

Airport Capacity Planning and NextGen

Gisele Mohler
FAA, Director of Operational Evolution Partnership Planning
Eastern Region Airport Conference
March 2008



Federal Aviation
Administration

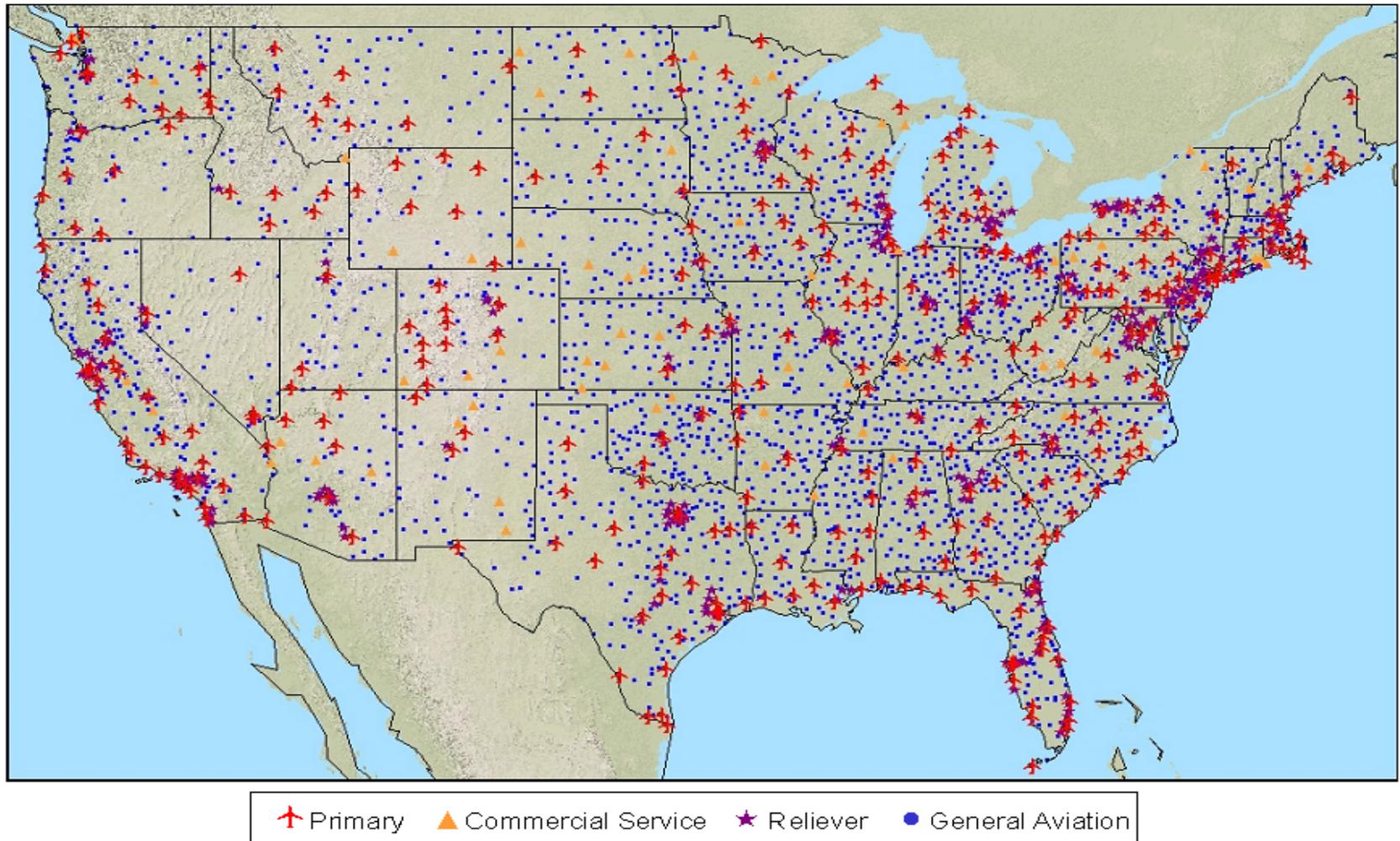


Agenda

- ▶ Airports are Critical to the National Airspace System
- ▶ NextGen is our Vision for 2025
- ▶ Operational Evolution Partnership (OEP) is FAA's Plan for NextGen
- ▶ Airport Development is critical to OEP
- ▶ New Automation and Technologies for Our Future
- ▶ How Will Airports Prepare for NextGen
- ▶ Questions and Discussion



Airports are Critical to the National Airspace System



Today's Air Transportation System

- Ground-based
- Human-centric and un-automated
- Single channel voice control
- Aging Infrastructure (youngest en route facility - 43 yrs old)



The 2025 Challenge

- In 2006, passengers exceeded 750 million
- Between 2012 and 2015, passengers could reach one billion each year
- Some models project that the number of passengers could more than double by the year 2025



*Our present system
simply cannot adjust to
that kind of expansion!*

NextGen is multi-agency cooperation
and investment to transform
U.S. air transportation to a system
that will meet future needs.



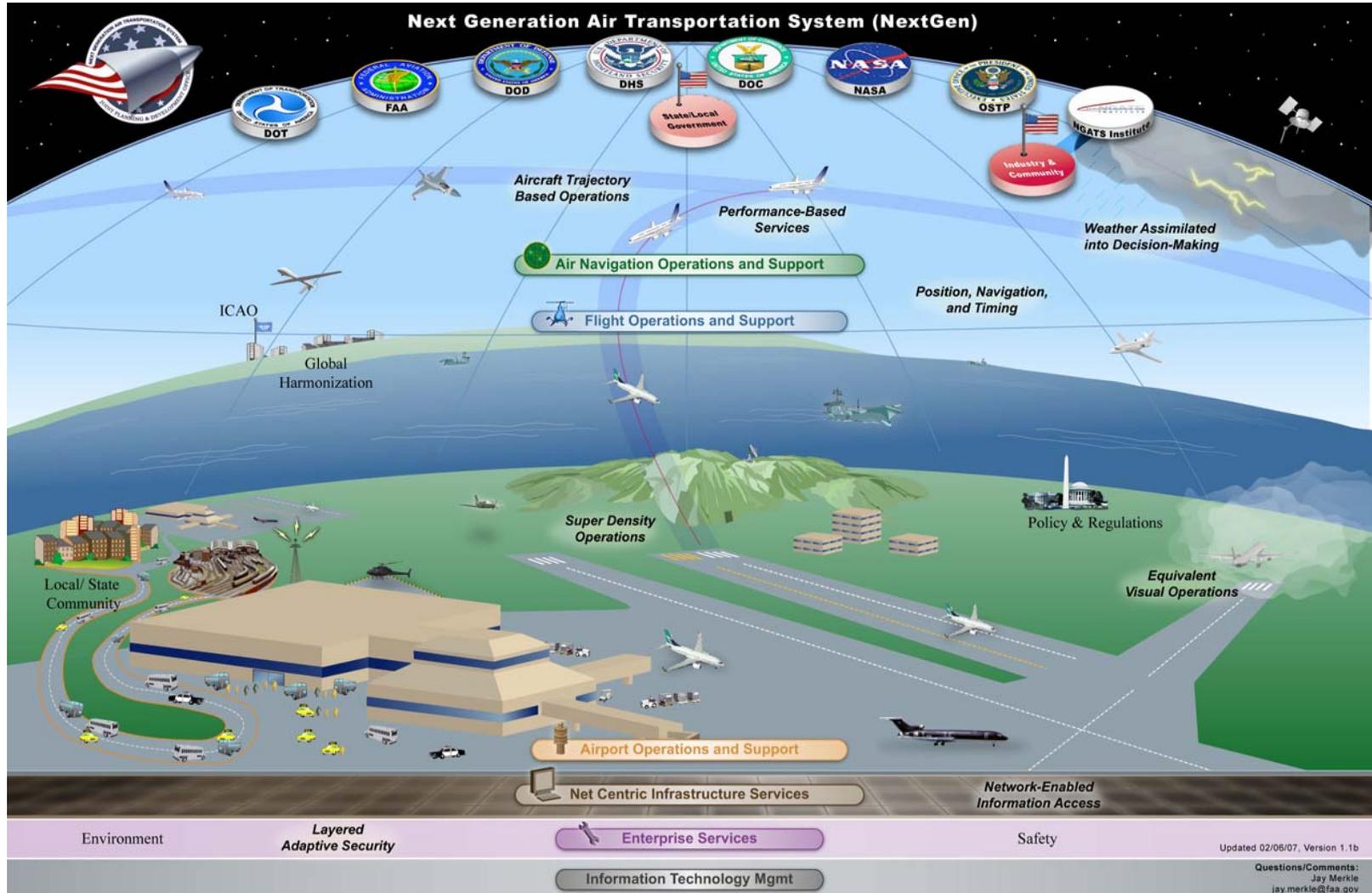
The NextGen Vision



A system that is based on satellite navigation and control, digital non-voice communication and advanced networking, and a sharing of decision making between the ground and the cockpit.

NextGen... "What is it?"

Year 2025

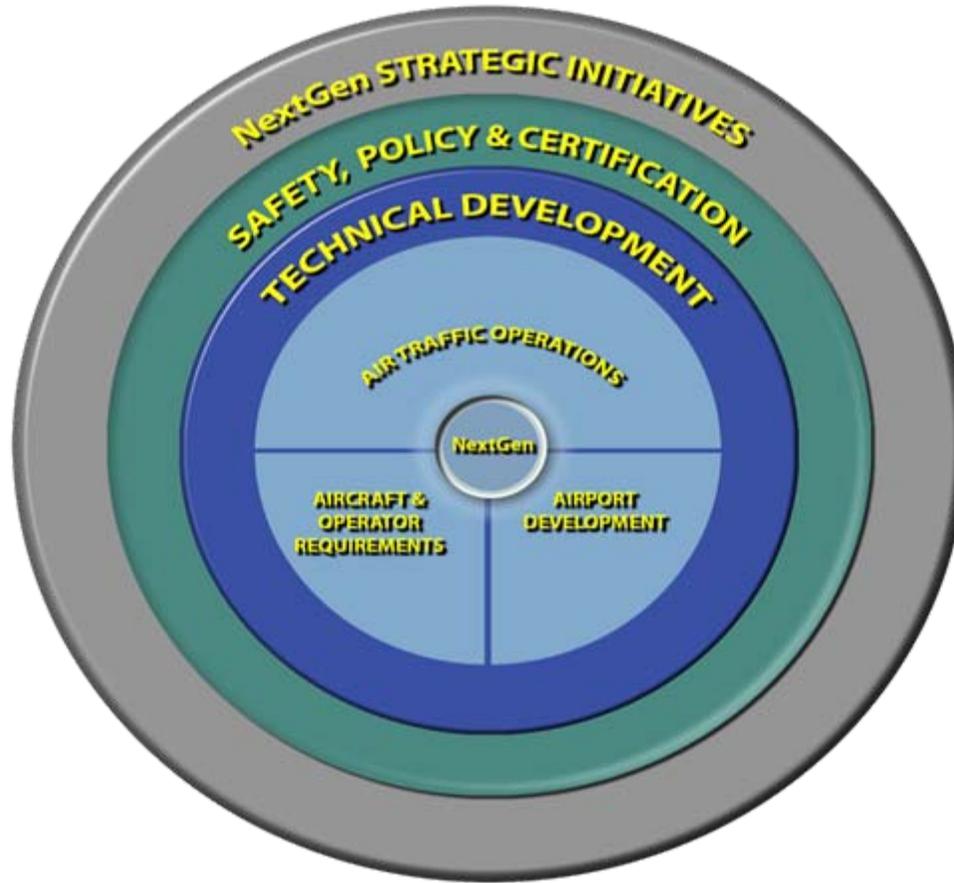


NextGen Is

- Reduction of delays and system gridlock
- Integration of weather information into decision support tools to reduce weather-related delays
- Reduced adverse impacts to environment
- Reduced fuel consumption
- Precise trajectory-based operations
- Network-enabled real-time information access by air traffic control and system users
- **Landing more and varied air vehicles at our airports!**
- **Moving more and happy passengers from gate to gate!**



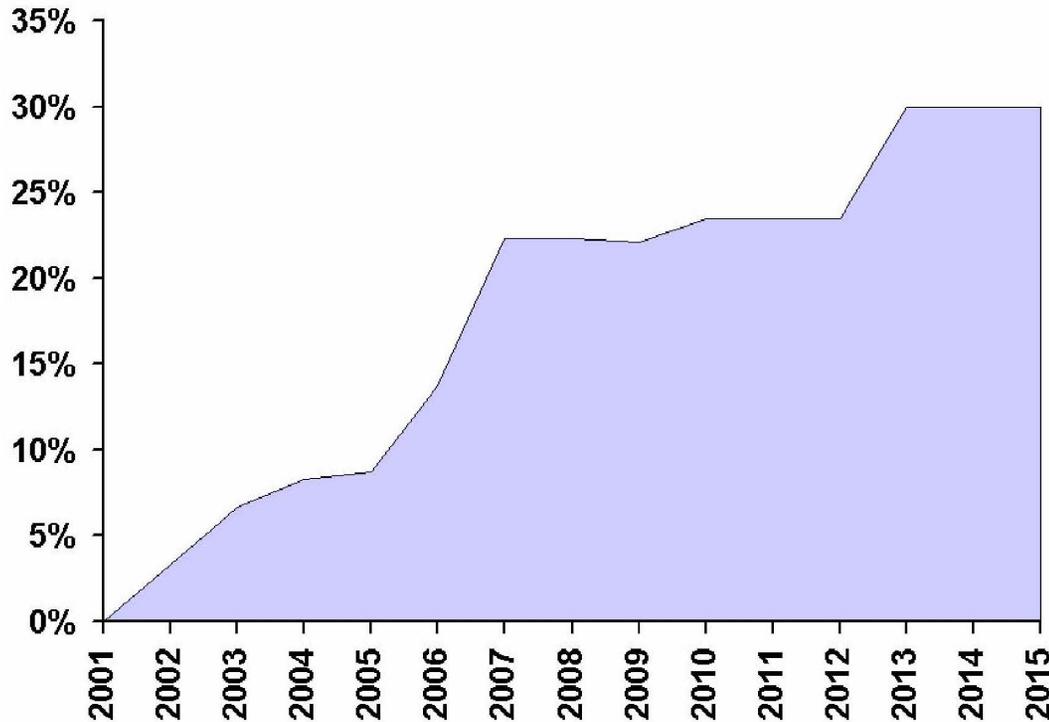
The path to NextGen is the Operational Evolution Partnership (OEP)



Why OEP? The Right Support



Why OEP? The Right Results



***OEP will produce a
30 % increase in
effective capacity by
2013.***

But More is Needed...We Can't Wait for 2025

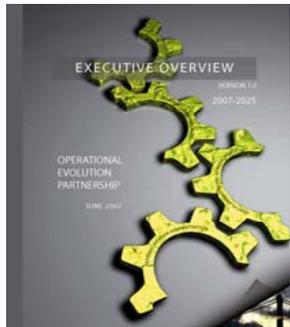
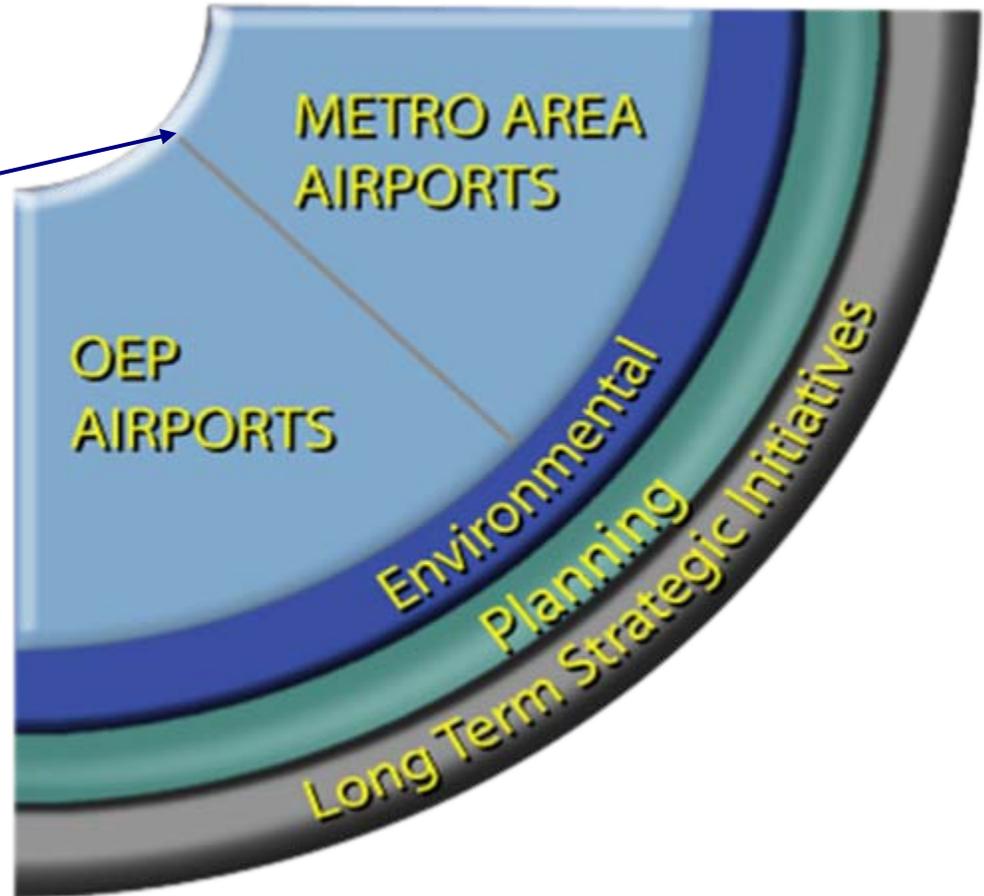
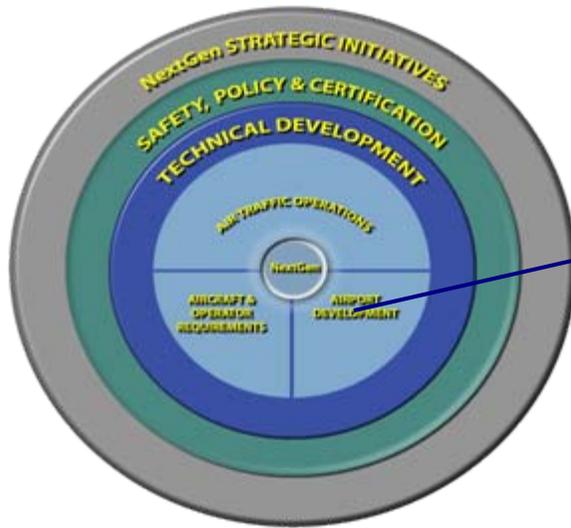
- Without improvements to the Air Traffic System, delays are projected to increase 62% by 2014
- 27% increases in domestic traffic projected for 2016
- Studies have shown that controllers cannot handle 25% increases in traffic in the busiest sectors using tools available today

How is FAA Using the OEP to get to NextGen?

- Agency-wide strategic planning reflects NextGen vision
 - Guiding budget formulation
 - Focusing research & development on NextGen
 - Integrating program planning to achieve capabilities
 - Prioritizing resources
- Collaboration with external partners

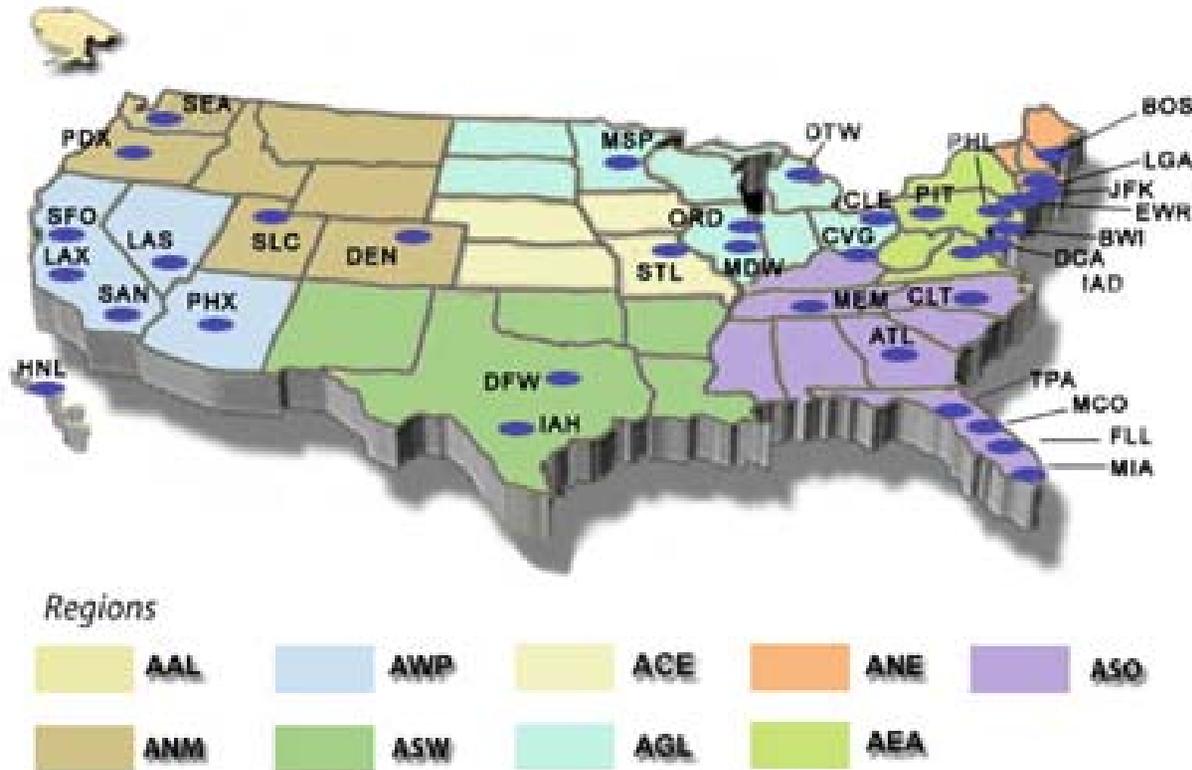


Airport Development Domain



Domain: Airport Development

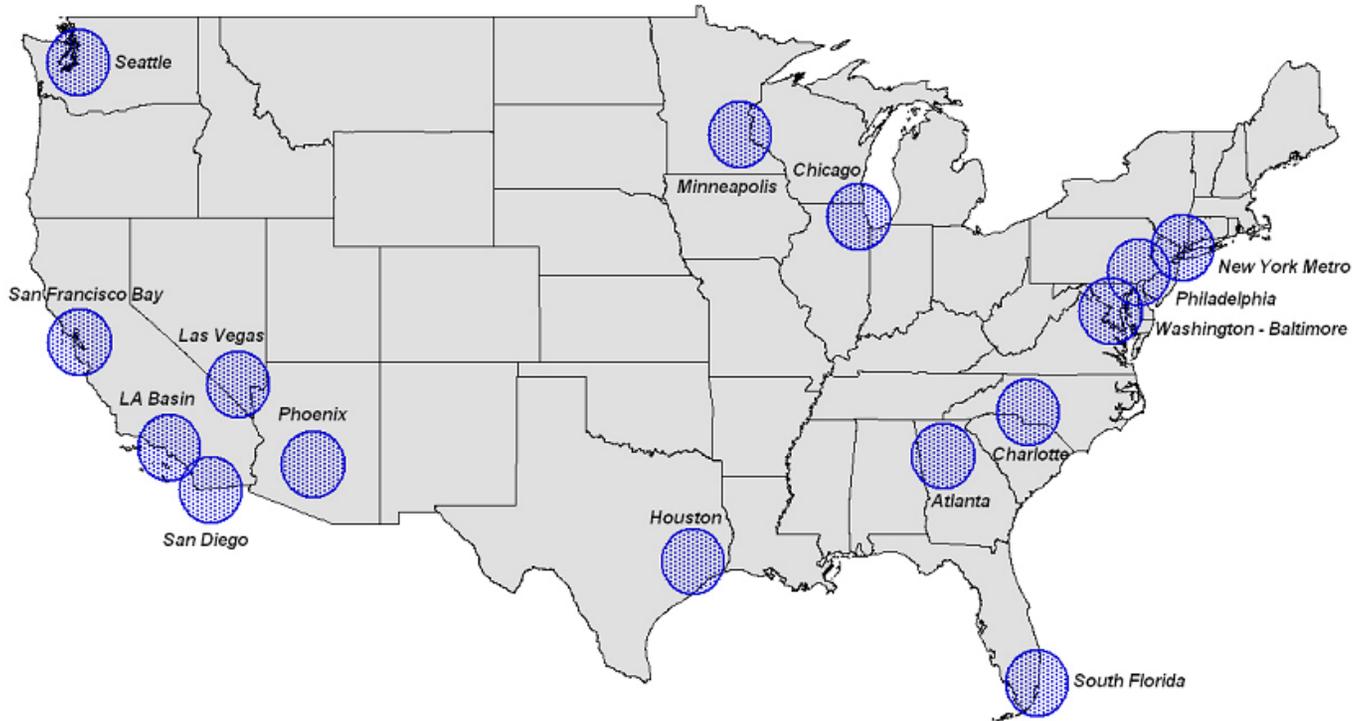
Solution Set: OEP 35 Airports



Offers an expanded view into planning for new airport infrastructure at the nation's busiest airports

Domain: Airport Development

Solution Set: OEP Metro Areas



**Promotes
regional
planning**

**Identifies
supporting
airports**

**Monitors
infrastructure
investments**

OEP and Metro Area Airports



Environmental Ring activities

- New Runways (IAH)
- Runway Extensions (FLL, PDX)
- Airfield Reconfiguration (PHL)

- New Airports
 - Chicago
 - Las Vegas

- New Runways (IAD) 2005
- Airfield Reconfiguration (LAX, ORD) 2005



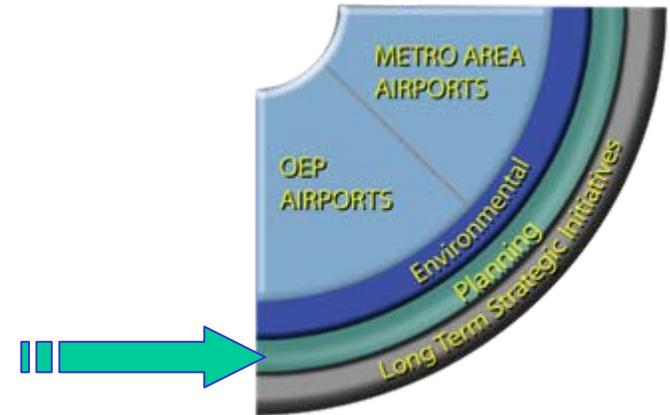
Houston Intercontinental - 8L/26R - 9,000'

Planning Ring activities

- New Runways (DEN, TPA)
- Runway Extension (SLC)

- Regional Studies
 - Atlanta
 - San Francisco
 - San Diego

- Regional Studies (completed)
 - Boston
 - Los Angeles
 - New York

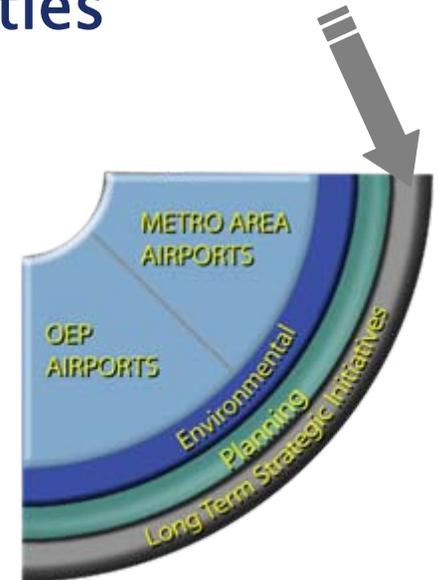


Minneapolis-St. Paul - 17/35 - 8,000'

Long-Term Strategic Initiatives Ring activities

Capacity Needs in the National Airspace System 2007-2025

An Analysis of Airports and Metropolitan Area Demand and Operational Capacity in the Future.
Future Airport Capacity Task (FACT) 2
May 2007



ACRP 03-10, Innovative Approaches to Addressing Aviation Capacity Issues in Coastal Mega-Regions

The Airport Cooperative Research Program (ACRP) will examine multi-modal travel behavior and the impact of travel demand on high-density travel corridors linking mega-regions on the East and West Coasts
October 2007-2008

The Future....

New Automation
New Technology
New Procedures

...more traffic
...more passengers
...fewer delays

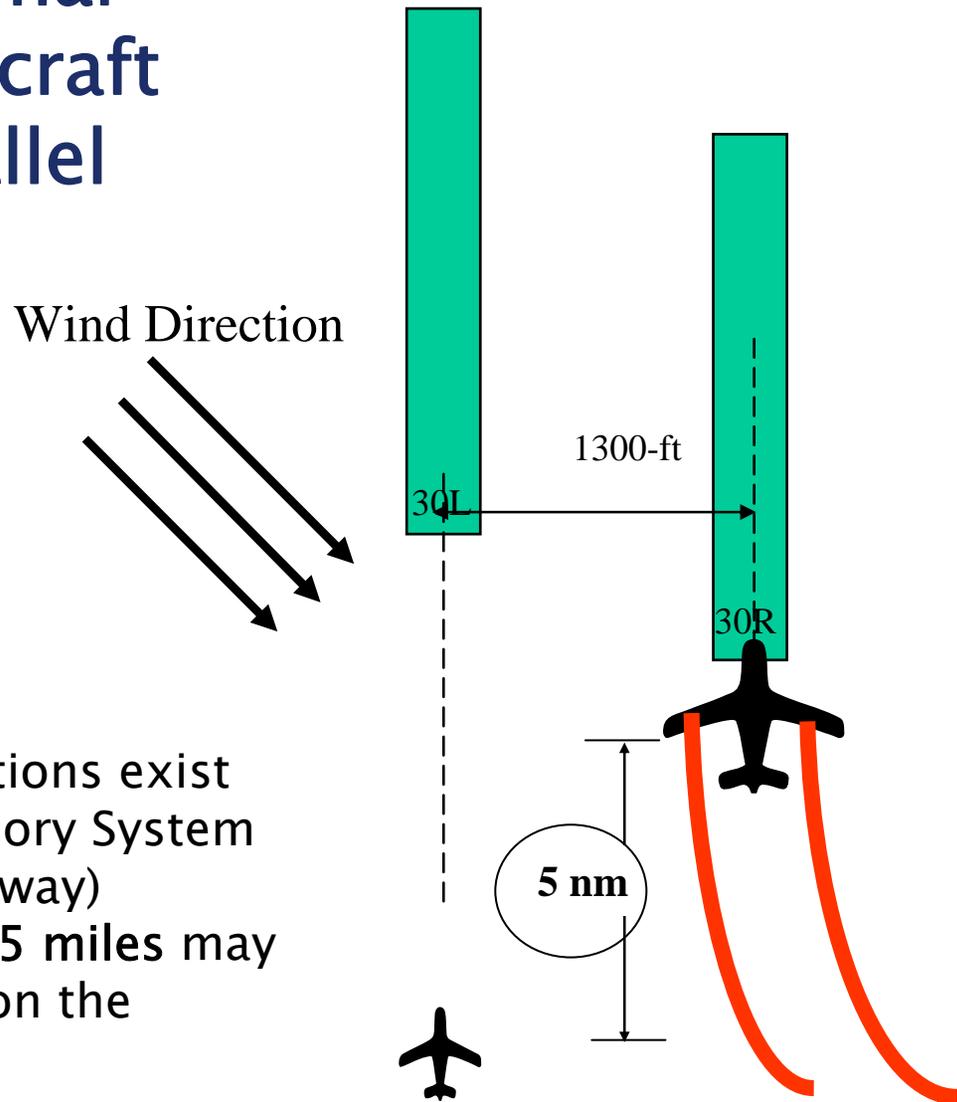
Possible reduced diagonal separation between aircraft on Closely Spaced Parallel Runways (CSPR)

(ARRIVALS)

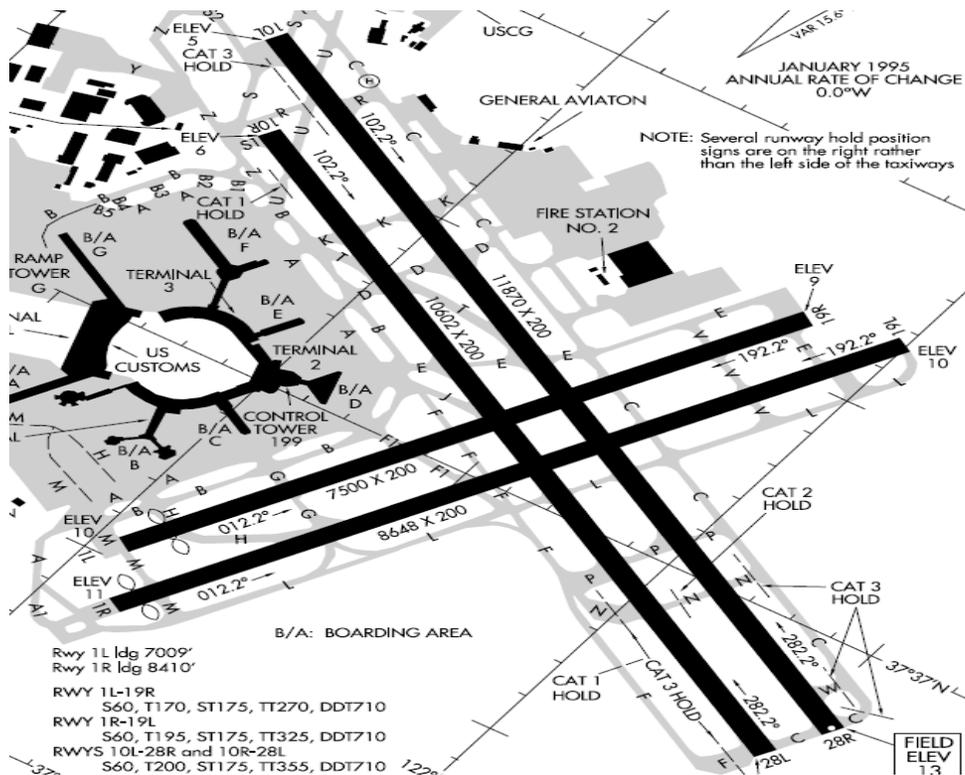
Under current rules a “Large” landing on 30L has to be spaced 5 miles behind a “Heavy” arriving 30R since the CSPRs are a single runway in IFR conditions.

FUTURE: When certain wind conditions exist and are stable (Wake Vortex Advisory System indication is green for the left runway) reduced diagonal separation to 1.5 miles may be applied to the trailing aircraft on the upwind approach.

Wind Direction



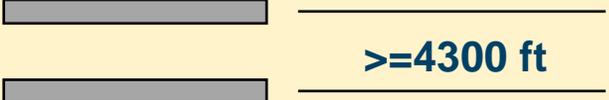
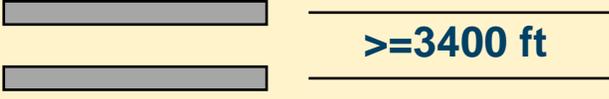
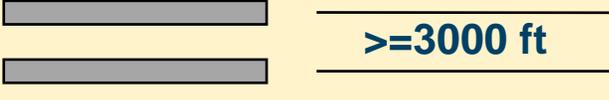
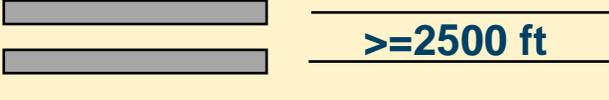
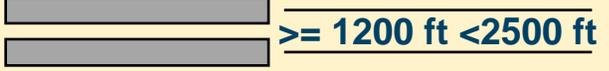
Possible reduced separation requirements between runways for Closely Spaced Parallel Runways (CSPR) Operations



Possibly more paired approaches

More efficient use of existing runways

Today's Varieties of Parallel Runway Approaches

	≥ 700 ft	simultaneous visual approaches (down to about 3500 and 5 mi minima)	V F R
	≥ 700 ft	SOIA and RPAT - (down to about 2100 ft and 4 mi)	
	≥ 4300 ft	Simultaneous ILSs; monitor controllers	I F R C a t l
	≥ 3400 ft	Simultaneous ILSs with PRM; monitor controllers	
	≥ 3000 ft	Simo ILSs, offset approach, PRM, monitor controllers	
	≥ 2500 ft	Staggered 1.5 mi approaches	
	≥ 1200 ft < 2500 ft	Staggered 1.5 nmi approaches – Large only	

Possible Runway Visual Range Implementation



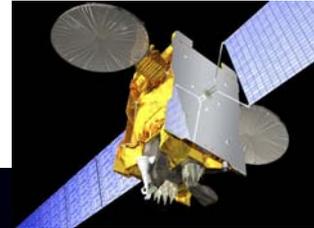
- Increased low visibility access to identified eligible runway ends
- To use, must conduct benefits analysis and sensor requirements
- Will require Permanent NOTAM authorization to be published

Possibly more Continuous Descent Arrivals (CDA) (Demonstrations Planned)

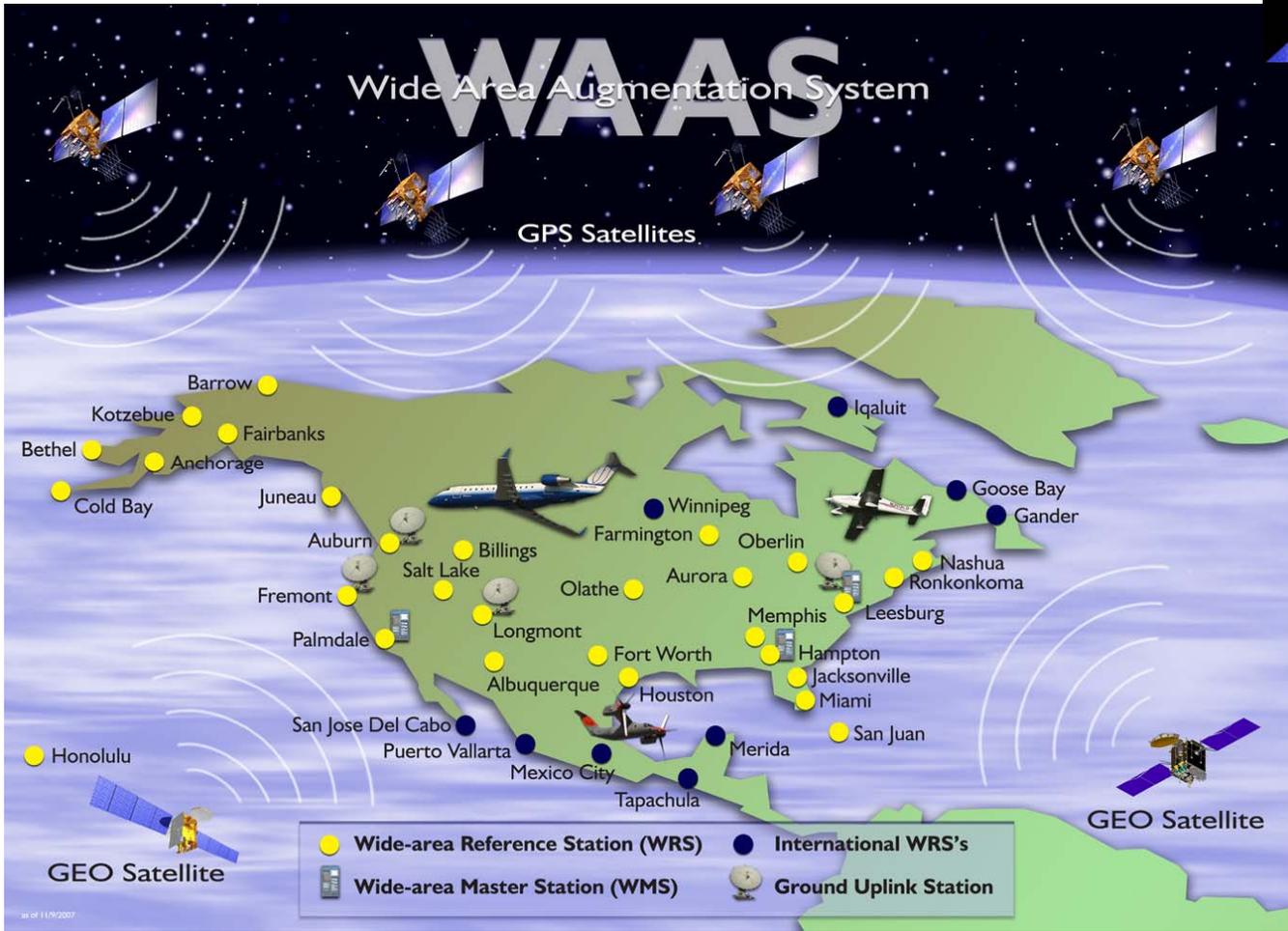


- Use RNAV/RNP arrivals with optimized vertical profile
- Benefit to airlines: 200 – 400 LBS of fuel per arrival
- Benefit to airports: reduced emissions and reduced noise

Possibly more WAAS approaches



Geostationary Satellite Links



Signal Generator System/ Ground Earth Stations



Network Enabled Weather will be available

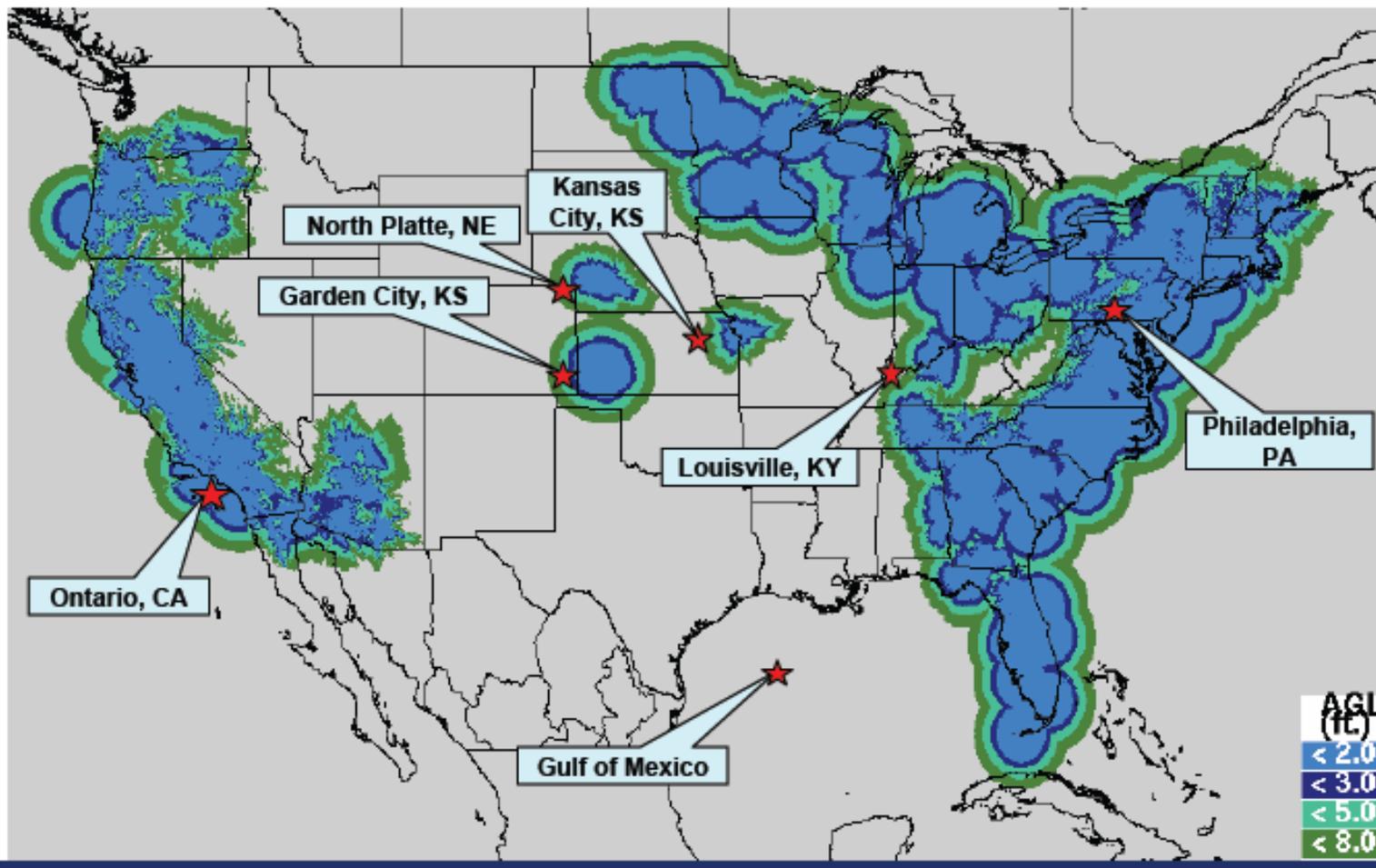


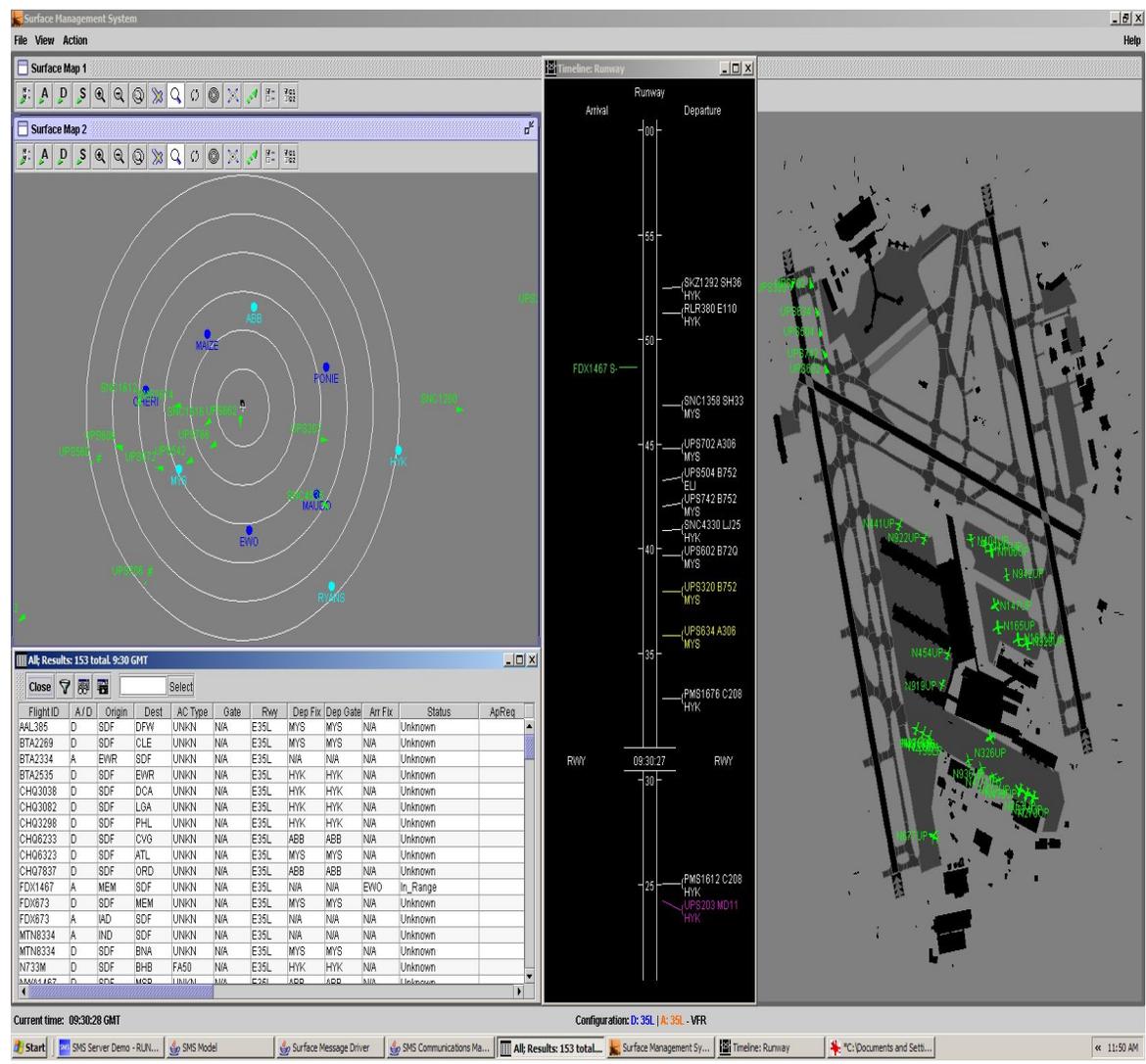
ADS-B in the Gulf



More ADS-B Deployment

Expansion Segment One Coverage



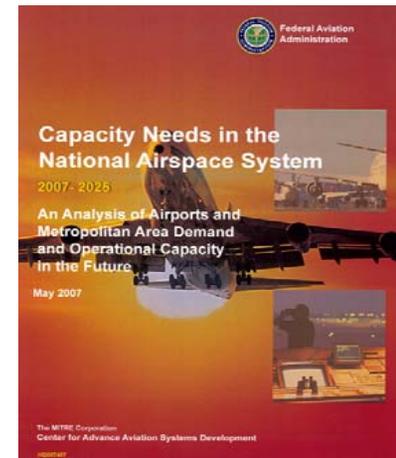
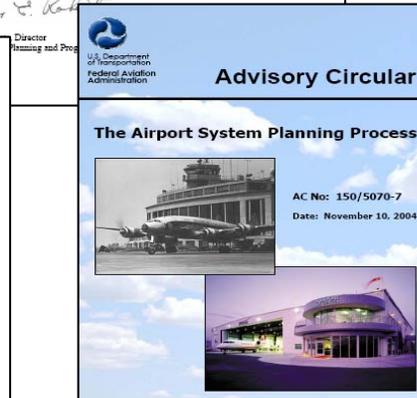
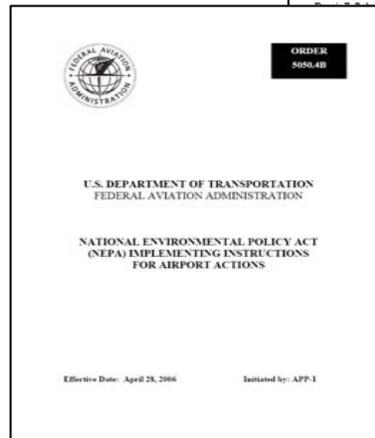
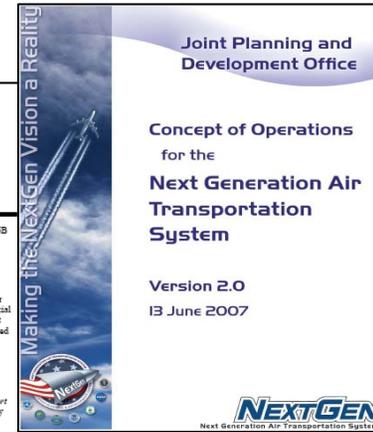
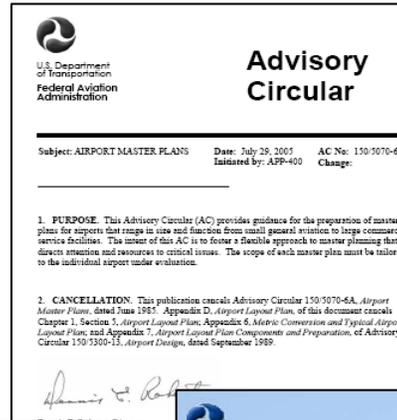
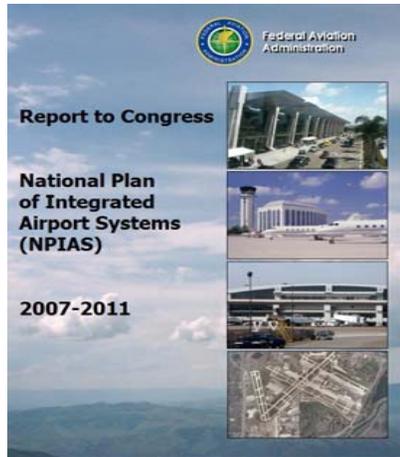


More efficient and safer Surface Management

Use automation and technology to monitor and control the airport surface area



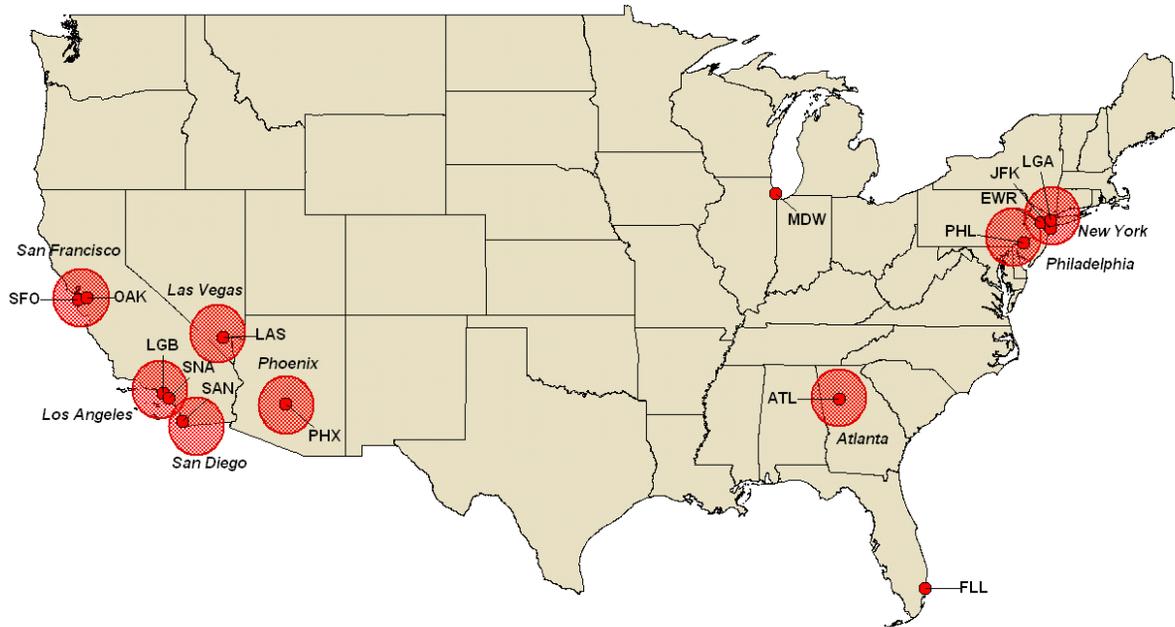
How are airports preparing for NextGen



Future Airport Capacity Task (FACT) 2

2025

After Planned Improvements



14 airports that need additional capacity

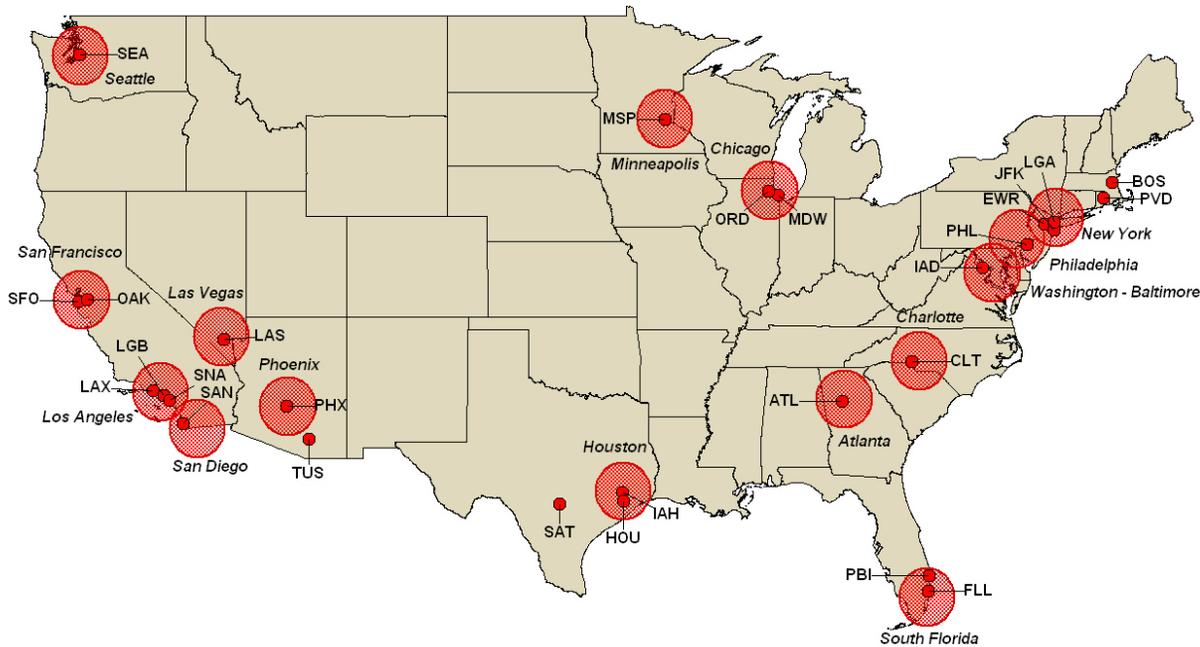
- ATL
- EWR
- FLL
- JFK
- LAS
- LGA
- LGB
- MDW
- OAK
- PHL
- PHX
- SAN
- SFO
- SNA

8 metro areas that need additional capacity

- Atlanta
- Las Vegas
- Los Angeles
- New York
- Philadelphia
- Phoenix
- San Diego
- San Francisco

2025

If Planned Improvements Do Not Occur



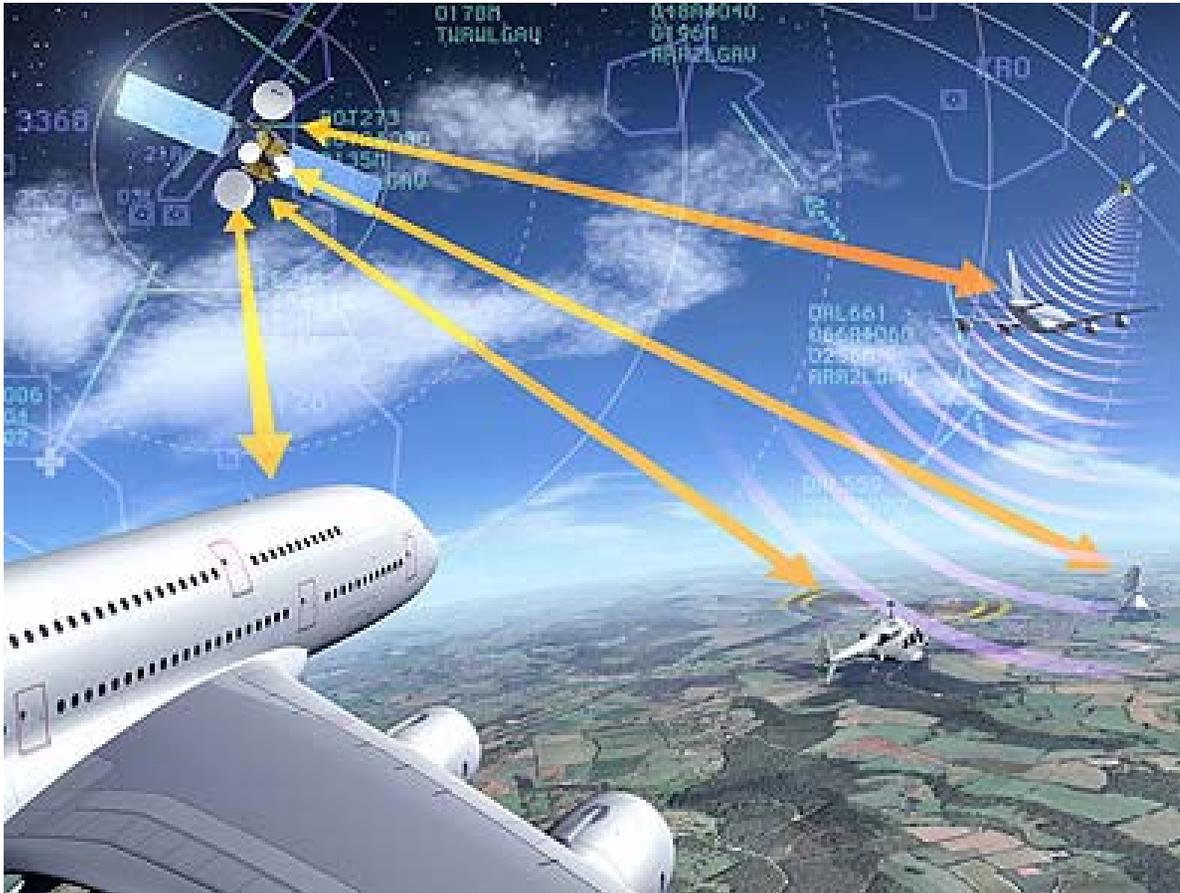
27 airports that need additional capacity

- ATL
- BOS
- CLT
- EWR
- FLL
- HOU
- IAD
- IAH
- JFK
- LAS
- LAX
- LGA
- LGB
- MDW
- MSP
- OAK
- ORD
- PBI
- PHL
- PHX
- PVD
- SAN
- SAT
- SEA
- SFO
- TUS
- SNA

15 metro areas that need additional capacity

- ATL
- CLT
- ORD
- HOU
- LAS
- LAX
- MSP
- NY
- PHL
- PHX
- SEA
- SAN
- SFO
- SFLA
- DC

You Are Needed to Make NextGen Real



Become familiar with the concepts.

Foster an environment that opens minds to new ideas.

Top 7 Airport Attributes will help make NextGen real

1. Airports should be safe and efficient, located at optimum sites and maintained at appropriate standards.
2. Airports should be flexible and expandable, able to meet increased demand and to accommodate new aircraft types.
3. Airports should be permanent, with assurance they will remain open for aeronautical use over the long term.
4. Airports should be compatible with the surrounding communities, maintaining a balance between the needs of aviation and the environment.
5. Airports should be developed in concert with improvements to the air traffic control system.
6. The airport system should be extensive, providing as many people as possible with convenient access to air transportation.
7. The airport system should help air transportation contribute to a productive national economy and international competitiveness.

Questions & Discussion

