Traffic Flow Management in the National Airspace System

System Operations and CDM

Presented to: ICAO ATFM Seminar - Dubai

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Our Mission

Our continuing mission is to provide the safest, most efficient aerospace system in the world.

Our Vision

We strive to reach the next level of safety, efficiency, environmental responsibility and global leadership. We are accountable to the American public and our stakeholders.
Traffic Flow Management

Traffic Flow Management (TFM) is the process used to balance air traffic demand with airspace capacity.
The FAA Challenge

During peak periods there are typically 6,000-7,000 aircraft operating in the National Airspace System (NAS); about 55,000 aircraft operations daily.
Illustration of Traffic Flow Management (TFM)

Improved quality of service to our customers

Maximized efficiency and system throughput across the NAS

Identify the problem, evaluate alternatives, select and implement the solution
• Deliver the value and high quality services that our customers want.
• Provide safe, secure, and cost effective Air Traffic services
• Create a professional workplace for our employees to excel and be innovative
• Be accountable for our performance
Ensure equity in the delivery of air traffic services
How is Traffic Management different from Air Traffic Control?
The ATCSCC has final approval authority for all national traffic management initiatives.
How many aircraft are impacted?
What time is the expected impacted?
What tools are available?
What equipment is available?
Have the customers been collaborated with?
Collaborative Decision Making (CDM)

Philosophy

Embraces partnership, combines the talents and experiences of all individuals, and facilitates the harmonization and globalization of the world’s airspace system

Process

Sharing data to create a common view of the ATFM system from which to base decisions, and including ATFM stakeholders in the decision-making process
CDM Collaborative Tools
- Integrates Data to Enhance Decisions -

Common Situational Awareness between Stakeholders and ATC allows for integration of data from all sources to make a more informed, “Better” decision.

• Integration of ATC and Airline Data to provide a “Big Picture”

• Improved Situational Awareness, Enroute & Airport Flow Tools, Real time information & Uniform Reaction to system impacts, Analysis – lessons learned
Collaboration with Customers

- Operational telcons with facilities and customers prior to implementing TMIs
- Operational strategic planning webinar every two hours
- National System Review conducted daily
- National Customer Forum conducted monthly
- National Airspace System Performance Review conducted annually
Traffic Management Initiatives (TMI)

- TMIs are used to balance demand with capacity (i.e., GDP, AFP, GS)
- Always seek the least restrictive TMI
- Any TMI creates an impact on our stakeholders
Traffic Management Initiatives (TMI)

**Altitude** – used to segregate different flows of traffic

**Miles/Minutes in trail** – used to increase spacing between aircraft

**Airborne holding** – used to ensure aircraft are available to fill the capacity at an airport

**Reroutes** – routes other than the filed flight plan issued to ensure aircraft operate with the “flow” of traffic

**Ground Delay Programs** – aircraft are delayed on the ground in order to manage capacity and demand at a specific airport

**Airspace Flow Programs** – aircraft are delayed on the ground in order to manage capacity and demand for a specific area

**Ground Stops** – aircraft are delayed on the ground until the ground stop is cancelled
How does Traffic Management manage demand?
### NATIONAL AIRSPACE SYSTEM STATUS

(Note: This page will refresh every 5 minutes. Last updated Fri, 23 May 2008 18:06:54 UTC. Provided by the FAA's Air Traffic Control System Command Center.)

#### NATIONAL PROGRAMS

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#### GROUND STOPS

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#### AIRPORT CLOSURES

#### DEICING

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#### MISCELLANEOUS

NEXT OPS PLANNING TELCON: 1915Z
The Benefits and Need for Traffic Flow Management

- The US National Airspace System is again approaching saturation.
- Projections for growth exceed any foreseeable increase in capacity; without intervention, the NAS will be gridlocked.
- Traffic Flow Management (TFM) solutions help mitigate congestion and gridlock; increase the predictability and productivity of the system; and ensure maximum utilization of NAS capacity.
Improvements Enabled by Traffic Flow Management

- Reduce operating & maintenance costs
- Facilitate integration internally and with other domains
- Automate info exchange with stakeholders
- Develop “what-if” capabilities to model impact of TMIs
- Enhance ability to store, retrieve, and analyze operational data
- Improve forecast and visualization of traffic demand
Additional Enhancements for TFM

PERTI

• Plan
• Execute
• Review
• Train
• Improve
Program Overview

What is PERTI?

– NAS–wide initiative
– Next phase of the System Operations Continuous Improvement Strategy
– Involves resources, processes, and analytics
– Enables System Operations to become more strategic and proactive to improve current trends
Program Overview

What does PERTI involve?

PLAN
- Expand and align the planning horizon to better prepare for predictable events mitigating impacts

EXECUTE
- Execute the pre-tactical plan to serve as the basis of daily operations

REVIEW
- Develop operational insights using data, metrics, and tools to expand the institutional knowledge

TRAIN
- Use the information gained through the Review process to specifically customize appropriate training on process and systems

IMPROVE
- Measure new capabilities and system performance with key metrics and integrate lessons learned into the operation to continuously refine and improve processes
Program Overview

How will PERTI help?

- Provide required resources to enhance strategic planning
- Expand the planning horizon and align strategic processes
- Provide timely collaboration to solve operational challenges
- Provide a mechanism to evaluate new operational capabilities and procedures
- Deliver a review and feedback process to integrate operational insights into training for continuous improvement
- Mitigate impacts of disruptive events (such as severe weather, planned outages, NOTAMs, capacity changes/impacts)
- Better optimize daily available capacity
**Plan**
- Day of Operation (Occasionally done the day before)

**Execute**
- Execute Plan

**Review**
- Review only, no training or strategic planning follow up

**Train**
- Discrete activity, does not incorporate lessons learned

**Improve**
- Lessons learned not used to improve training or strategic planning

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**Plan**
- Continuous planning activity beginning 5-7 days prior to the Day of Operation (rolling schedule)

**Execute**
- Execute Plan

**Review**
- Daily Operational review provides data analytics for future strategic planning and input for training improvements

**Train**
- Training based on analytical review of operational data, with the intent to learn from positive as well as negative courses of action

**Improve**
- Lessons learned applied operationally via improved training and fine tuning of strategic plans

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**NAS Operations**
**ATOSysOps**

**FAA**
**Air Traffic Organization**
Questions?