

Progress to NextGen

Avoided Delay Metric

Presented to: NAS Performance Workshop

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Federal Aviation
Administration

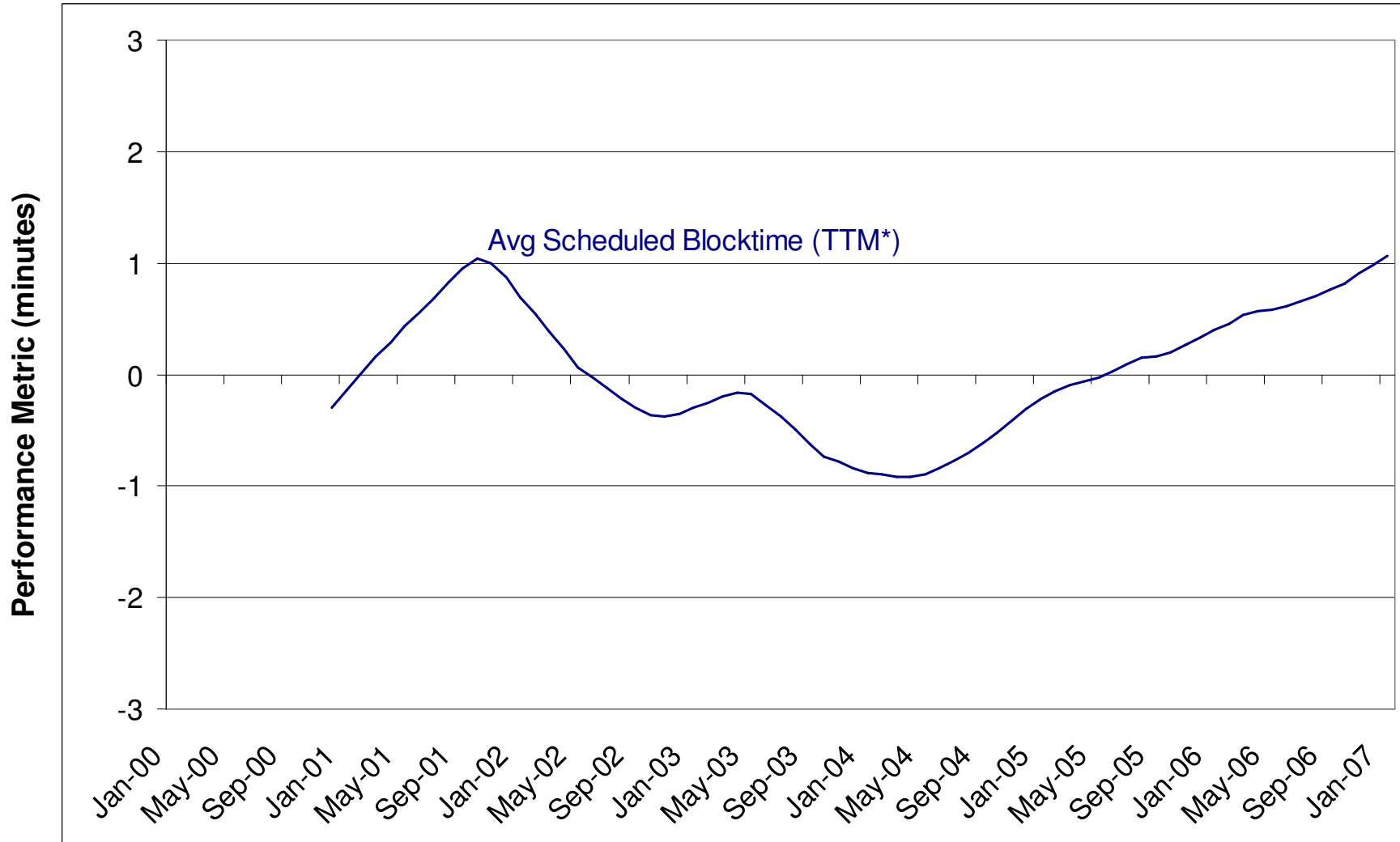


Metrics Needs

- **NextGen plans for 2025**
- **OEP focused on the mid-term**
- **NextGen near-term benefits**



Scheduled Block Time



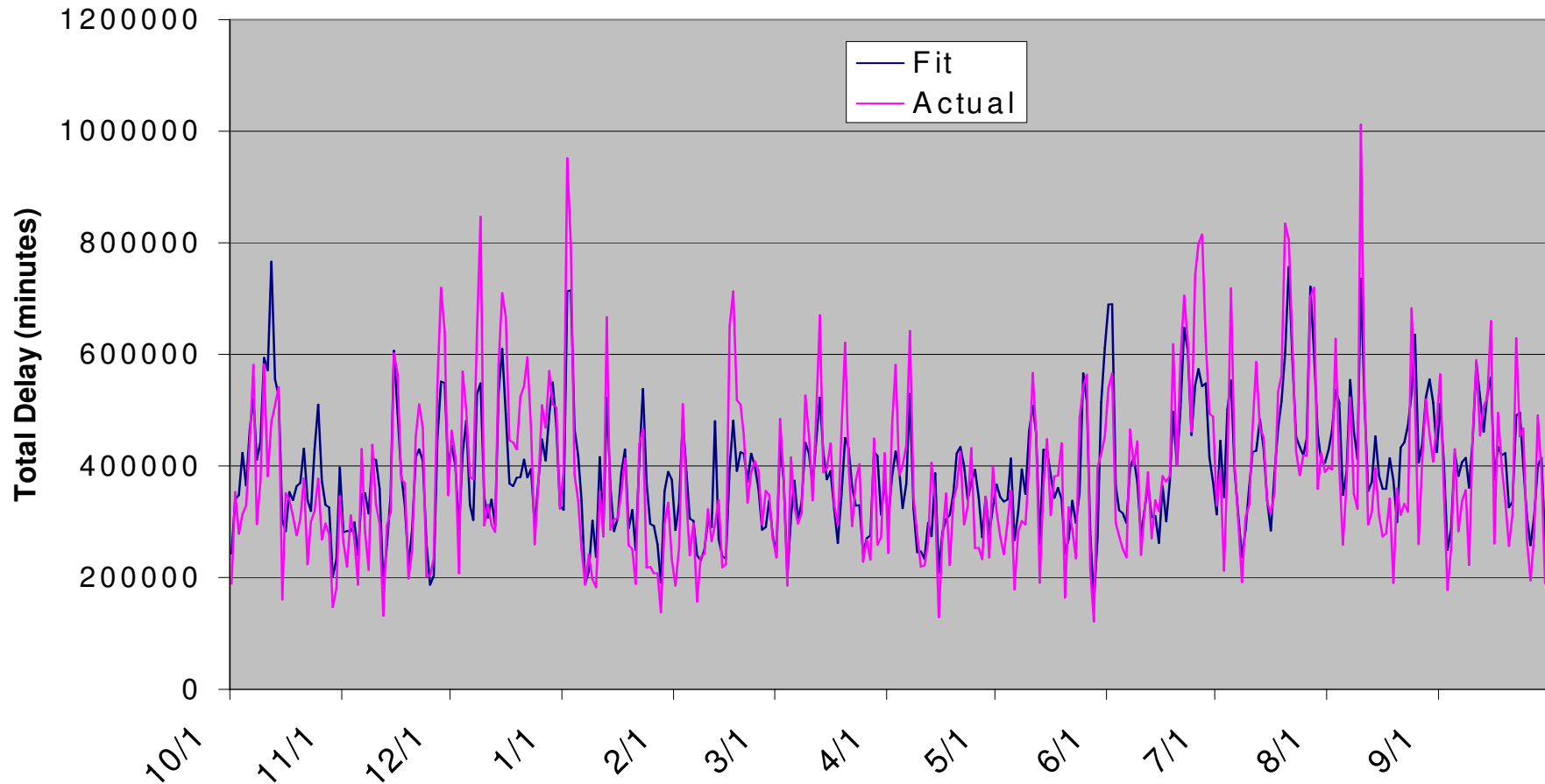
Total Delay Measure

- **Schedule Delay**
 - Airlines compensate for routine system delays.
- **Modeling – Total System Delay**
 - Allows us to know full range of delays and where they occur.

$$\text{Total Delay} = \text{Gate Delay} + \text{Taxi-out Delay} + \text{Airborne Delay} + \text{Taxi-in Delay}$$

Day-by-Day NAS Model of Delay

ASPM55 Airports, FY2006

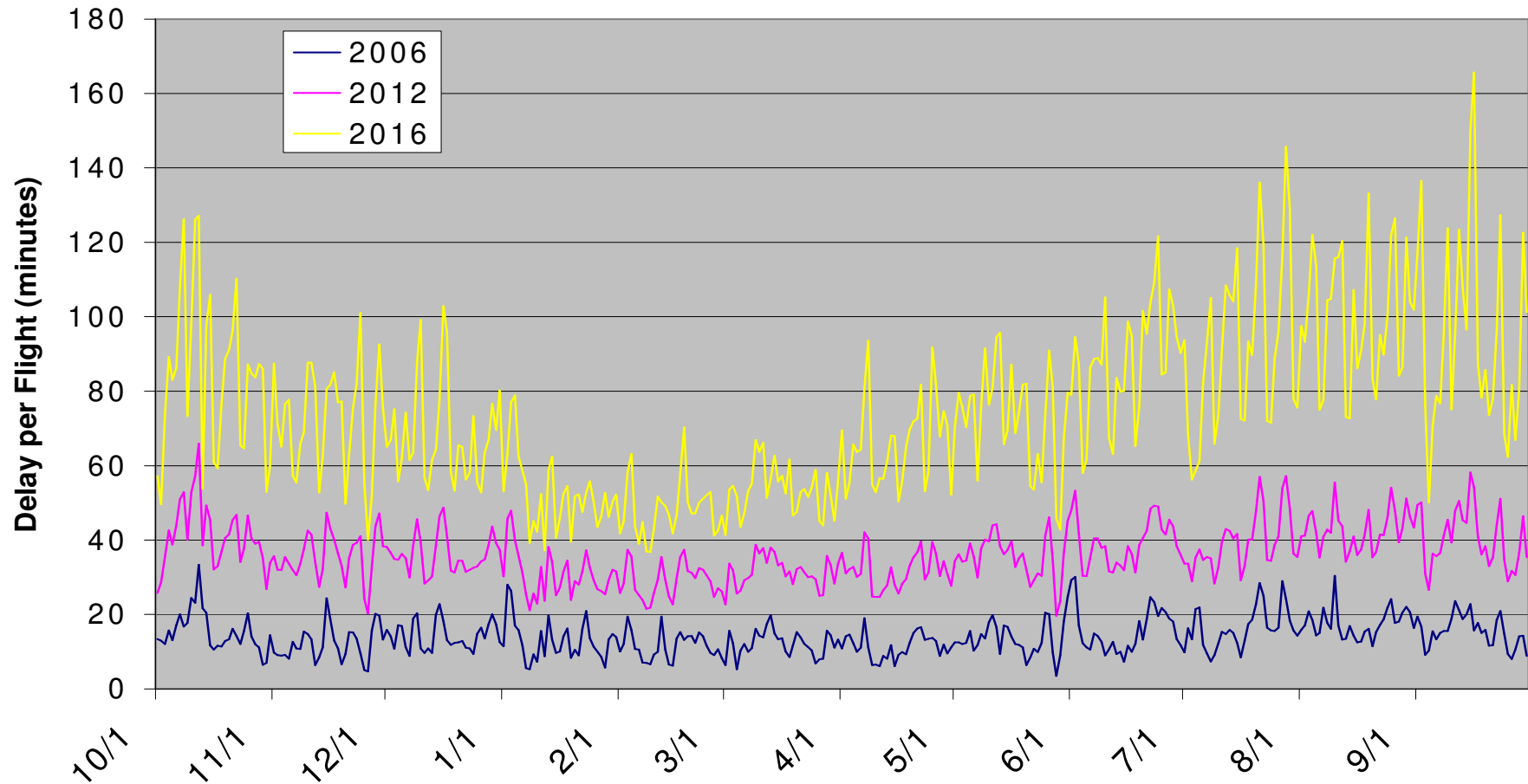


Capacity Improvements by 2015

- **Runways at OEP airports in OEP**
 - PHL, SEA, IAD
- **Runways at OEP airports not in OEP**
 - ORD, FLL
- **Non-OEP Runways**
 - Several FACT56 airports not in OEP plan new runways
- **OEP procedural improvements**
 - TMA, RNAV, PRM, SOIA
 - Assumed at OEP35 airports only
 - Yield 10% arrival capacity improvement

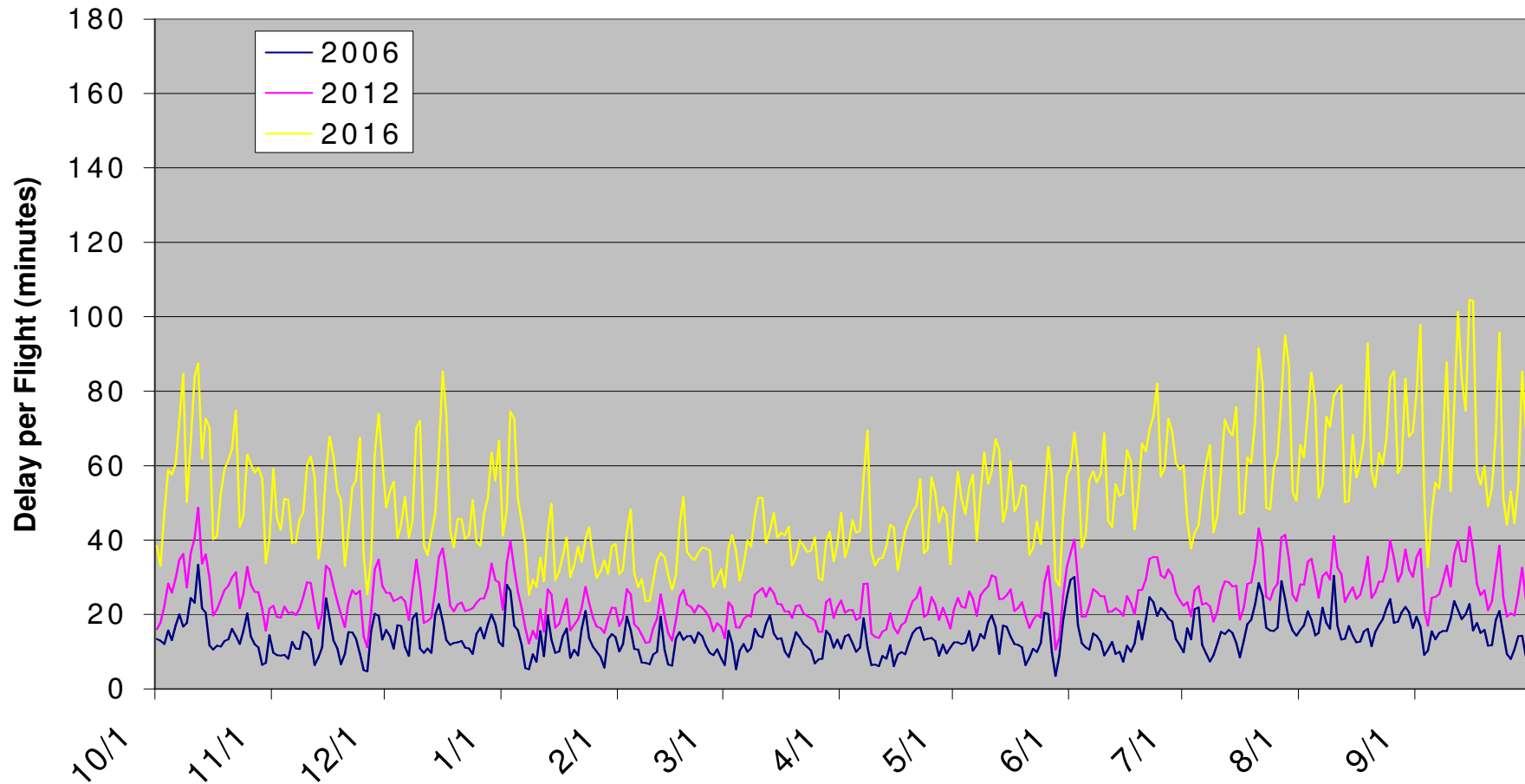


Base Delay Projections



Delays projected using ATO Network Forecasts
Assumes weather in 2012 and 2016 the same as 2006
Projections assume no capacity improvements

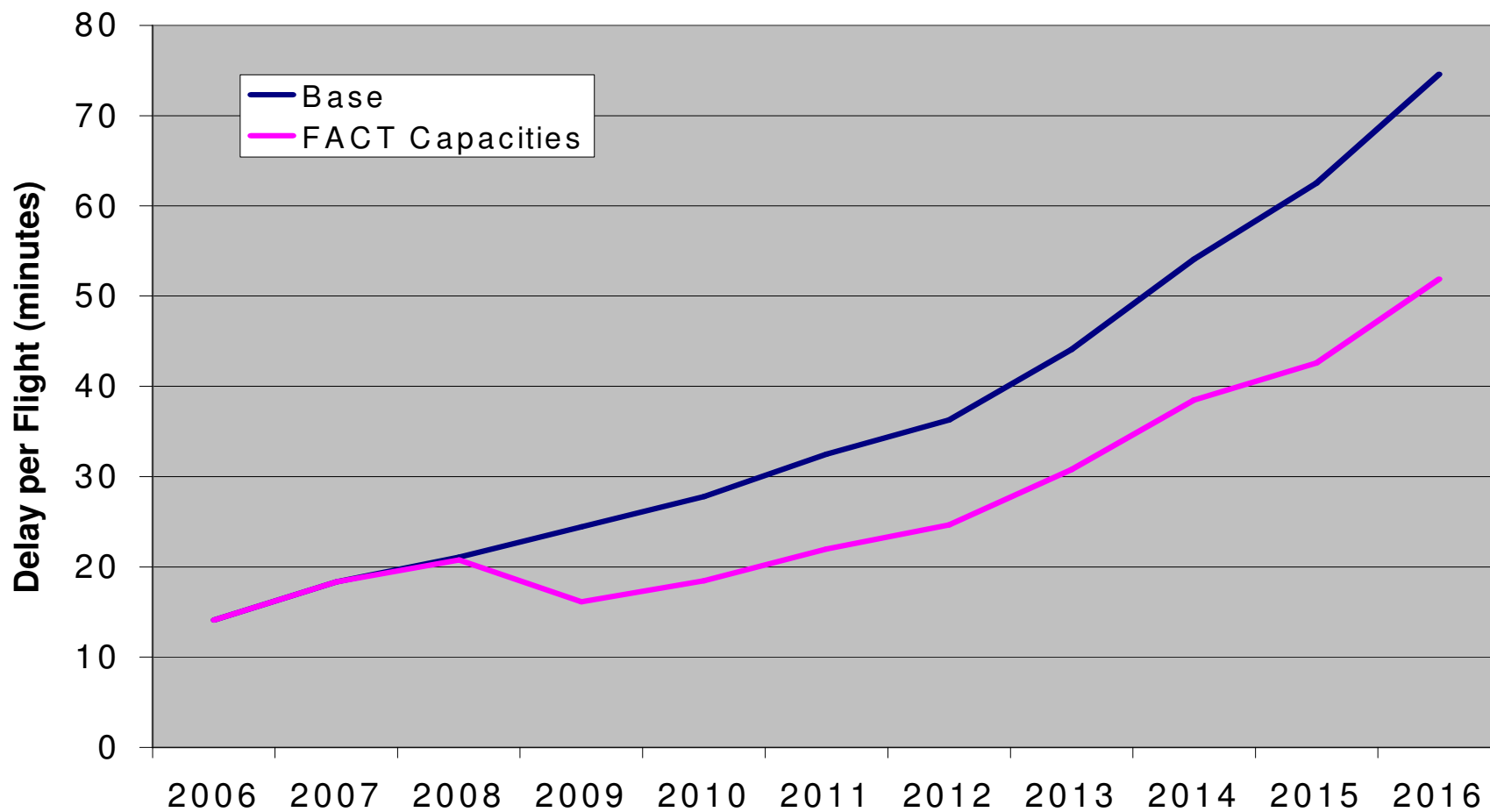
Delay Projections with NextGen



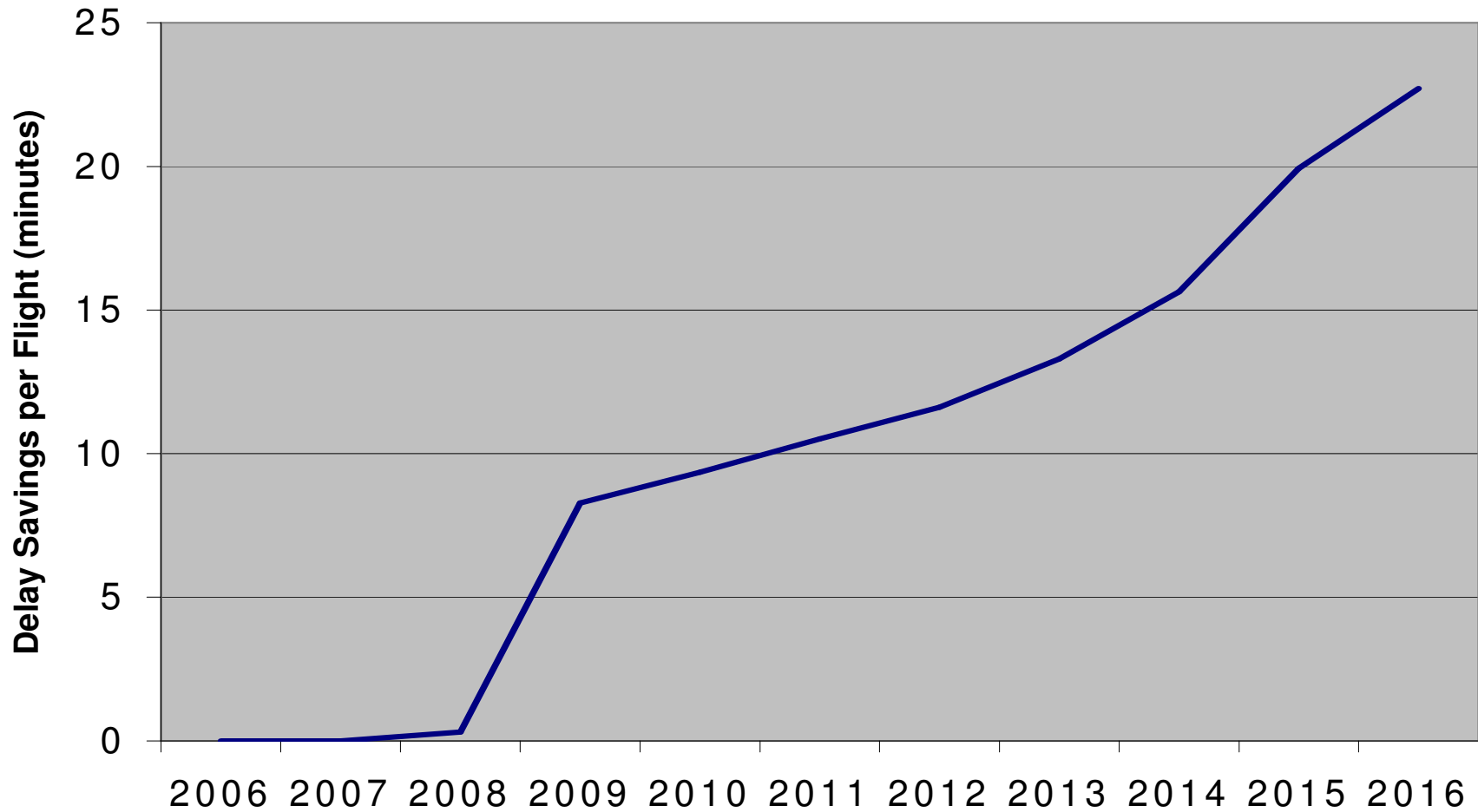
Delays projected using ATO Network Forecasts
Assumes weather in 2012 and 2016 the same as 2006
Projections assume capacity improvements in FACT2 analysis



Annual Delay Increase



Avoided Delay

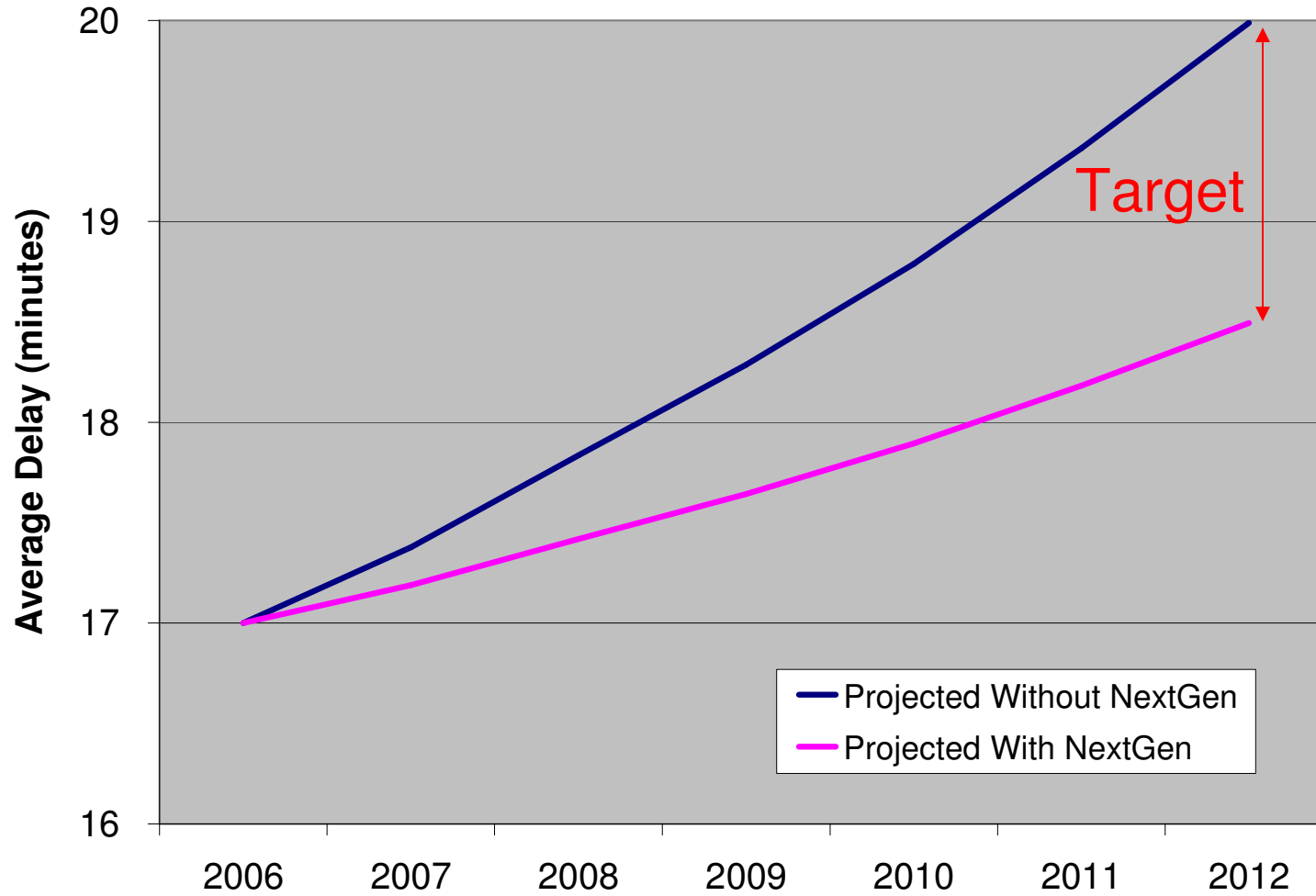


Calculation of Metric

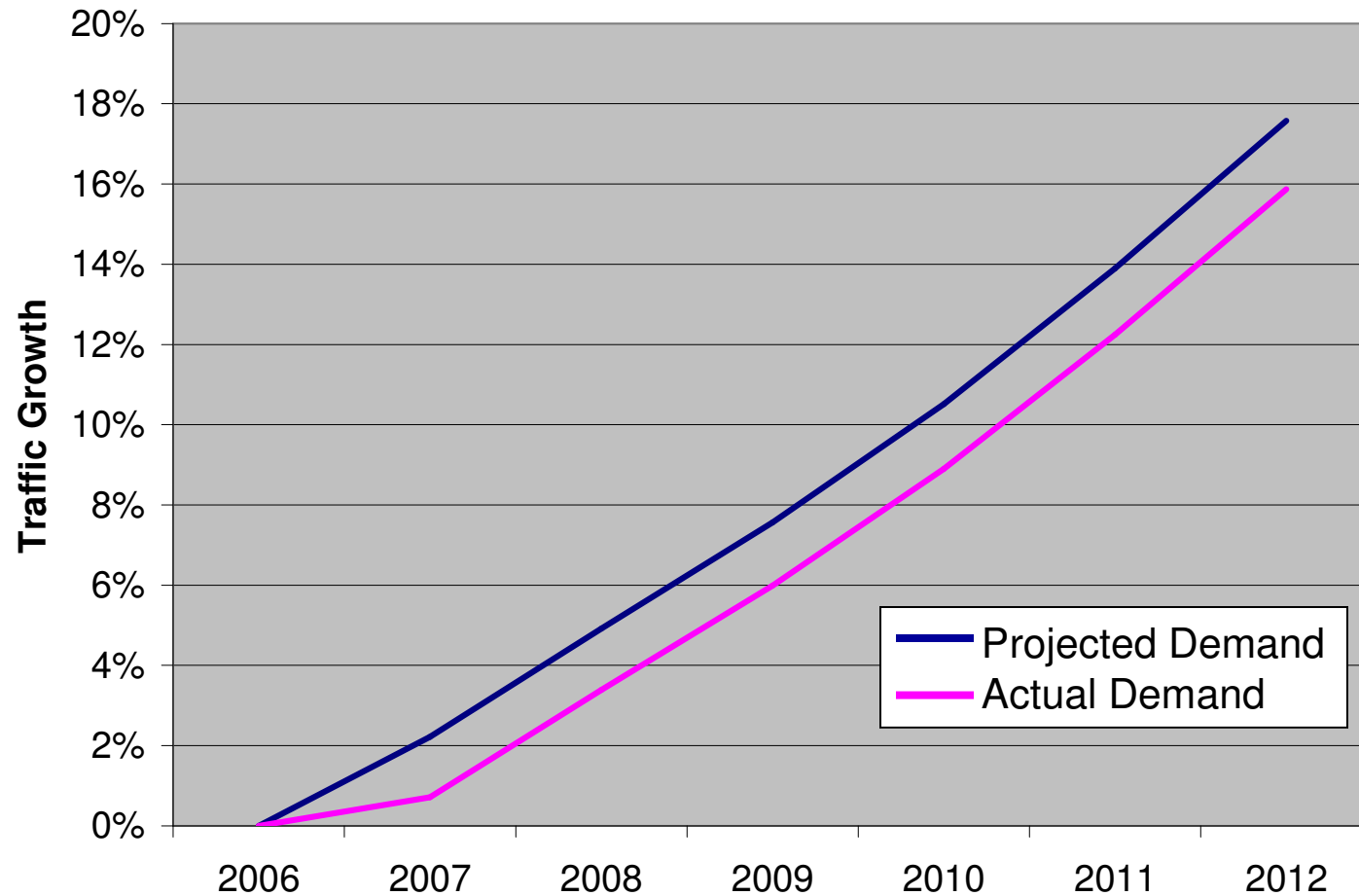
- **Use model to compute average delay with and without NextGen improvements**
 - Delays calculated with actual demand
- **Difference in modeled delays is avoided delay**
 - Could use percentage reduction in delay rather than delay itself



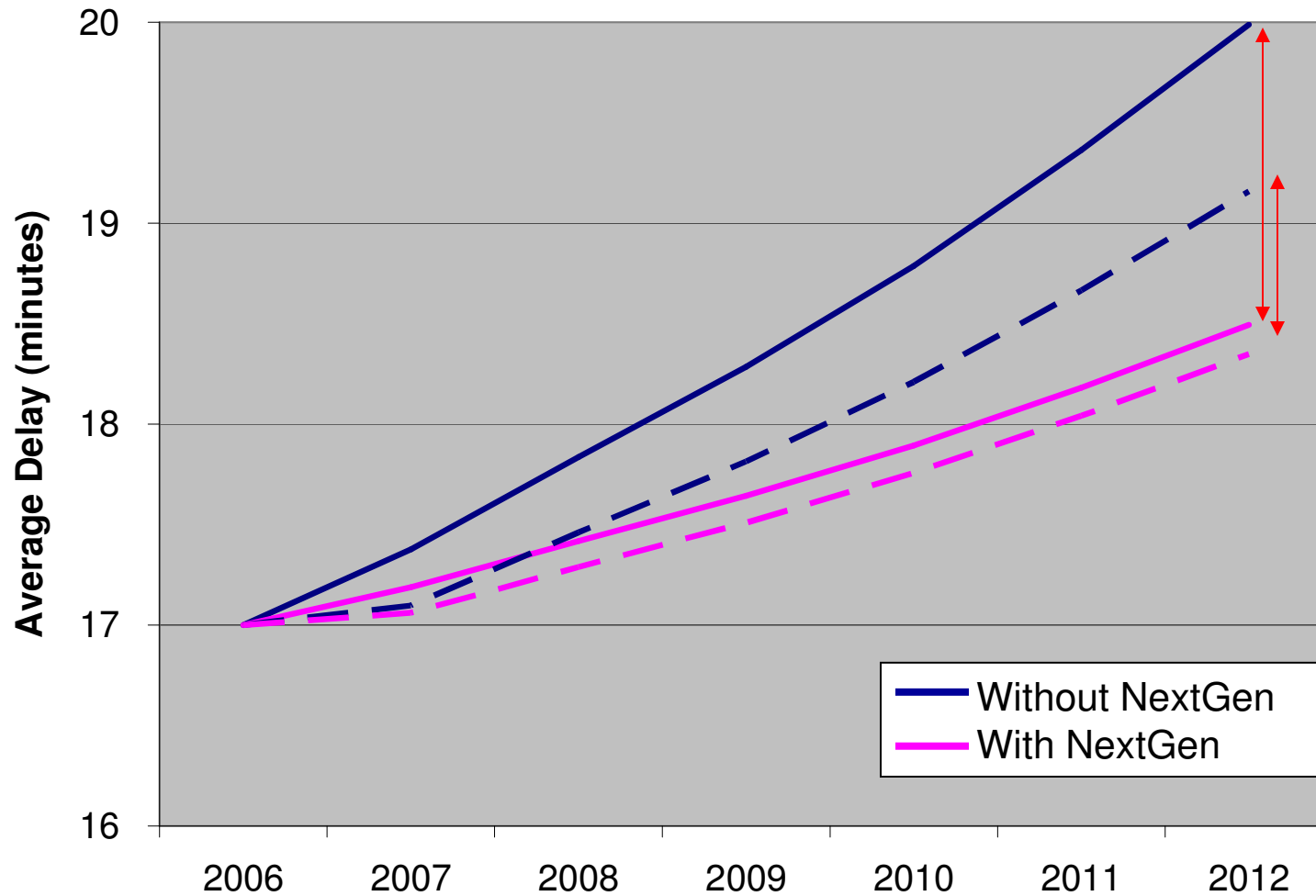
Target Setting



Target Setting Risk

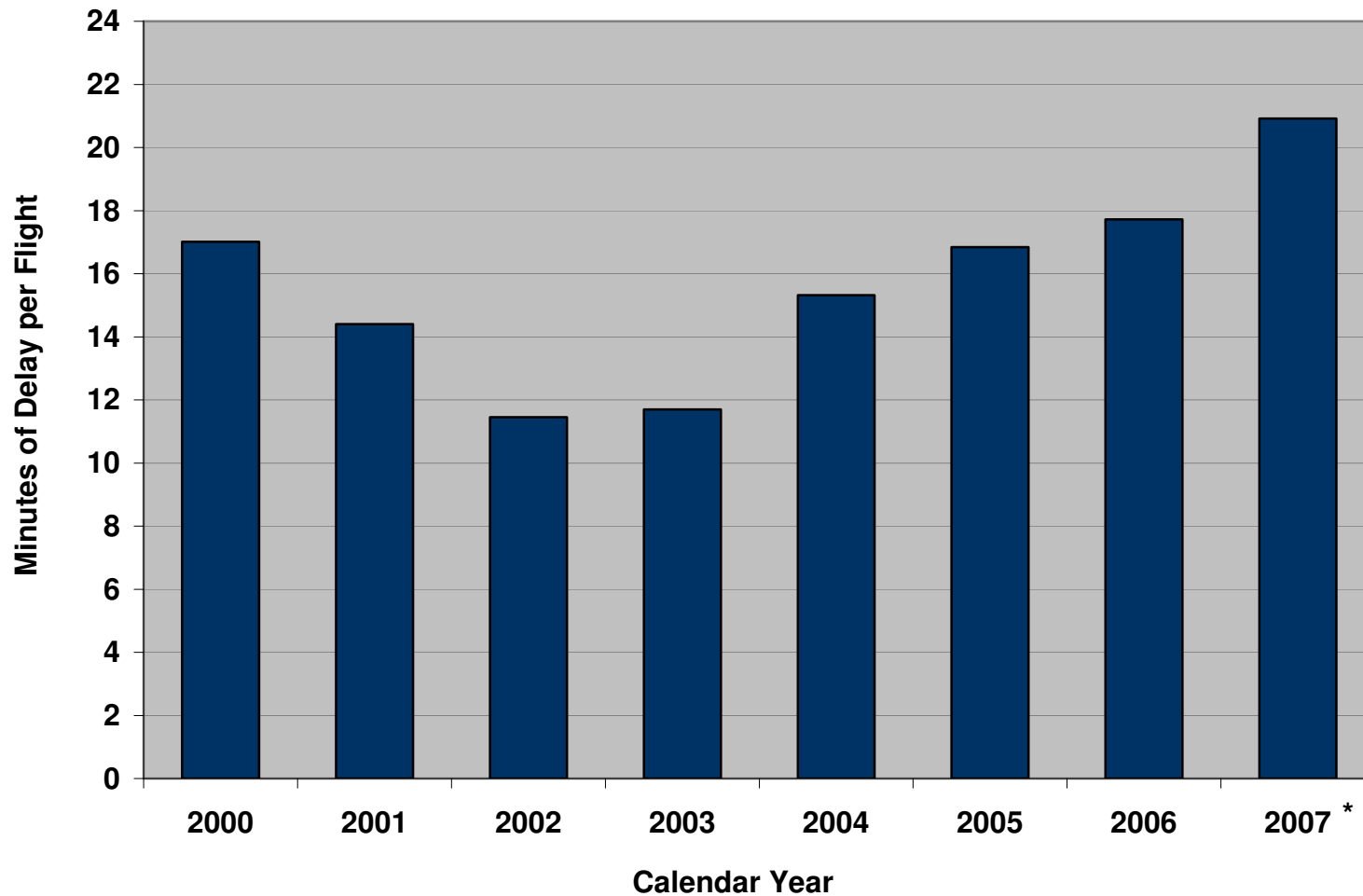


Target Setting Risk



Historical Example: ASPM55 Airports

Average Total Delay per Flight



Source: ASPM flight data.

* 2007 includes data through July.



Target Setting Risks

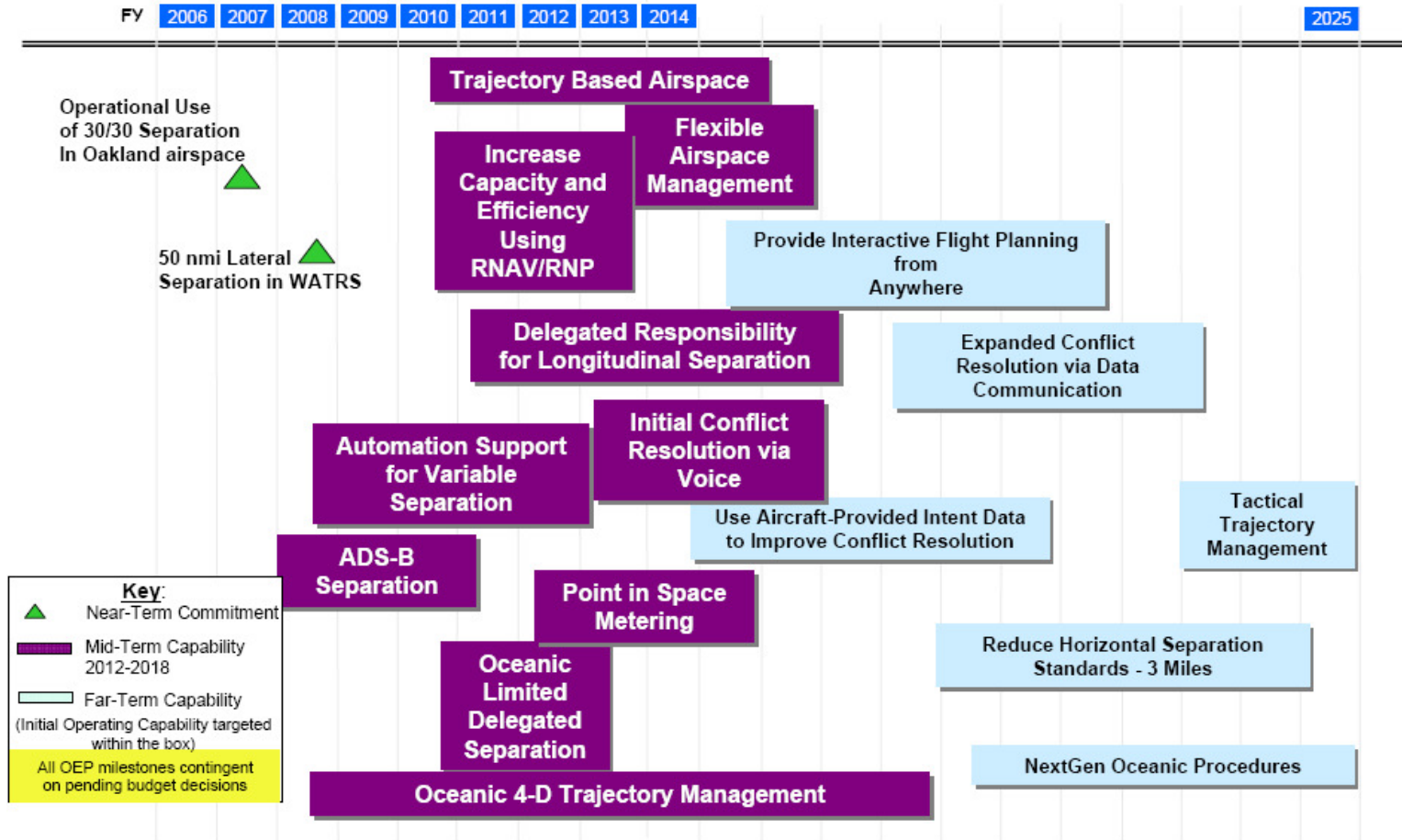
- **Projected delays depend upon projected demand**
- **Demand may not materialize**
- **Delays depend upon where demand occurs**
 - Overall growth projections may be accurate
 - Growth projections are less accurate at airport level
 - Delays at constrained airports very sensitive to demand
- **Targets must be conservative**



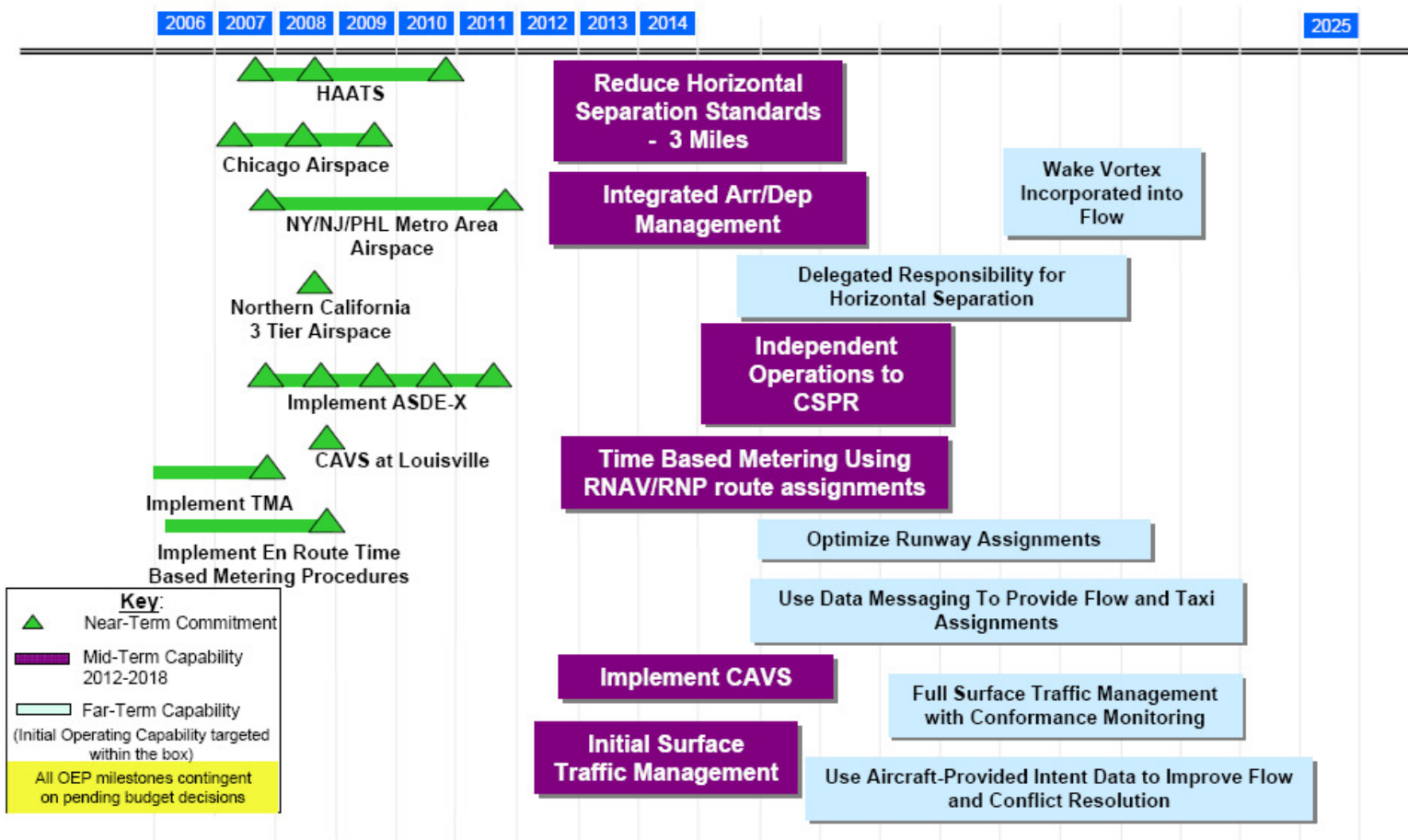
Issues

- **Projections require:**
 - FACT 2 capacity assumptions
 - Timeline of NextGen capacity improvements
- **Target setting must be conservative**
 - Use low end of predicted growth range for key airports (e.g. ORD)
- **NextGen initiatives lack detail**
 - What is capacity impact of each initiative?

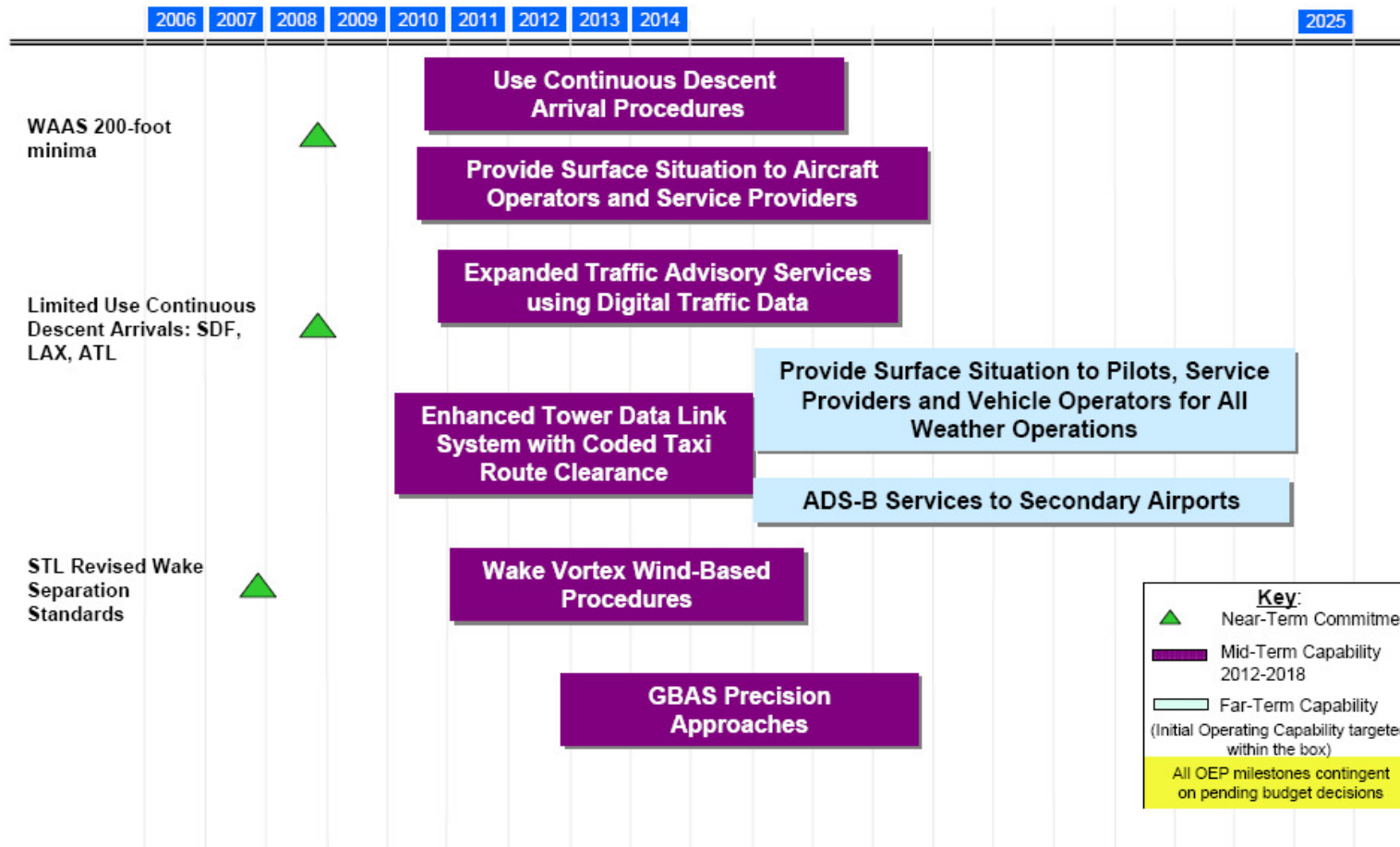
Initiate Trajectory Based Operations



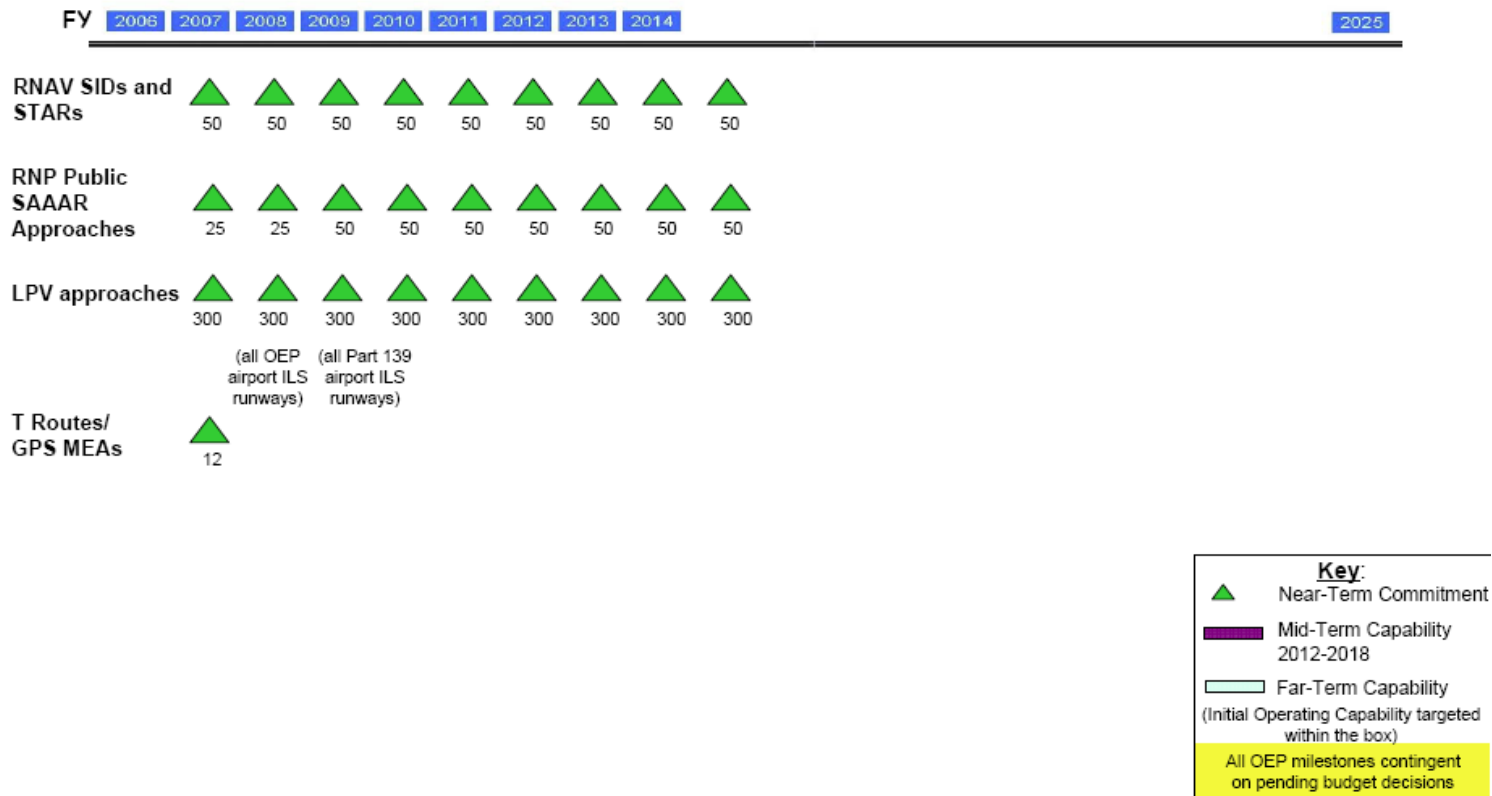
Increase Arrivals/Departures at High Density Airports



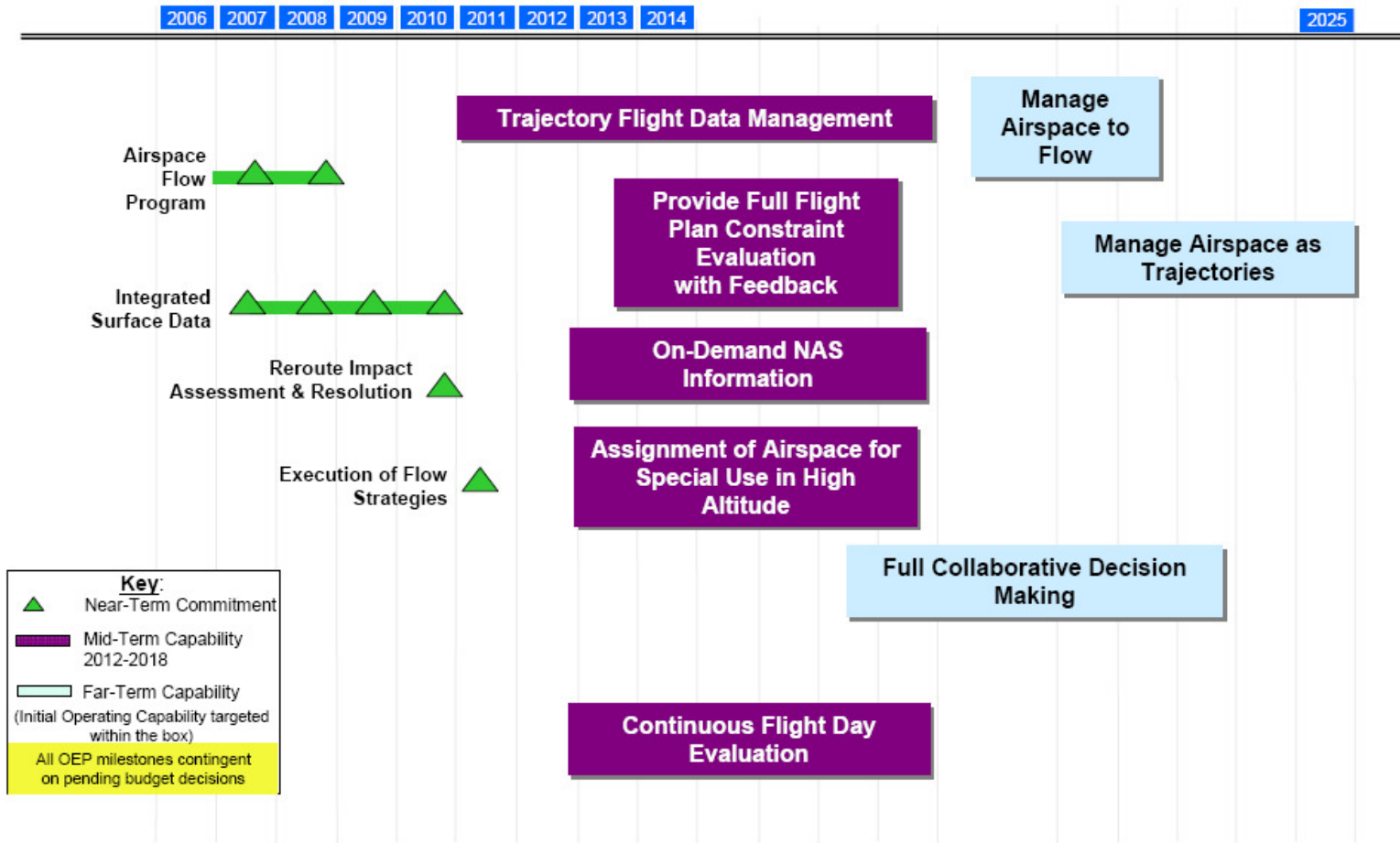
Increase Flexibility in the Terminal Environment



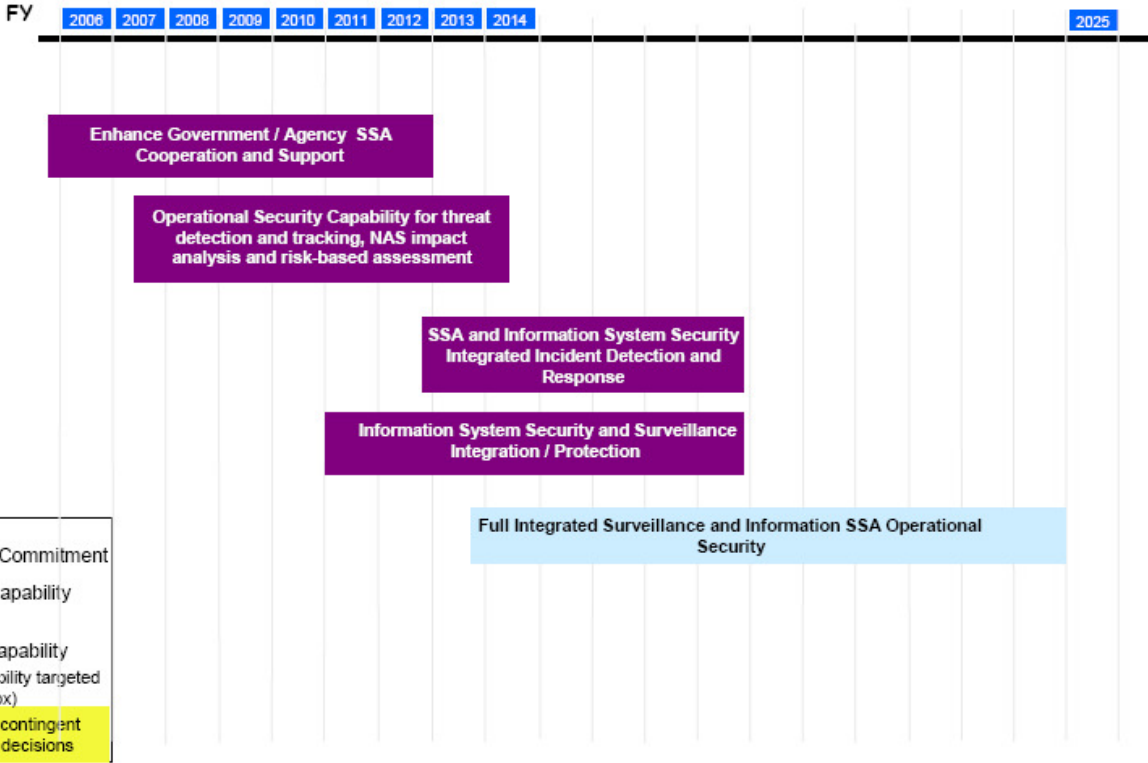
Increase Flexibility in the Terminal Environment



Improve Collaborative ATM



Security



Safety

FY 2006 2007 2008 2009 2010 2011 2012 2013 2014 2025

▲ National Aviation Safety Policy

▲ National Standard for Safety Management

Aviation Safety Information Sharing & Analysis

Safety Management Enterprise Services (Proactive Risk Assessment & Management, Safety Assurance, System-wide Safety Information Sharing).

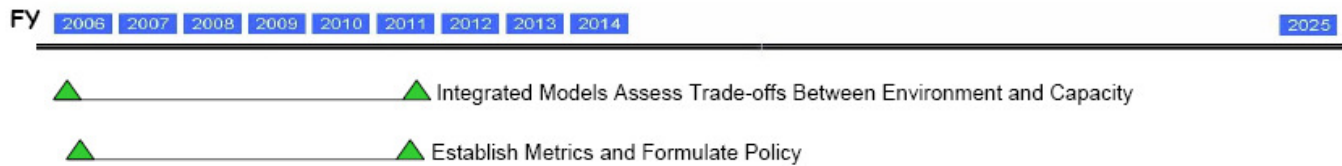
Fully Institutionalized National Aviation Safety Policy and Continuous Safety Improvement Culture.

Key:

- ▲ Near-Term Commitment
- Mid-Term Capability 2012-2018
- Far-Term Capability (Initial Operating Capability targeted within the box)
- All OEP milestones contingent on pending budget decisions



Environment



NGATS Operational Initiatives Implemented that Reduce Environmental Impacts

National Environmental Management System (EMS) Supports integrated Environmental Performance

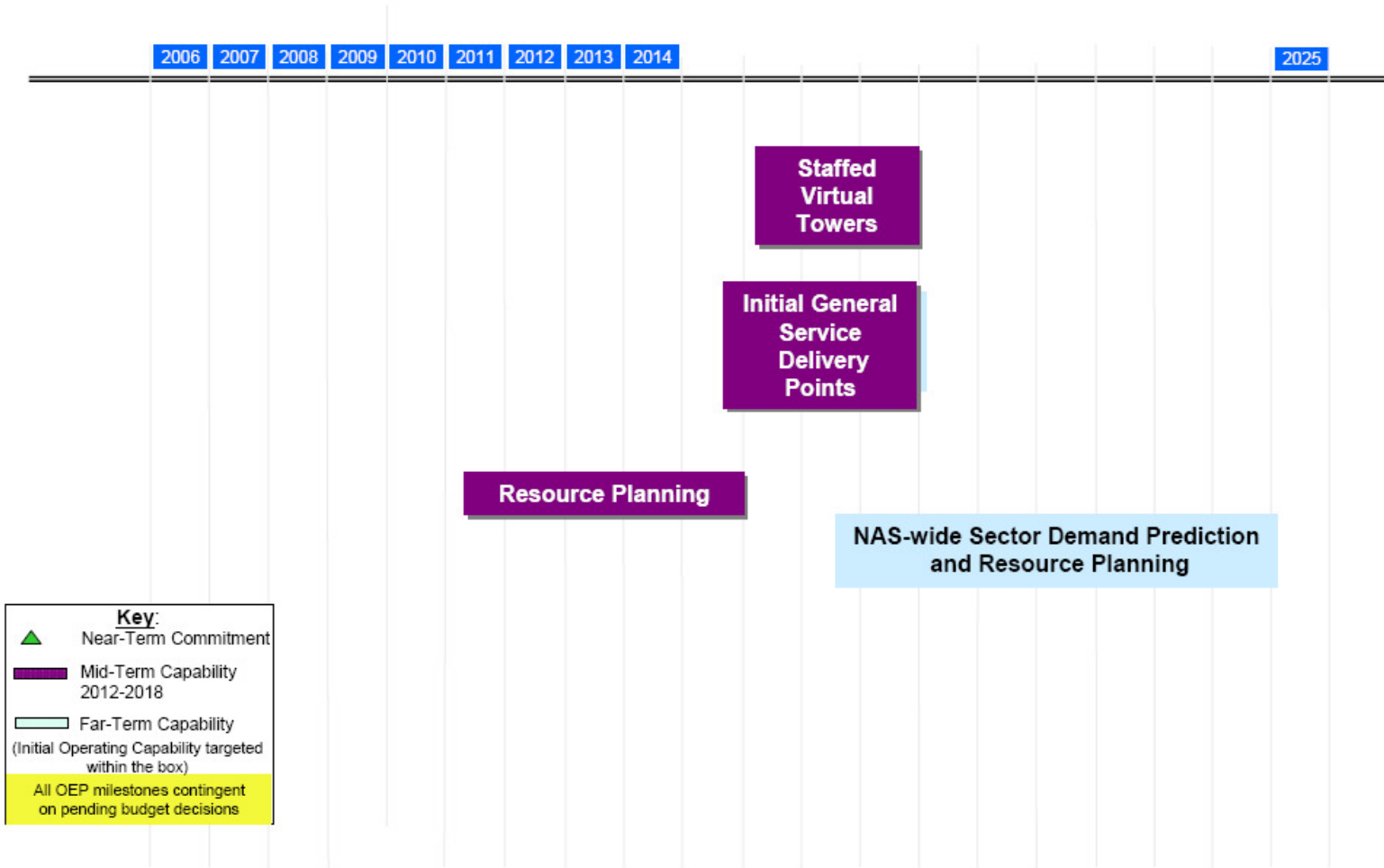
Key:

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Transform Facilities



Aircraft & Operator Requirements

