Overview of Research Transition Products

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Objectives

- Demonstrate increased, more consistent use of Performance-Based Navigation (PBN)

- Accelerate transfer of NASA scheduling and spacing technologies for inclusion in late mid-term NAS
ATM Demonstration #1 (ATD-1): Integrated Arrival Solution

Flight Deck Interval Management (FIM) for Arrival Operations

Controller-Managed Spacing (CMS) in Terminal Airspace

NASA Technologies plus ADS-B Infrastructure
Area Navigation (RNAV) Arrivals
Required Navigation Performance (RNP)
Optimized Profile Descents (OPD)

Traffic Management Advisor with Terminal Metering (TMA-TM)
Terminal Sequencing and Spacing: Proposed FAA TBFM Work Package 3 Capabilities

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NASA TSS Prototype Capabilities

Timeline
Runway Assignment
Landing Sequence
Speed Advisory
Slot Marker
Slot Marker Speed

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Graphic courtesy of MITRE Corporation.
Graphic courtesy of MITRE Corporation.
Operational Improvement

During high-fidelity human-in-the-loop simulations of Terminal Sequencing and Spacing, air traffic controllers have significantly improved their use of PBN procedures during busy traffic periods without increased workload.
Tech Transfer Strategy

• Executed an aggressive, short timeframe development schedule
• Developed TSS prototype based upon FAA operational systems
• Conducted multiple joint FAA/NASA human-in-the-loop simulations
• Performed repeated incremental deliveries of tech transfer material to non-traditional RTT stakeholders
• Will continue to participate in later phases of FAA acquisition process
ATD-1 Delivers to NextGen

- ATD-1 transferred Terminal Sequencing and Spacing (TSS) technologies to the FAA
- TSS enables routine use of underutilized advanced avionics and PBN procedures
- Potential benefits to airlines operating at initial TSS sites estimated to be $300-400M/year
- FAA is planning for an initial capability in the NAS in 2018

This is an unprecedented contribution of NASA technology to NextGen