result in zig-zag flight paths – very inefficient and immovable. Line of sight transmission

**RNAV:**
RNAV which is based on GPS signals allows for waypoints to be placed where needed anywhere on the map.
- Results in more direct routing and ability to go direct from great distances.
- Better defined flight paths and significant fuel savings

**RNP:**
Super RNAV – allows for more unique and precise flight path around airspace restrictions, curved paths and instrument approaches to any airport without any ground based infrastructure
**NextGen: Application of Satellite (GPS) navigation system**

**Airspace is 3D!**
Not only about lateral navigation efficiencies but also during climbs and descents.

By allowing continues descents, optimized profile descents (OPDs) can be utilized resulting in significantly lower emissions and a much lower fuel burn. No need to level off and increase thrust. Idle descents.

**Flying a different sky**

Denver International Airport and the Federal Aviation Administration have been working for the past three years on a design that will result in “greener” skies, fuel saving and noise reduction. Area Navigation (RNAV) is designed for more comprehensive route structure for every arrival and departure procedure as well as other procedures at other local airports.

**Conventional descent**
Arriving aircraft descend in a series of “stair steps” alternating between descent and level flight. During the leveling off, the aircraft have to increase engine thrust, resulting in increased fuel burn, noise and emissions.

**Optimized profile descent**
Arriving aircraft are separated by automated systems in the cockpit. They descend continuously, reducing fuel use by 200 to 300 pounds, as well as noise and emissions. RNAV increases efficiency and ensures optimal use of the airspace.

Sources: Denver International Airport, United Airlines
Severiano Galván, The Denver Post
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Application of RNP Approaches at Ohio State University Airport (hypothetical)

- Reduce “final approach” distances
- Minimize noise impacts
- Increase system capacity
Ohio: Beginning to embrace NextGen, albeit slowly, and sporadically
An Ohio NextGen Policy: To contribute to the continued “rebirth” of aviation and innovation in Ohio

Policy Recommendations for the State of Ohio

NextGen technology is designed to address the increasing challenge of moving growing amounts of air traffic from point to point as quickly and safely as possible. This transition is expensive, however, and funds to properly install NextGen technologies in place in Ohio are currently scarce. If regional government and business understood the importance of this technology for the state’s economy, funds would be found to make this important transition. The following recommendations focus on making Ohio a national leader in more efficient and safer air travel. They outline a direct state-wide investment in what NextGen can offer its constituents.

- Commit to being the first state in the nation where every airport is NextGen capable. Regardless of the size of your business or aircraft utilized, NextGen will ensure that traveling to the state of Ohio means efficient travel and reduced delays from congestion and weather.

- Provide incentives for NextGen equipped airlines and general aviation operators to base operations and/or increase service presence in Ohio. By possessing the most air traffic capabilities possible, Ohio stands ready to support our nation's business opportunities with logistics and transit.

- Partner with the Federal Aviation Administration in supporting further NextGen technologies and policies. Demonstrate to Washington, D.C. that Ohio is ready to support their NextGen efforts by capitalizing on their infrastructure designs and is willing to be a national leader in promoting the future of NextGen.

- Encourage high technology companies developing NextGen tools and procedures to base in Ohio. By being a national leader in NextGen support and design, businesses would do well to think of Ohio as a location to flourish.

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Questions Welcomed

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