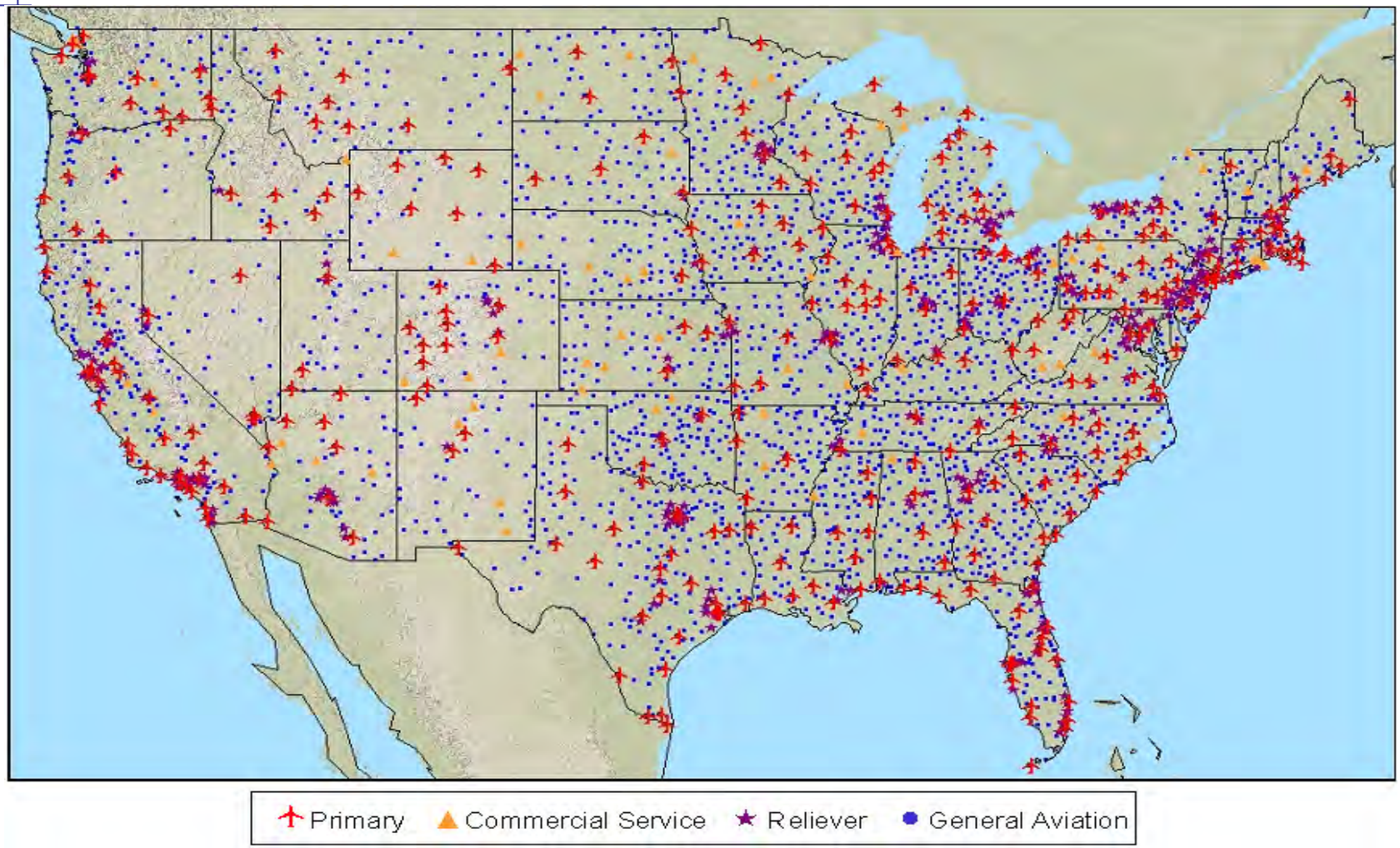
Capacity Needs and NEXTGEN

Great Lakes Region 24th Annual Airports Conference

November 2008

Federal Aviation Administration

Airports are Critical to the National Airspace System



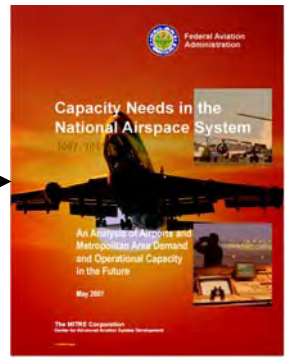
“It’s tempting to think what tomorrow will be like once we’ve done all that we’ve set out to do … new runways, new airports, airspace re-design and the like. But step one is getting a handle on the problem…”

FACT 2 Study Rollout
Marion C. Blakey, Atlanta, May 15, 2007

PLANNING FOR SYSTEM CAPACITY NEEDS

Understanding the problem and implementing solutions

Flight Plan



FACT 2

NextGen

Develop Toolboxes and Action Plans of Potential Solutions (FACT 2 Next Steps)

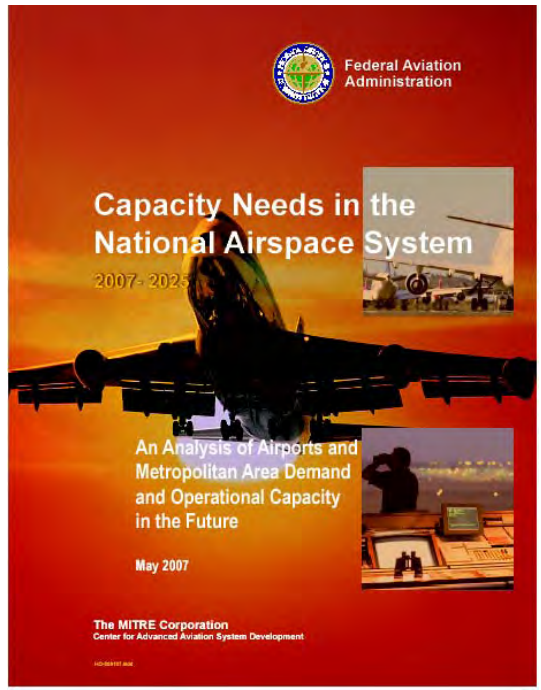
Develop, Integrate, and Implement NextGen

PLANNING FOR SYSTEM CAPACITY NEEDS

Future Airport Capacity Task (FACT)

- FACT is an assessment of the future capacity of the Nation's airports and metropolitan areas.

- The results of the latest FACT analysis were documented in the May 2007 FAA report "*Capacity Needs in the National Airspace System, An Analysis of Airport and Metropolitan Area Demand and Operational Capacity in the Future"* (referred to as FACT 2).



PLANNING FOR SYSTEM CAPACITY NEEDS

Future Airport Capacity Task (FACT)

- Because it is a system-wide analysis, FACT 2 is intended to provide the FAA with data about the timing and need for infrastructure improvements at the national level for agency planning purposes.
- The FACT 2 analysis is not intended to replace site-specific studies that examine capacity issues in much greater detail and are thus more accurate reflections of the situation.
- The FACT 2 Team is led by the FAA's Airports organization (ARP) and includes representatives from the Air Traffic Organization (ATO), The FAA Tech Center, Aviation Safety, the Joint Planning and Development Office (JPDO) and the MITRE Corporation's Center for Advanced Aviation System Development (CAASD).

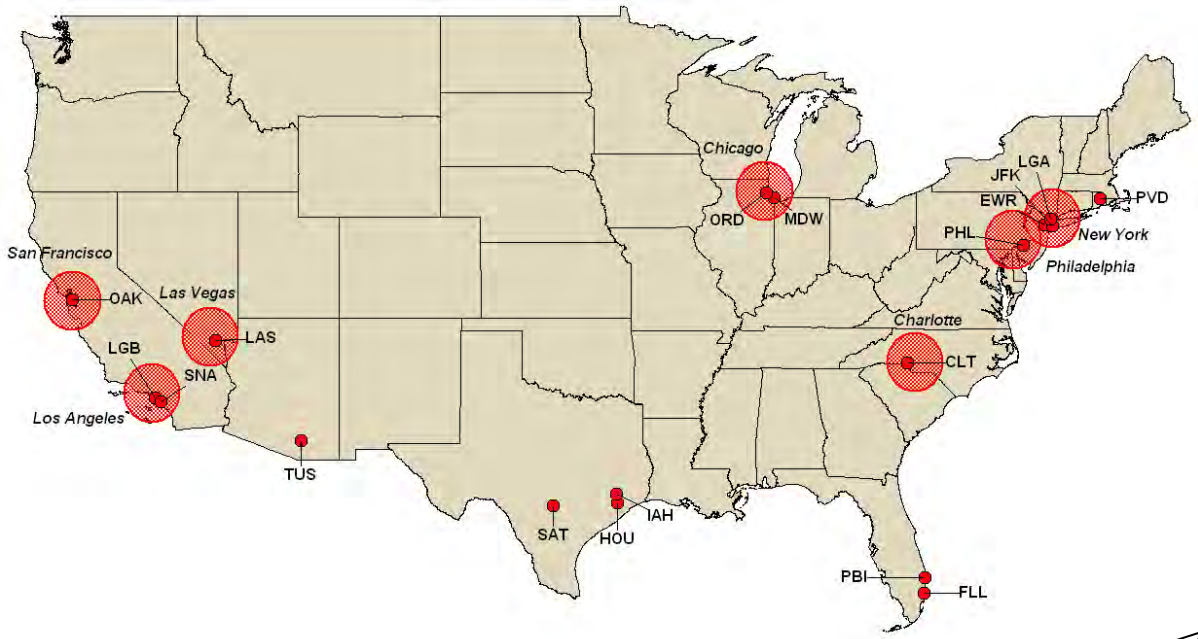
PLANNING FOR SYSTEM CAPACITY NEEDS

Future Airport Capacity Task (FACT)

- Capacity constrained airports and metropolitan areas were identified using multiple criteria to measure various demand and performance parameters.
- Only runway capacity and terminal airspace procedures were considered. Taxiway, terminal, and enroute capacities were not assessed.
- A validation process involving airport operators, air traffic control personnel, and a review of other federal documents was used to identify the final list of airports and metro areas.

PLANNING FOR SYSTEM CAPACITY NEEDS

FACT 2 2015 *If Planned Improvements Do Not Occur*



Seven metro areas included in 2008 Flight Plan

18 airports that need additional capacity

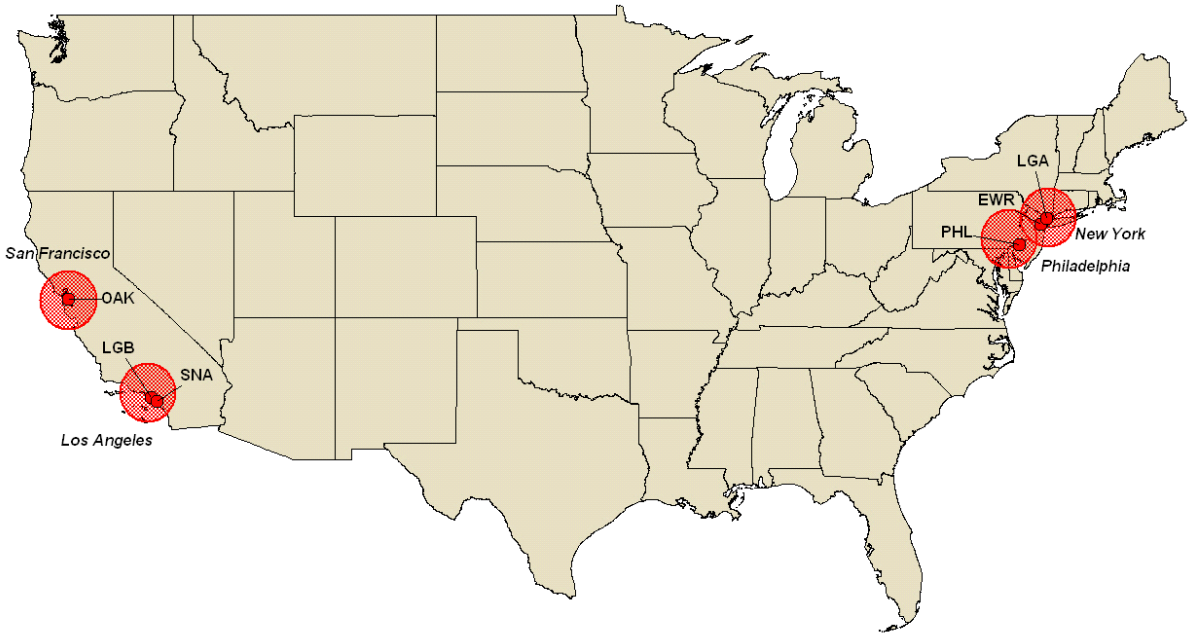
- CLT
- EWR
- FLL
- HOU
- IAH
- JFK
- LAS
- LGA
- LGB
- MDW
- OAK
- ORD
- PBI
- PHL
- PVD
- SAT
- SNA
- TUS

7 metro areas that need additional capacity

- Charlotte
- Chicago
- Las Vegas
- Los Angeles
- New York
- Philadelphia
- San Francisco

PLANNING FOR SYSTEM CAPACITY NEEDS

FACT 2 2015 *After Planned Improvements*



6 airports that need additional capacity

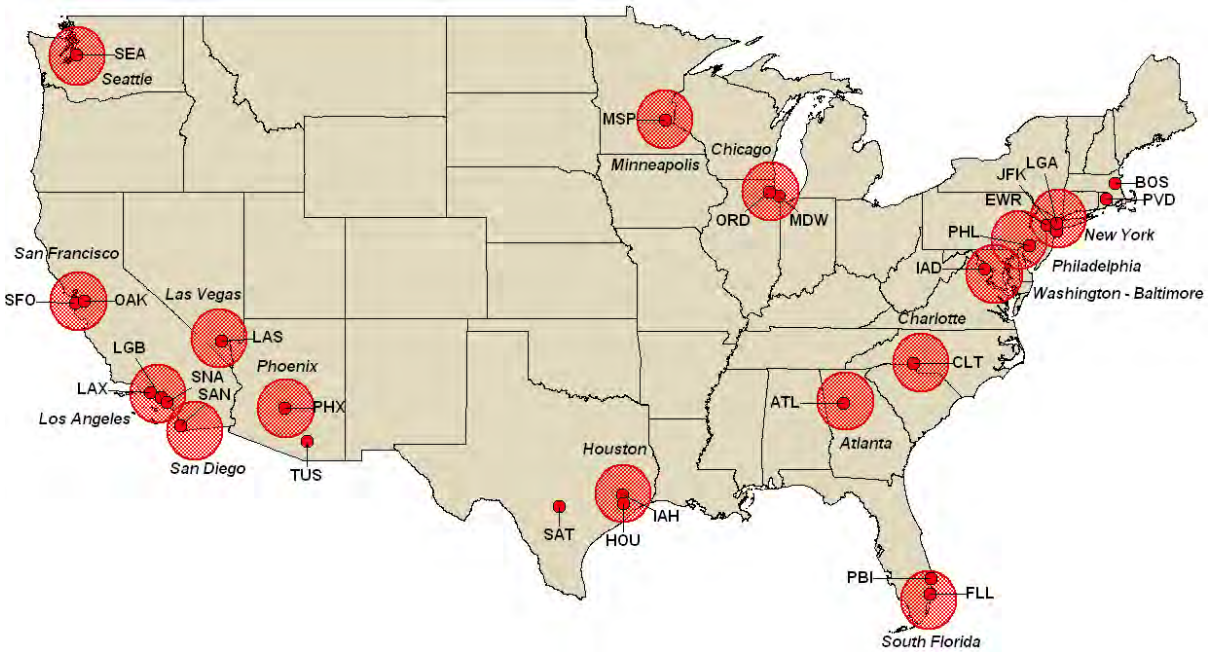
- EWR
- LGA
- LGB
- OAK
- PHL
- SNA

4 metro areas that need additional capacity

- Los Angeles
- New York
- Philadelphia
- San Francisco

PLANNING FOR SYSTEM CAPACITY NEEDS

FACT 2 2025 *If Planned Improvements Do Not Occur*



This analysis underscores the importance of implementing the current planned improvements in order to avoid capacity shortfalls in the future.

15 metro areas included in NPIAS and OEP

27 airports that need additional capacity

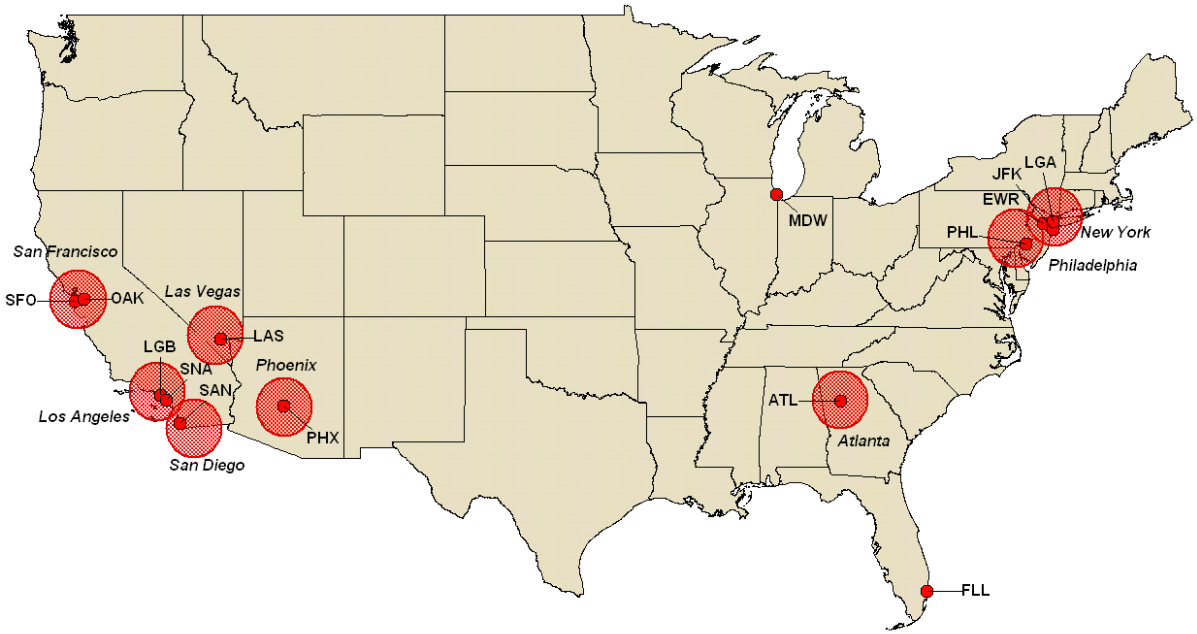
- ATL
- BOS
- CLT
- EWR
- FLL
- HOU
- IAD
- IAH
- JFK
- LAS
- LAX
- LGA
- LGB
- MDW
- MSP
- OAK
- ORD
- PBI
- PHL
- PHX
- PVD
- SAN
- SAT
- SEA
- SFO
- TUS
- SNA

15 metro areas that need additional capacity

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

PLANNING FOR SYSTEM CAPACITY NEEDS

FACT 2 2025 *After Planned Improvements*



This analysis shows why additional solutions such as new runways, new airports, regional emphasis, congestion management, multi-modal planning, and NextGen are so important.

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

PLANNING FOR SYSTEM CAPACITY NEEDS

Future Airport Capacity Task (FACT) Next Steps

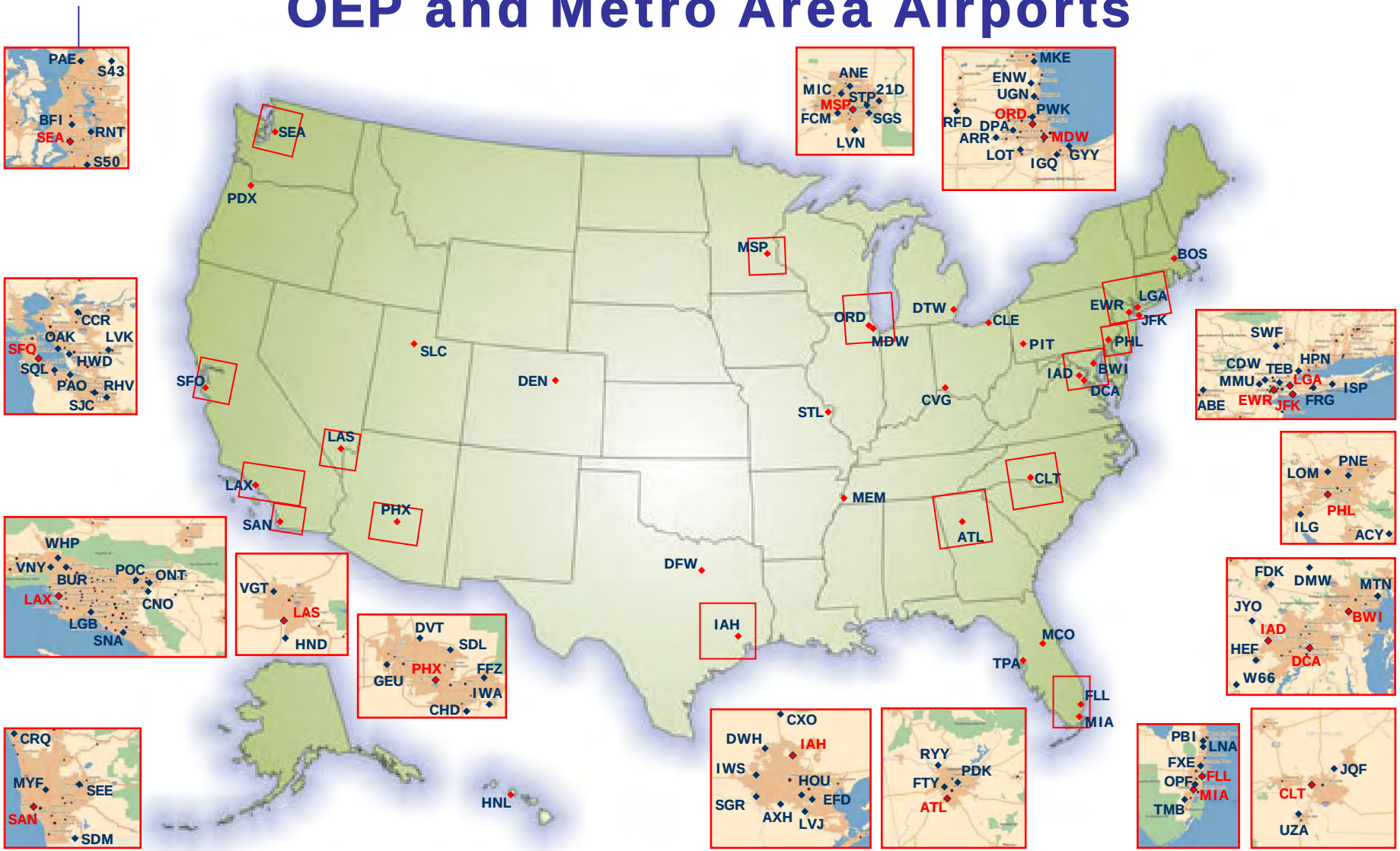
- The Future Airport Capacity Team is working with airports and local communities to develop toolbox of potential solutions to address anticipated capacity shortfalls (2008-2012 FAA Flight Plan)
- Initial focus on 14 airports and 8 metro areas identified for 2025, *After Planned Improvements*
- Toolbox includes metro-regional, runway infrastructure, taxiway infrastructure, terminal infrastructure, as well as enroute, terminal and local airspace solution sets.
- Toolbox solution sets are closely aligned to NextGen Operational Improvements.

PLANNING FOR SYSTEM CAPACITY NEEDS

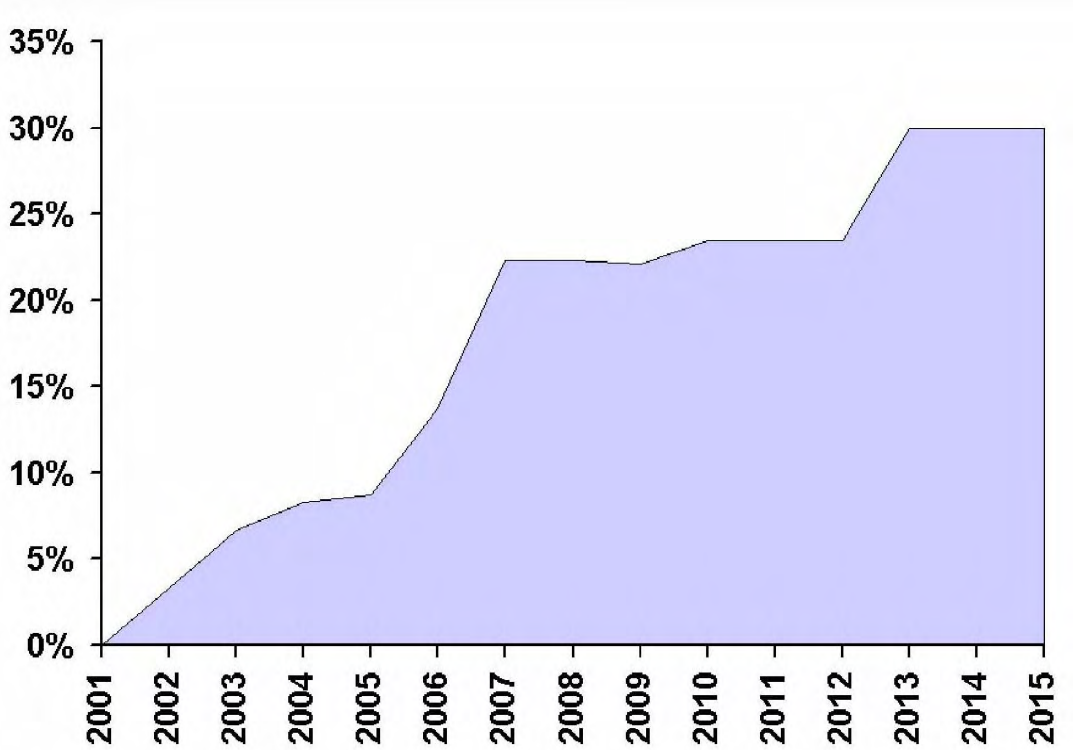
Key Issues Learned Through Development of FACT Toolbox

- Most of the 14 airports agree that regional solutions (e.g. greater use of secondary commercial service airports within the metro area) must be pursued.
- Multi-modal solutions would benefit most of the 14 airports (e.g. regional rail links in Southern Cal, high-speed rail between North and Southern Cal, and transit connections between McCarran and Ivanpah).
- Closely spaced parallel runways on existing airport property could provide additional capacity at several airports and reduce political sensitivities.
- Additional terminal airspace capacity is critical to future runway capacity at most of the 14 airports.
- Additional taxiway capacity, improved ramp circulation, and additional gates are needed at most of the 14 airports to take advantage of maximum runway capacity.
- Relaxation/reduction of runway occupancy requirements is widely supported but the ability to implement is questioned by most of the 14 airports.
- NextGen is strongly supported by the airports but benefits will vary.

OEP and Metro Area Airports



Why OEP? The Right Results

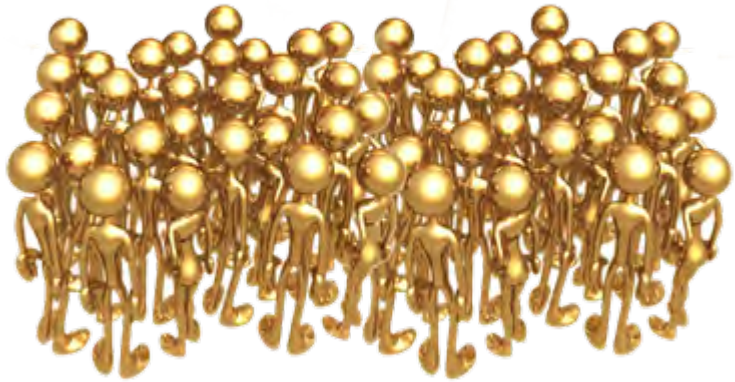


OEP will produce a 30 % increase in effective capacity by 2013.

Why OEP? The Right Support

The 2025 Challenge

- In 2007, passengers exceeded 762 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!

PROVIDING SOLUTIONS NextGen

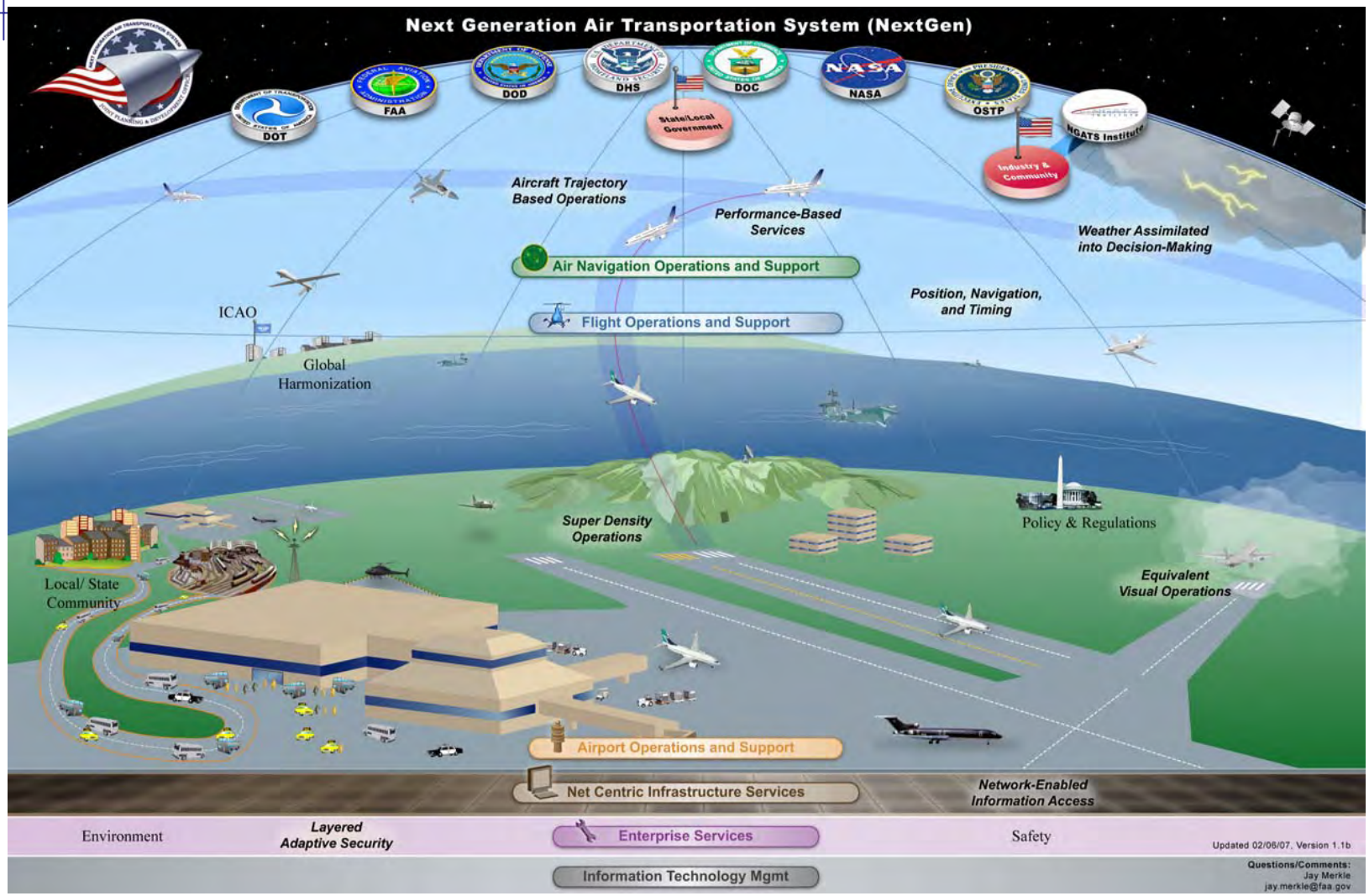
The NextGen Vision

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)

NextGen… “What is it?”

Year 2025



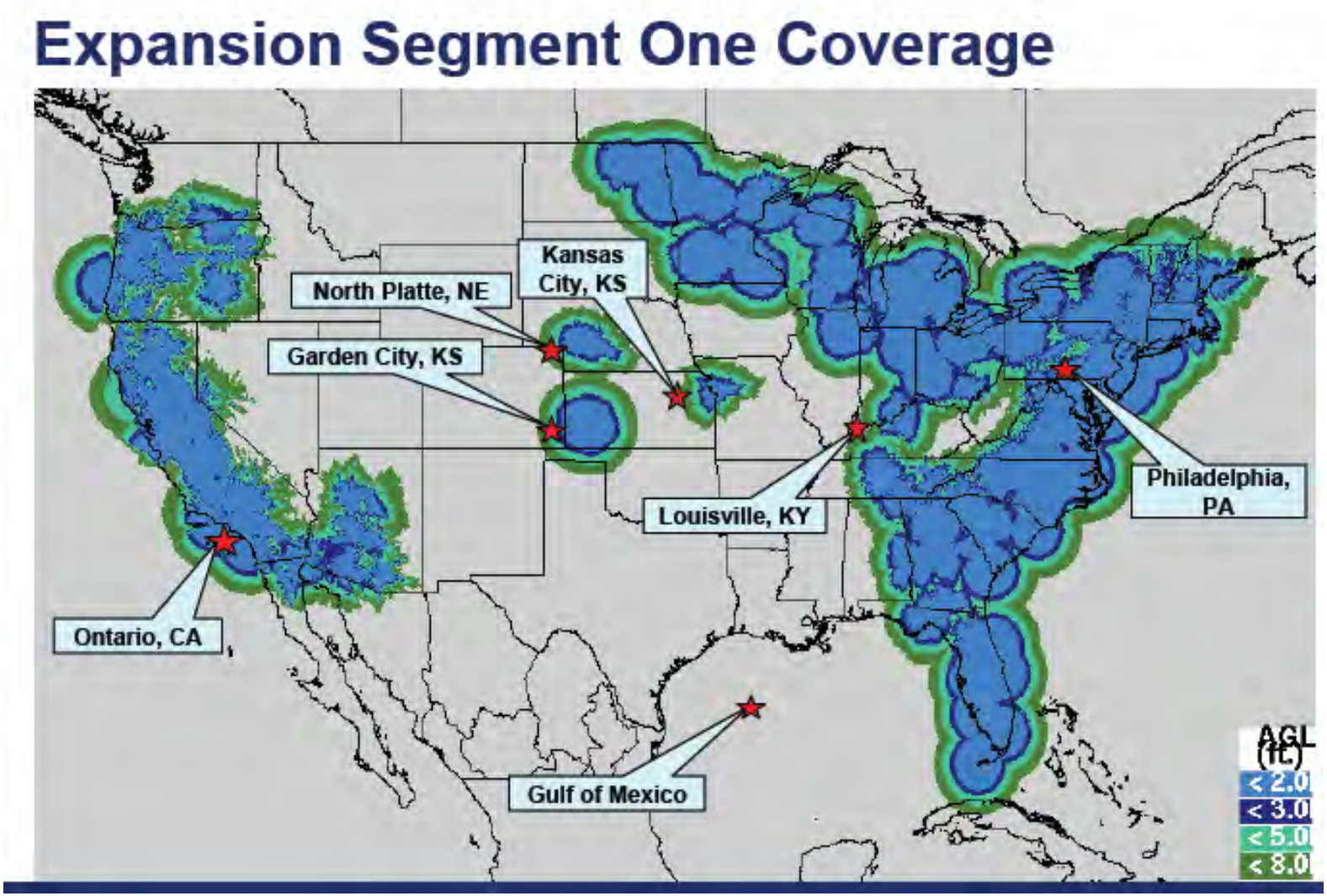
The NextGen Vision

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 Integration and Implementation

- The Joint Planning and Development Office was tasked with creating the NextGen Vision.
- The NextGen Integration and Implementation Office was tasked with turning the vision into an actionable plan.
- Emphasis is now moving from concept development to execution and deployment.

More ADS-B Deployment

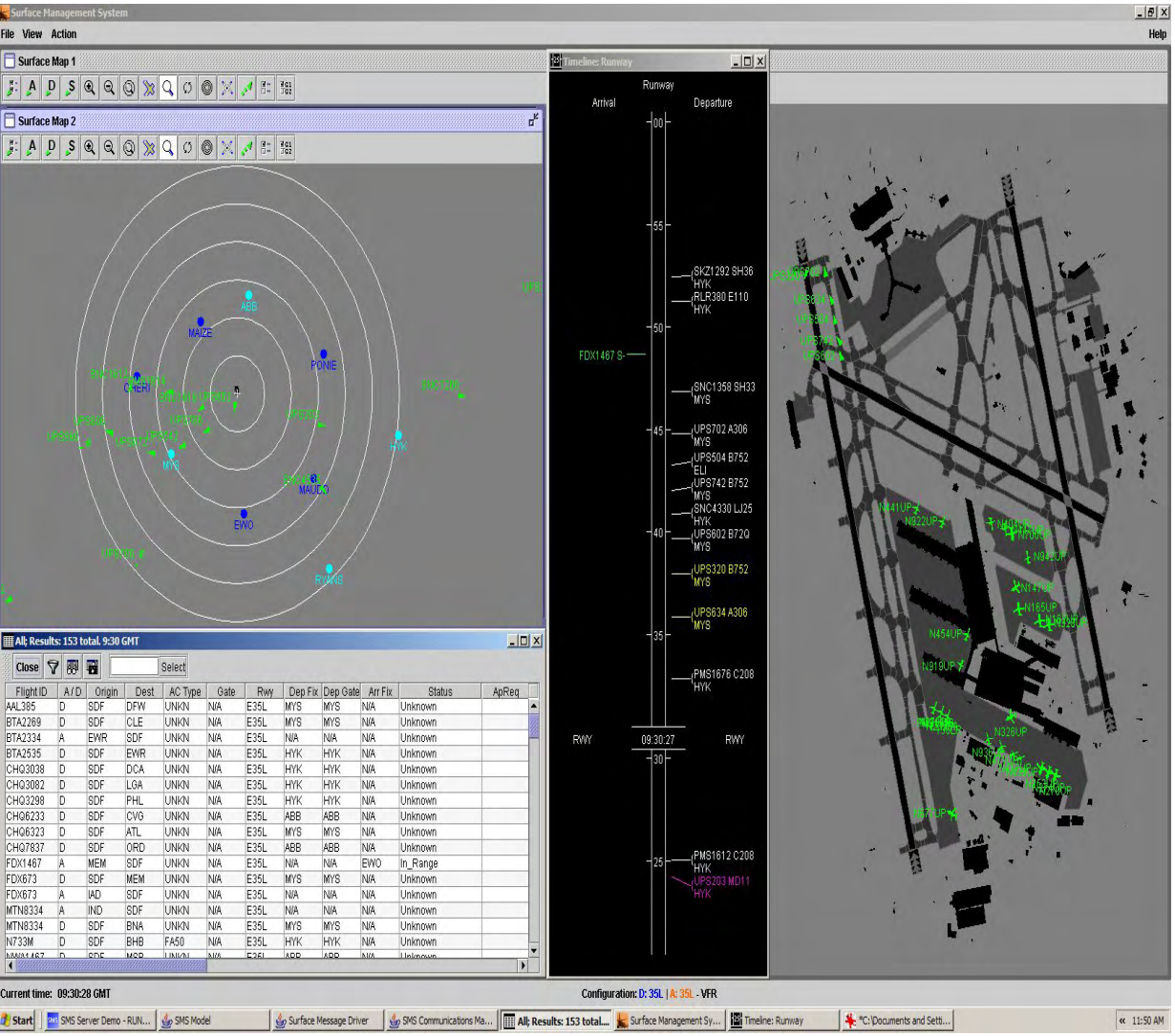


ADS-B in the Gulf

PROVIDING SOLUTIONS NextGen

How will NextGen benefit airports?

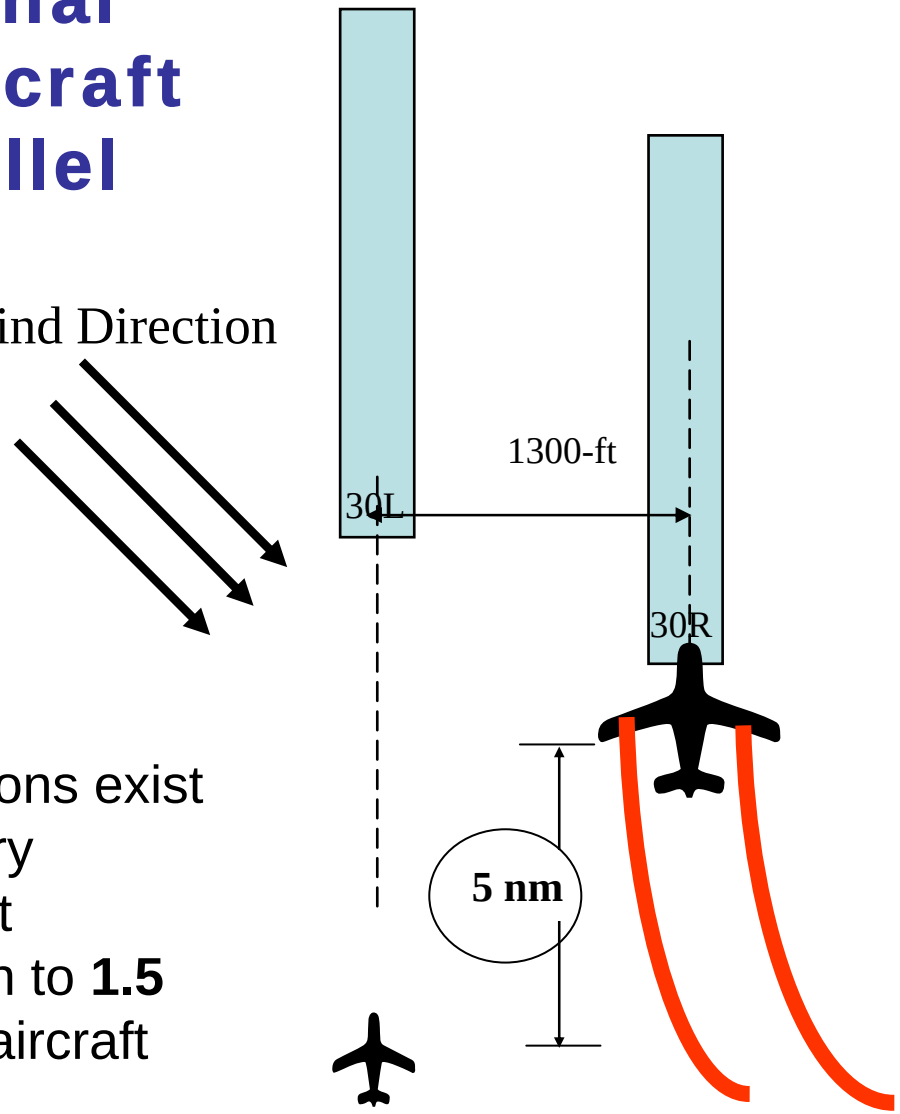
- **Increased Safety**
  - Greater situational awareness
  - Fewer runway incursions
- **Better Use of Existing Capacity**
  - Reduced lateral and vertical separation during bad weather
  - Reduced in-trail separation (i.e. wake turbulence)
- **Greater Design Flexibility**
  - Reduce runway separation standards
  - Ability to add new runways within existing footprint
  - Increased flexibility in terminal design and access
- **Reduced Environmental Impacts**
  - Less fuel consumption – fewer emissions (e.g. CDA)
  - Minimize noise impacts using RNAV/RNP



More efficient and safer Surface Management

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

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

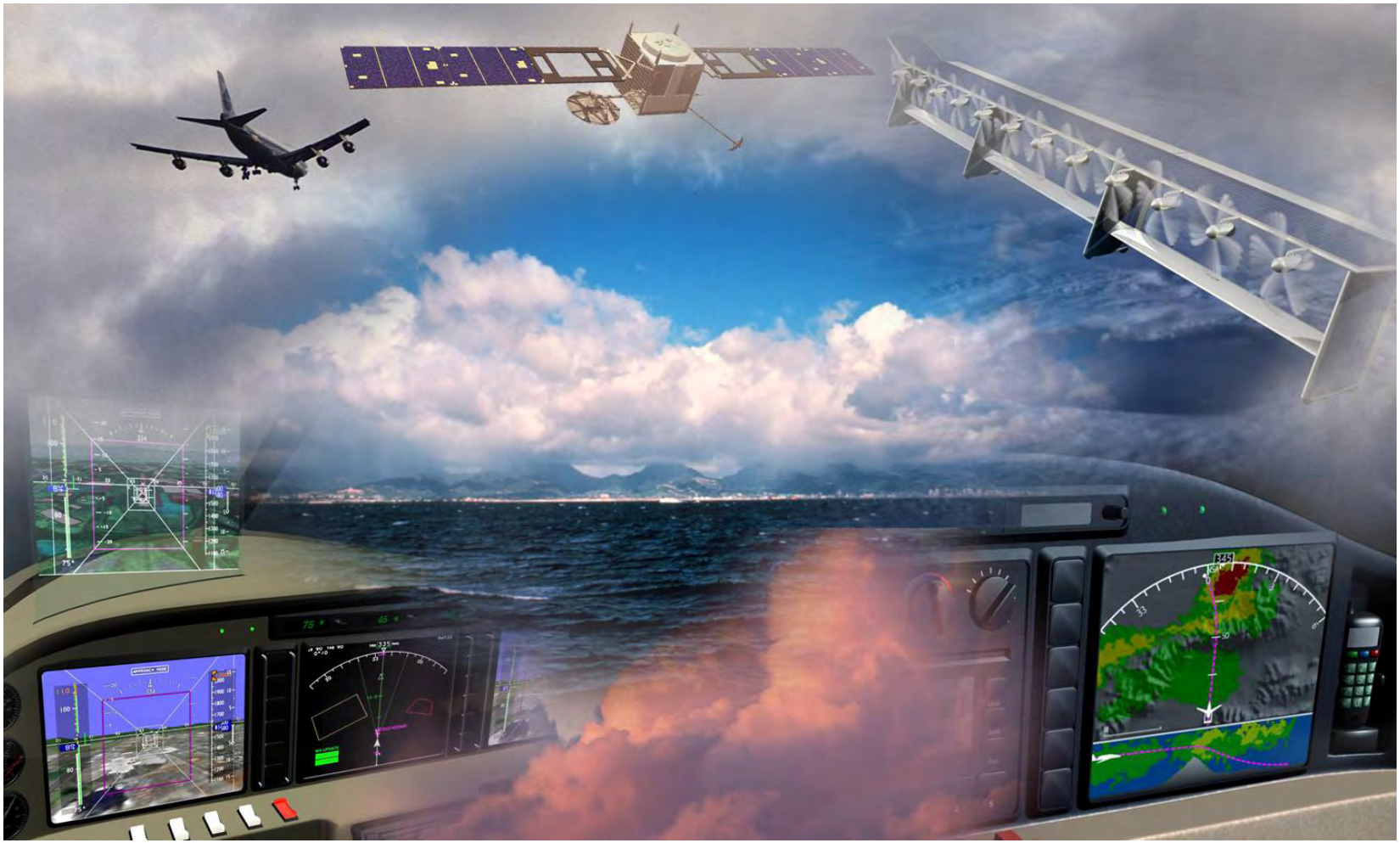


(ARRIVALS)

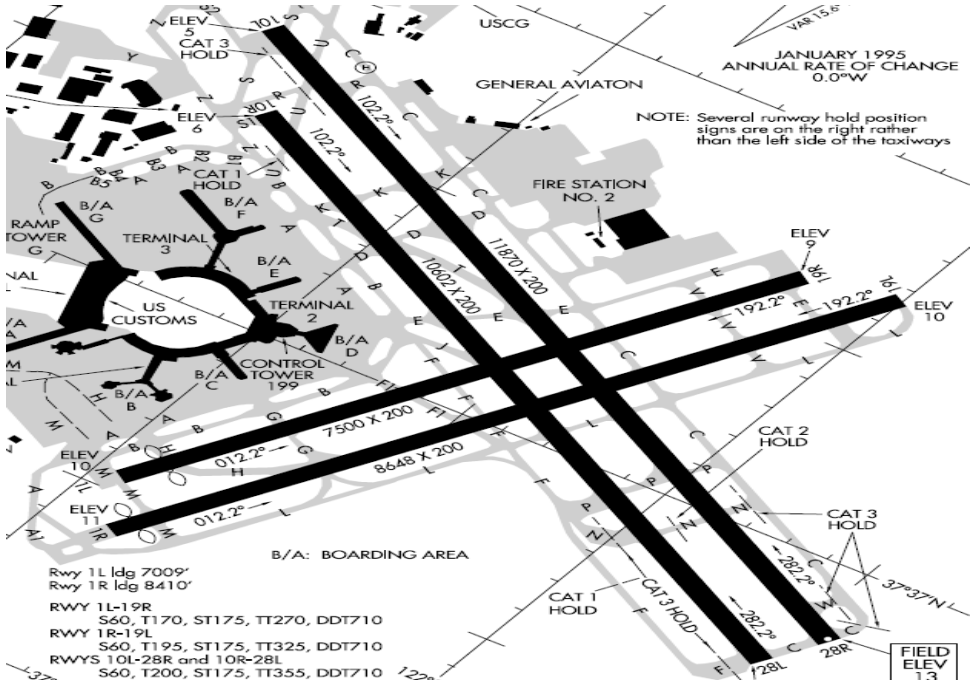
Under current rules a “Large” landing on 30L has to be spaced **5 miles** behind a “Heavy” arriving 30R since the CSPRs are a single runway in IFR conditions.

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.

Network Enabled Weather will be available



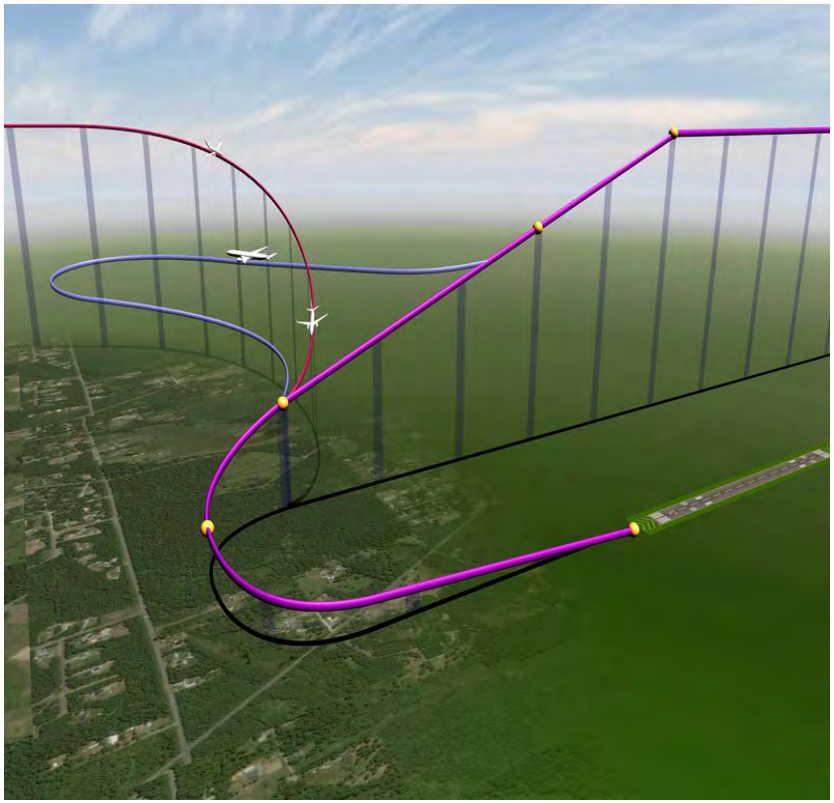
Possible reduced separation requirements between runways for Closely Spaced Parallel Runways (CSPR) Operations



Possibly more paired approaches

More efficient use of existing runways

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

You Are Needed to Make NextGen Real

Become familiar with the concepts.

Foster an environment that opens minds to new ideas.

PROVIDING SOLUTIONS NextGen

What is the FAA doing to help airports prepare for NextGen?

- The FAA's Office of Airports is actively involved in preparing airports for the future. At a local level, Regional and Airport District Office (ADO) personnel are engaged with airport operators in the planning process.
- Nationally, large-scale initiatives such as the Future Airport Capacity Task (FACT) 2 have identified capacity-constrained locations that would benefit most from NextGen solutions.
- FAA Airports is a partner with industry in the Joint Planning and Development Office's Airport Work Group.
- Additionally, FAA Airports is working closely with the FAA's NextGen Integration and Implementation Office to address near/mid-term transition goals.