

NextGen ATC/TechOps Human Factors (BLI 1A11B)



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Program Overview

- The Enterprise Human Factor Development program will provide integrated guidance on human performance considerations to concept development, validation, and implementation teams.
- Research efforts to identify and mitigate systemic human factors considerations may yield the following benefits:
 - ✦ Increasing the utilization rate of concepts and systems among controllers;
 - ✦ Ensuring controller acceptance of concepts and systems;
 - ✦ Increasing safety through the mitigation of known human factors risks; and
 - ✦ Decreasing controller workload through improved tools and techniques.

NextGen ATC/TechOps Human Factors

What are the benefits to the FAA?

- Human factors high-level (enterprise) guidance to assist with the evolution of the NAS infrastructure and its workforce

What determines success?

- Successful transition of Human Factors products.
- Early identification of HF opportunities, to minimize a program's cost, safety and operational risks.



NextGen ATC/TechOps HF “Team”

Sponsors and Customers:

- ANG NextGen
- AJM ATO Program Management Office (“PMO”)
- AJI ATO Safety and Technical Training
- AJV ATO Mission Support Services
- AJT ATO Air Traffic Services
- AJW ATO Technical Operations

ANG-C1 Program Management:

- PM – Bill Kaliardos
 - Recently changed from Stephanie Kreseen (and Jerome Lard prior to Stephanie)



Expected Accomplishments, FY 18-19

(under previous BLI)

- PBN Human Performance Metrics
 - ✦ General methods to “measure” PBN ops from a ATC HF perspective
- Established-on-RNP (EoR) HF Implementation Guidance
 - ✦ Improving future EoR implementation from a ATC HF perspective
- Time/Speed/Spacing Integration
 - ✦ Addressing suites of NextGen tools/procedures (vs. individual tools) from a ATC HF perspective
- ATC Human-System Contingency Ops
 - ✦ Investigating human-system resiliency and cognitive skill degradation, after long-term use of NextGen decision support tools (e.g., TSS tools)

Emerging Research Topics, FY 18-20

Fielding capabilities by ~2022 (“operationalizing”, next 5 years)

- HF near-term TBO*

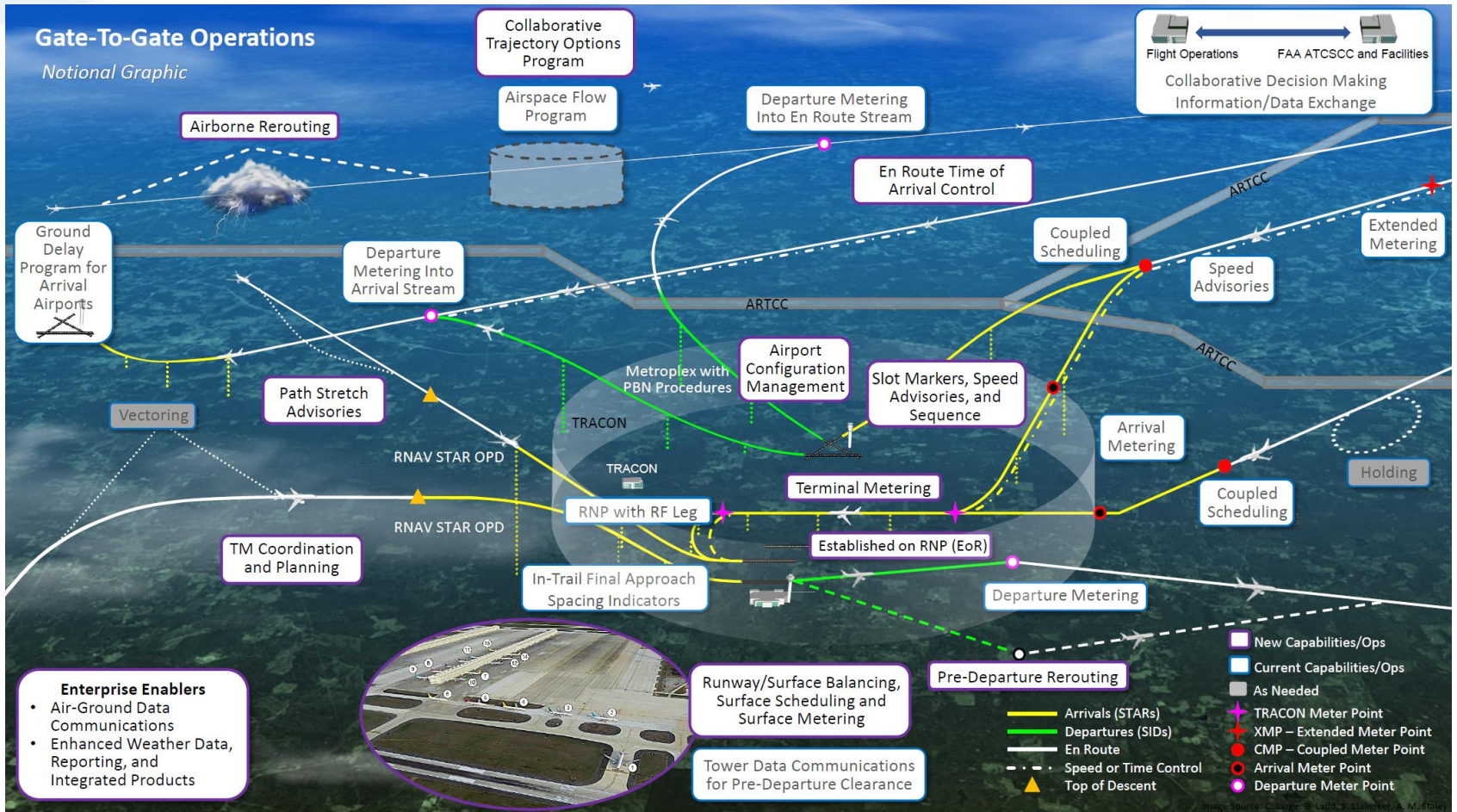
Fielding capabilities after ~2022 (includes system development)

- HF considerations of UAS compliance with visual procedures
- HF mid-term TBO
- HF Cross-domain automation enhancements
- HF Traffic Flow Management concept development

* *Trajectory-Based Operations*



Candidate Capabilities for Near-term TBO...



....and supporting technologies (1 of 2)

Function Category	Capabilities	Supporting Technologies
PBN	RNAV STAR Optimum Profile Descent (OPD) RNAV SIDs RNP / RNP with RF leg Established on RNP (EoR)*	FMS/ RNAV (LNAV/VNAV), RNP, RNP-AR, A-RNP
Strategic Planning / Flow Management	Airspace Flow Program (AFP), Ground Delay Program (GDP) Collaborative Decision-Making* Collaborative Trajectory Options Program (CTOP)* TM Coordination and Planning	TFMS/ FSM SWIM, TFMS, Operator Ground Automation TFMS/ FSM TBFM/ TM Ops Dashboard and Planning Tool
Route Management	Automated Reroutes Pre-Departure Rerouting* Airborne Rerouting*	TFMS/ ERAM PDRR ABRR

....and supporting technologies (2 of 2)

Function Category	Capabilities	Supporting Technologies
Time-Based Scheduling (Airborne and Surface)	Arrival Metering Coupled Scheduling/Extended Metering Departure Metering (scheduling) into Arrival Stream Departure Metering (scheduling) into En Route stream Terminal Metering Runway/Surface Balancing Surface Scheduling and Metering	TBFM/ GIM-S T-to-T, IDAC EDC, IDAC TSAS TFDM
En Route and Terminal Spacing Tools	Delay Countdown Timer Speed Advisories In-Trail Final Approach Spacing Indicators Path Stretch Advisories Slot Markers, Speed Advisories, and Sequence En Route Time of Arrival Control (TOAC)	TBFM/ DCT/MRL GIM-S ATPA Path Stretch TSAS TBFM, FMS/ RTA
Surface Management	Tower Data Communications for Pre-Departure Clearance Electronic Flight Data* Airport Configuration Management	Tower Data Link Services TFDM
Enterprise Enablers	Information and Data Exchange Air-Ground Data Communication Enhanced Weather Data, Reporting, and Integrated Products	SWIM En Route Initial Services NWP, CSS-Wx



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Questions?



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