Administrative Announcements

Note: Only NAC Members, FAA Executive Participants, and Pre-Approved Presenters and Speakers will have panelist/video/speaking capabilities. All other participants will be view-only without speaking/video capabilities.

- **When called upon to speak by the Chair:**
  - > Please announce your name and organization
  - > If using Zoom computer audio, click the Mute/Unmute button in the bottom left corner
  - > If using the phone line audio without a participant ID, dial *6 to unmute, as well as your phone's mute button if enabled
  - > If using a phone line and entered a participant ID, click the Zoom Mute/Unmute button, dial *6 to unmute your phone line, as well as your phone's mute button if enabled

In lieu of a roll call, all meeting participants will be captured in the meeting summary.

If you have any issues, please contact Antionette Johnson, via e-mail: Antionette.CTR.Johnson@faa.gov

NextGen Advisory Committee Meeting

December 10, 2024

Opening of Meeting

Chip Childs, NAC Chair (SkyWest Airlines)

Public Meeting Announcement

Chris Southerland, NAC Committee Manager (FAA)

Public Meeting Announcement
NextGen Advisory Committee
December 10, 2024

This is the public meeting announcement for the NextGen Advisory Committee meeting convening today, December 10, 2024.

This meeting is being held pursuant to a notice published in the Federal Register on September 18, 2024. The agenda for the meeting was also included in the notice. The Deputy Administrator, Katie Thomson, is the delegated Designated Federal Officer responsible for compliance with the Federal Advisory Committee Act, under which this meeting is being conducted.

On June 14, the U.S. Secretary of Transportation renewed the NAC's charter with the purpose of the NAC to provide advice on NextGen relating to the future of the Air Traffic Management System and the integration of new technologies.

Today's meeting is open to the public. Members of the public may provide written comments in advance if they wish for them to be considered by the Chair for inclusion into the record of the meeting.

NAC Chair Report

Chip Childs, NAC Chair (SkyWest Airlines)

Motion for NAC Approval

- August 22, 2024 – NAC Meeting Summary Package

NAC Chair Report

Chip Childs, NAC Chair (SkyWest Airlines)

FAA Report

Katie Thomson, Deputy Administrator (FAA)

Air Traffic Organization Report

Tim Arel, Chief Operating Officer, Air Traffic Organization (FAA)

Aviation Safety Report

Jodi Baker, Deputy Associate Administrator for Aviation Safety (FAA)

Air Traffic Organization Report

Tim Arel, Chief Operating Officer, Air Traffic Organization (FAA)

New York Pilot Program

Steve Szukala, Director of Strategy (A), Air Traffic Organization (FAA)

Background on elements of NY Area Pilot Program

- Fulfills FAA Reauthorization Bill requirements

- Potential for Best Equipped Better Served NAC Tasking

- Address "PBN desert" in N90 airspace and NAC recommendations

- Supports new concept of Multiple Airport Route Separation (MARS) for JFK and LGA

- Leverages iTBO capabilities of TBFM/Converging Runway
Display Aid (CRDA)
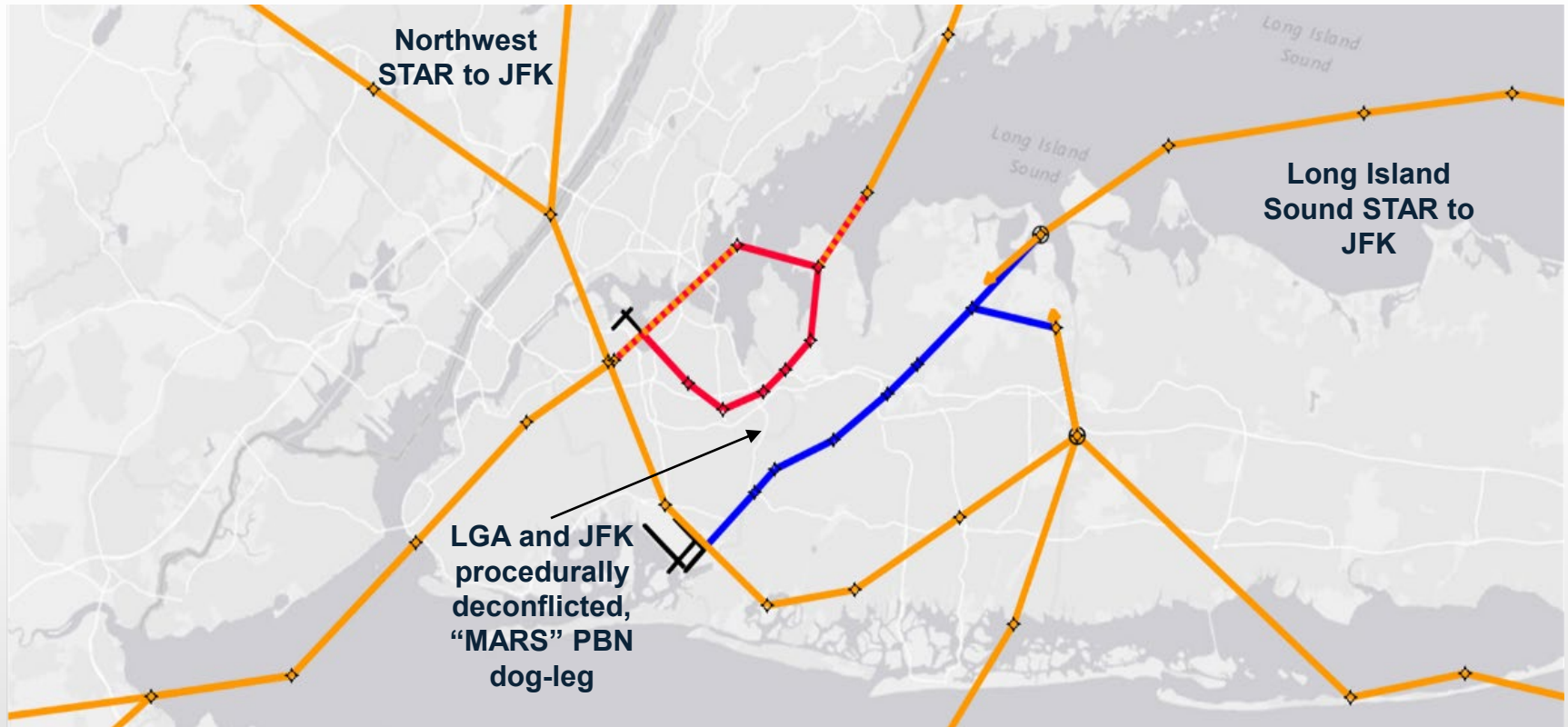
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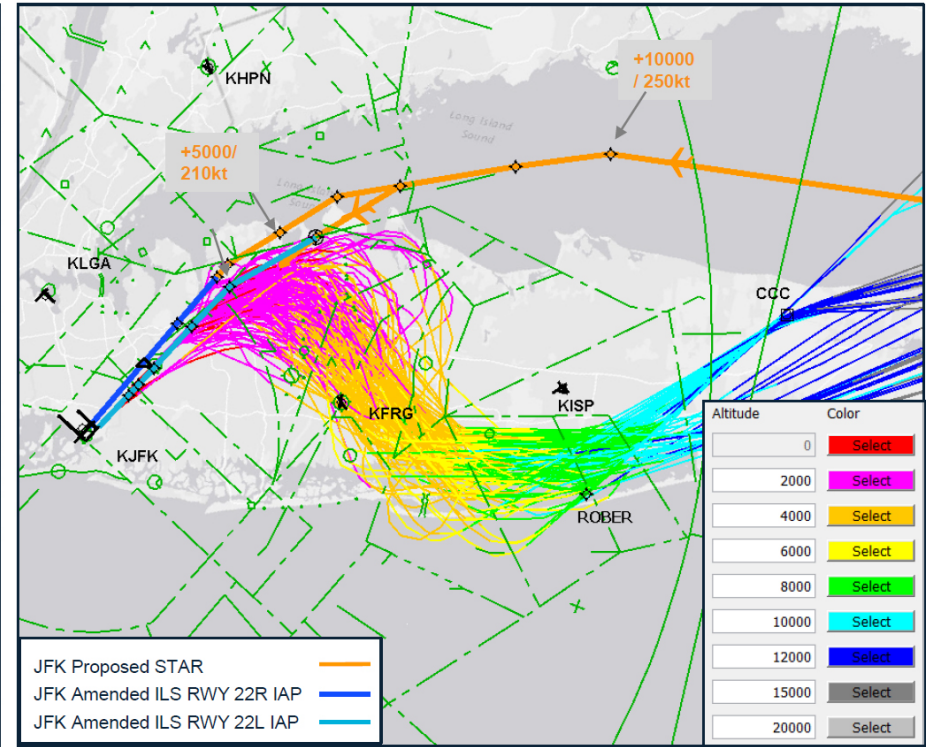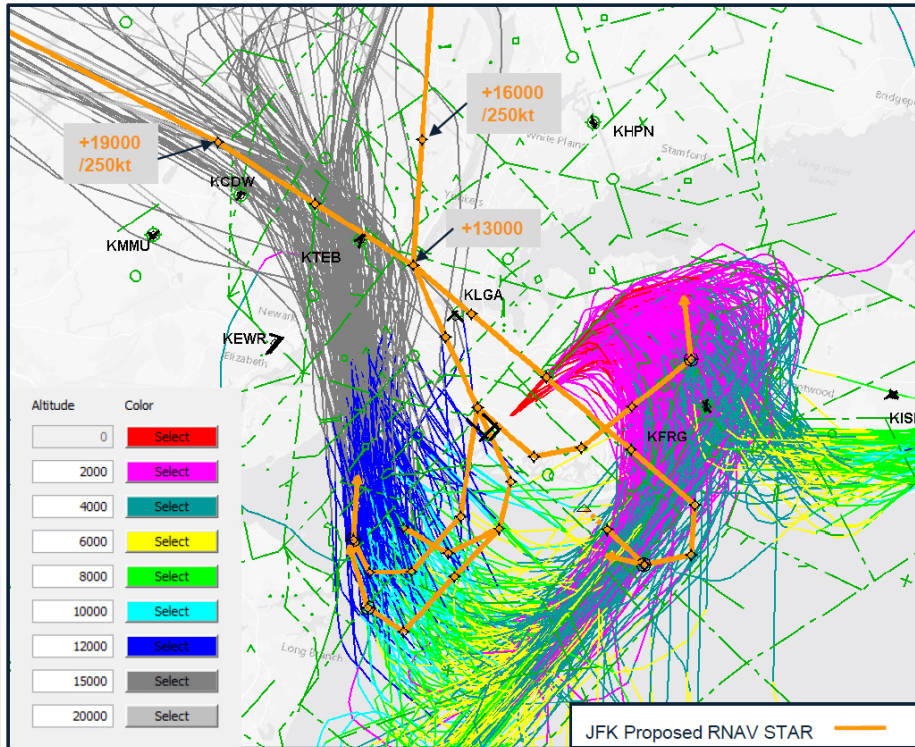
NY Area Pilot Program

- NY area pilot program:
  - JFK development of two (2) STARs (NW and Sound) and amend two (2) RNAV IAPs
  - LGA modification of existing RNAV IAPs, STARs, and ROUTES
- Benefits:
  - $25M reduction in annual operating cost (reduction of miles flown)
  - Reduction of radar vectoring
  - Supports future implementation of MARs
  - Supports highly used AT configurations
  - Supports NAC request to increase use of PBN procedure
- Implementation:
  - 2-3 years
- Considerations:
  - Stakeholder engagement, environmental assessment, community engagement, etc.

Federal Aviation Administration

Conceptual PBN IFPs and STARs Designs

Northwest STAR to JFK

Long Island Sound STAR to JFK

LGA and JFK procedurally deconflicted, "MARS" PBN dog-leg

Federal Aviation Administration

Conceptual STAR and IFPs at JFK

Future Pilot Programs for NY area

- Develop future pilot programs with stakeholder collaboration
  - Benefits:
    - Development of numerous RNAV STARs/SIDs/IAPs/Routes for multiple airports and addressing aviation stakeholder needs
    - $36M reduction in annual operating cost
    - Supports NAC request to increase use of PBN procedure
  - Implementation:
    - 4-5 years
  - Considerations:
    - Environmental assessments, stakeholder engagement, community engagement, etc.

Federal Aviation Administration

Questions

Federal Aviation
Administration

Air Traffic Organization Report

Tim Arel, Chief Operating Officer, Air Traffic Organization (FAA)

10-Minute Break

NAC Subcommittee Chair Report

Jeff Winter, NAC Subcommittee Chair (JetBlue Airways)

NAC Task 23-2: NAS Airspace Efficiencies Final Report

Lee Brown (JetBlue Airways) & Ron Renk (United Airlines)

Chris Southerland (FAA)

# NAC Task 23-2: NAS Airspace Efficiencies

The FAA requests NAC advice on ways to achieve greater airspace efficiencies as we collaboratively attempt to reduce reliance on and divest from legacy systems and procedures and move to a reliance on a more modernized NAS.

The FAA offers the following suggestions as a way to begin the efficiency discussions:

1. Within the scope of current FAA automation capabilities, explore opportunities for increased utilization of existing Performance Based Navigation (PBN) procedures.
2. Identify opportunities for industry to leverage efficiencies gained from their avionics and dispatch systems investments while simultaneously allowing the FAA to divest from legacy NAS elements that do not contribute to those efficiencies.
3. Identify opportunities for the FAA to remove existing and infrequently used Instrument Flight Procedures (IFPs).
4. Identify opportunities to potentially modify existing IFPs/Standard Instrument Departure Procedures (SIDs)/Standard Terminal Arrival Procedures (STARs) to gain overall airspace efficiencies.
5. Identify a recommended baseline PBN and non-PBN IFP infrastructure to provide the minimum service level and airport access for both non-Global Positioning System/Area Navigation equipped aircraft and aircraft with advanced avionics for each Navigation Services Group Airport Category (1-5).
6. Identify any trends in IFP/SID/STAR inventory suggestions that might be used as a national standard.
7. Explore opportunities for even greater efficiencies with the use of Advanced Required Navigation Performance (A-RNP) as is being pursued by the Performance Based Operations Aviation Rulemaking Committee.
8. Work with the NAC Subcommittee Minimum Capabilities List (MCL) Team to capitalize on any cross- cutting issues that might support both taskings and industry achieving MCL-level of equipage.

NAS Airspace Efficiencies

- Increase utilization of existing PBN procedures
- Modify existing PBN procedures
- Capitalize on any cross- cutting issues with MCL

Increase Use

Divest Prudently

Build Standards
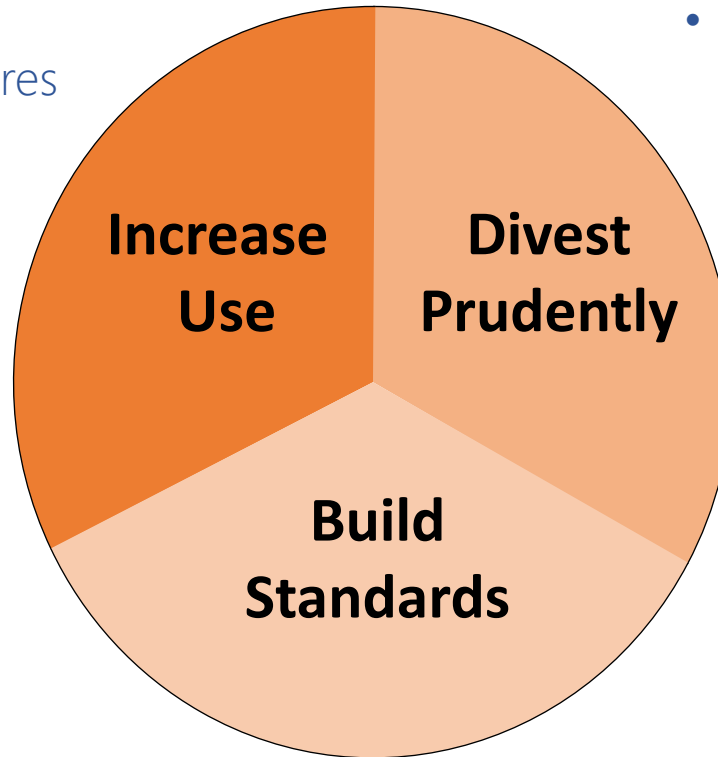
- Leverage avionics so FAA can divest from legacy NAS elements
  - Remove existing and infrequently used procedures

- Baseline minimum service level
- Identify trends that support national standards
- Consider efficiencies with the use A-RNP

Methodology

- Clarified scope and task expectations
- Conducted data gathering and background briefings
  - > Obtained briefings from the FAA on past and present divestiture efforts, including NPA Review, IFP Streamlining, ILS Rationalization
  - > Briefed by FAA and MITRE on IFP, Operations, and Airspace Analytics (IOAA) Tool, specifically the procedure inventory and utilization elements
  - > Reviewed previous PBN reports on priorities and barriers to utilization
- Identified a consensus regarding what <u>criteria</u> should be used to identify candidates for improvement or divestment
- Extrapolated Minimum Service Level definitions from 2016 NAS Nav Strategy
- Applied criteria/definitions to series of site-specific case studies
- Identified three prong approach to improving utilization
  - > Highlighted utilization barriers and proposed mitigation
  - > Collaborated with FAA on EoR expansion
  - > Drafted measurement and reporting proposal
- Addressed NAC-level questions on equipage and investment

Promoting Utilization - Addressing Barriers

- Leadership advocacy
  - Biggest barrier is culture
  - Need FAA Air Traffic advocacy for facilities and controllers
  - Need airline/operator advocacy to pilots to request/accept PBN approaches
  - Need to promote value of these approaches to airport authorities
    - Trades (ACI-NA, AAAE) and individual airports (LAX, DEN)
- Increased awareness and availability of CRDA and derivative tools
- Operational supporters
  - Grass roots support - cross-coordination at local level
- Lessons learned - highlight sites with high usage
  - Review high-usage site characteristics, determine what can be replicated
- Advertise (and encourage) procedure use
  - Consistency of ATIS messages – advertise the availability of procedures
  - Pilot bulletins – work with trade orgs for consistent messaging (where practical)

Measuring and Reporting RNP Utilization

- "Measurement is the first step that leads… eventually to improvement"
- Build awareness at appropriate advocacy levels through measurement
  - > Where do we have opportunity – clearly identify when RNP procedures are being used (i.e., turns vs. straight-in)
  - > Where do we have equipage – aircraft equipped/trained for RNP
  - > Where do we have advocacy – carriers and facilities that have interest to encourage utilization
- Objective is to understand what is/is not used and why
- Tying utilization to realized impacts
  - > Utilization can translate to distance and time
  - > Can help support sustainability objectives
- Data comparison and cross validation
  - > IOAA and operator specific data

Proposed Sites for Measurement and Reporting

Service Area	Airport	Equipped	RF Legs
East	BNA – Nashville International	~52%	Yes
	BWI – Baltimore/Washington Thurgood Marshall	~82%	Yes
	FLL – Fort Lauderdale/Hollywood International	~53%	Yes
Central	AUS – Austin-Bergstrom	~82%	Yes
	MCI – Kansas City International	~70%	Yes
	MSP – Minneapolis-St. Paul International	~73%	Yes
West	LAS – Las Vegas/McCarran International	~62%	Yes
	PDX – Portland International	~54%	Yes
	SMF – Sacramento International	~71%	Yes

Continue reporting on EoR sites (DEN, LAX, IAH), with broader operational metrics
Potential based on pending procedures – MCO, PHX, SLC

Recommendations for Tasking Elements 1/4/8

- Addressing barriers:
  - Develop and execute CRDA (or subsequent tool) roll-out with action team
  - Standardize ATIS communication
  - Conduct detailed analysis of request/acceptance/denial of PBN/RNP approaches (vs. ILS) using voice data; use results to inform guidance
  - Develop leader advocacy statements

- Measuring, reporting, improving:
  - Agree on trial sites – at least one per service area
  - Develop prototype utilization report, including validating metrics and data to be used in reporting
  - Begin regular reporting and discussion during future NAC SC and NAC meetings
  - Based on review and discussion, set goals and actions plans

- Providing benefits - expanding EoR:
  - FAA and operational stakeholders work collaboratively on EoR expansion
  - FAA continue to explore opportunities to lower the barriers to entry for EoR (i.e., lower navigation standard)
  - FAA and operators begin work on procedure modification to minimize lead time to capability implementation
  - FAA expand list of potential airports to include JFK, SEA, SDF

Questions/Criteria for Inventory Planning

Basic IFP Inventory Overview	Special Events Held At/Near Airport
Operator Mix	Airport Planned Changes (New Runways, Construction, Closed Areas)
Fleet Mix (Aircraft Types/Fixed Wing/Helo/etc.)	
Military Presence (Type of Operations, Fleet Mix, etc.)	Contingency Procedures (ATC Assigned Only)
Equipage Levels	Airport Access
Runway Configuration/Airport Layout	Circling Approaches
Common Weather Patterns (Fog, Low Vis, etc.)	Recent Divesture Activities
General Airport Operations/Business/Mission	Recent Airspace Modernization Activities
Flight Training	Operational Trial Activities/Potential Activities
Terrain Constraints/Obstacle Constraints	
Operation Peaking/Limitations Due to Throughput	Procedure Connectivity
	Operator-Requested Approaches
Airspace Constraints	ATC Resources
Airport Lighting Consideration	Controller Tools Available
Noise Constraints/Environmental Review Currently Underway	Redundant Procedures
	Procedure Usability

Other Divestiture and MSL Considerations

- Considering inventory of RNAV (GPS) procedures
  - > Understanding that written tasking targets legacy nav systems, NAC leaders have emphasized closer look at underutilized procedures
  - > Over a period of approximately 10 years, the FAA was required to develop and implement several hundred RNAV (GPS) approaches a year
  - > Many of these procedures were overlays of conventional approaches and offered no reduction in minima or track distance savings
    - Additional inventory can hinder operational transition

- Divestment and MSL are inter-related topics
  - > Team findings (through case studies) emphasized airport specifics producing two similar perspectives:
    - "Do not go below" baseline definition (safety net for divestiture)
    - Foundational building blocks – standard starting point by NSG level

Recommendations for Tasking Elements 2/3/5/6/7

- Integrate "Questions/Criteria for Inventory Divestment and Planning" into FAA IFP divestiture efforts

- Account for resiliency and continuity of operations (i.e., PARC GPS Disruption Action Team recommendations, June 2024)

- ILS Rationalization should be collaborative with operational stakeholders and should consider all appropriate candidate airports

- Limited value and underutilized RNAV (GPS) approaches could be considered for divestiture

- Stay connected to PARC activities on A-RNP (currently paused awaiting use/business case given changes in standards)

- Continue to review and update NAS Nav Strategy and NSG levels

- Refine definition of resilient NAS and append findings to NAS Nav Strategy

Additional NAC Questions - Costs Associated with Procedures

- FAA cost information for procedure maintenance
  - $3.5K-$5K per procedure a year
  - Flight check more complex for ground-based systems
  - Other potential costs – training, ops transitions
- FAA costs for ground systems
  - $10K to over $100K for maintenance annually (depending on system)
  - New system costs can be order of magnitude more
- Operator costs
  - Navigation Database/IAP Charting maintenance: anecdotally $10K-$15K/month – this cost would not necessarily go down with fewer procedures
  - Equipage costs – new, retro-fit, maintenance
  - Lost opportunities have cost/negative value
  - Other costs include recurrent training

Closing and Thoughts for Next Steps

- Request NAC approval on current task outcomes...

  > Alignment on how to increase use and value from current inventory

  > Set of questions/criteria that should be considered in procedure inventory divestment and planning

  > Reinforced support for strategy-level guidance on service levels and identified critical guiding principles

- Request NAC support to refine findings and build on recommendations...

  > Planning criteria can be used to fortify team's findings on MSL

  - Use planning criteria to look at a set of airports

  - Illustrates MSL at an airport-level

  - Opportunity to flesh out and test assumptions

  - Build stronger guidance

  > Opportunity to address in the future to solidify direction on MSL

Motion for NAC Approval

- NAC Task 23-2: NAS Airspace Efficiencies Final Report

NAC Task 23-3: Joint Analysis Team: En Route Data Comm Final Report

Alex Burnett (United Airlines), Eric Silverman (American Airlines)

Dave Knorr (FAA)

Summary of Findings

- We see an initial quantifiable benefit of approximately 1nm per En Route Data Comm equipped flight with rerouted aircraft
- This is an early quantified signal that Data Comm is making a difference based on time savings from faster re-routes – especially in busy periods
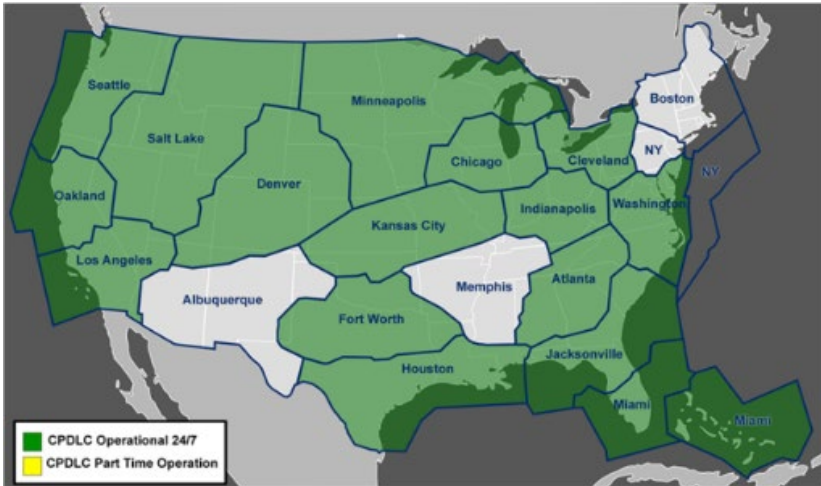
JAT Tasking Boundaries

Key Benefit Mechanism
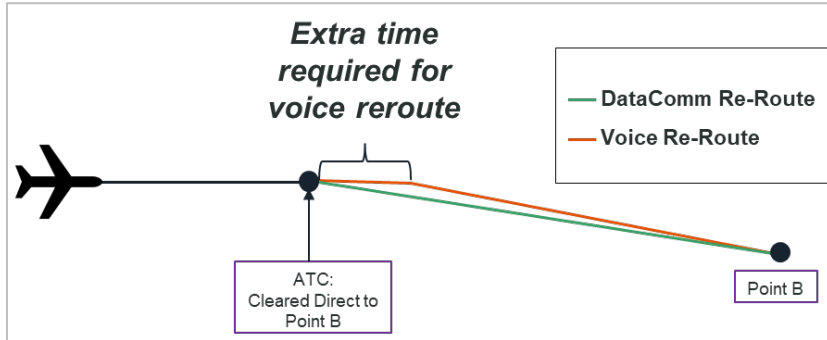
Focus on quantifiable re-route benefits:
- Capturing route distance differences for En Route Data Comm re-routes versus voice

Scope/assumptions:
- Air Route Traffic Control Centers with capability by summer 2024
- Initial services – reroute messages

Methodology Summary and Caveats

- FAA and L3Harris developed on a "large-data" methodology to produce a quantified estimate of En Route Data Comm benefits
  - > Includes data from 2023 and first half of 2024
  - > Uses regression model to compare flights that were rerouted with En Route Data Comm messages against those rerouted via voice

- Large-data regression model augmented with two additional reviews
  - > Poll of the A4A airlines → expressed value of En Route Data Comm, identified some technical issues, and supports problem resolution/implementation
  - > Detailed scenario review → illustrated the value of En Route Data Comm in managing communications to effectively transmit reroutes

- Several other potential benefits not captured by large-data regression
  - > Voice rerouted aircraft may also get a reroute faster
  - > Uplinked Transfer-of-Communications free frequency for other tasks (including earlier delivery of reroutes)
  - > Faster clearances to higher altitudes during climb
  - > Fewer Traffic Management Initiatives (e.g. Miles-in-trail, AFPs)
  - > Safety

Summary and Future Considerations

- Based on early "Big Data" findings, a quantified per-flight benefit range of **0.8-1.4 nmi** for En Route Data Comm rerouted flights is proposed
- **$10M (no PVT) to $32M annual savings** from early quantified look
  - > Approximately 1 million En Route Data Comm rerouted flights annually
  - > Assumes 10 seconds per flight (1.1 nmi)
  - > Assumes $3,500 per hour (Airborne ADOC) and $8,000 per hour (PVT)
- En Route Data Comm quantified benefits will grow
  - > More centers and aircraft using En Route Data Comm over time
  - > Increased controller and pilot familiarity
  - > Monitor how En Route Data Comm issues highlighted in A4A survey are resolved
  - > Larger signal in future may come outside of "Big Data" methodology (e.g. reductions TMIs delay)

Motion for NAC Approval

- NAC Task 23-3: Joint Analysis Team: En Route Data Communication final report

Review of Action Items & Other Business

Chris Southerland, NAC Committee Manager (FAA)

Closing Comments

Tim Arel, Chief Operating Officer, Air Traffic Organization (FAA)

Closing Comments & Adjourn

Chip Childs, NAC Chair (SkyWest Airlines)