Welcome to the Meeting of the NextGen Advisory Committee

October 4, 2017
United Airlines Headquarters
The Willis Tower
Chicago, IL
Welcome & Introductions
In accordance with the Federal Advisory Committee Act, this Advisory Committee meeting is OPEN TO THE PUBLIC.

Notice of the meeting was Issued on September 14, 2017 and published in the Federal Register on:

**September 19, 2017**

Members of the public may address the committee with PRIOR APPROVAL of the Chairman. This should be arranged in advance.

Only appointed members of the Advisory Committee may vote on any matter brought to a vote by the Chairman.

The public may present written material to the Advisory Committee at any time.
Review and Approval of:
June 28, 2017 – Meeting Summary
Revised Terms of Reference
Chairman’s Report
David Bronczek, NAC Chair
SESAR DEPLOYMENT

Making SESAR a performing operational reality

NextGen Advisory Committee (NAC)
Chicago, 04 October 2017

Massimo Garbini
Managing Director
SESAR Deployment Manager
SESAR is the technological pillar of EU’s Single European Sky policy.

- Institutional
  - Performance, Functional Airspace Blocks, Network Manager
- Human
- Definition
- Technological
  - Research and Development
- Deployment

Safety
SESAR = 2 entities, 1 project
SESAR Deployment Manager

- **11** Air Navigation Service Providers
- **4** major Airlines
- **24** Airports through a single European Interest Grouping, the SESAR Deployment related Airport Grouping

“By and for the ATM industry”
SESAR is delivering today

- **295** projects
- **86** implementing partners
- **34** involved countries
- **2,5** billion euro of investment
- including **1,4** billion euro of grants by the European Union
SESAR is delivering today

- **42** projects completed today
- Over **70** completed by end 2017
- When all projects delivered by 2030:
  - **275** million minutes less delays
  - **10,000** km² forest saved
- **60%** of the overall benefits expected from PCP by 2030
Unique European partnership
Project: ATM Functionality

Leads:

Boerealis Alliance

Parts:

Avionor, EAN, Finavia, IAA, LFW, LGS, NATS, NaaviAir

12.891.90 euriovesntemt
Project: ATM Functionality

Lead: ENAIR

Parts: ARIN, Autrocron, CatAiriCon, DF, DSNA, EANS, ENV, HCA, HungaroCon, LF, LG, MATS, NAV, Partugal, ORNAV, Ovia, PANS, SIATA

• 37.748.44
cooperation, modernizing, benefits, interoperability
Thank you

More info:
www.sesar.eu
www.sesardeploymentmanager.eu
www.sesarju.eu
#SESAR
Northeast Corridor NextGen Integration Working Group Report

Warren Christie, JetBlue
Co-Chair, NEC NIWG

October 4, 2017
NEC NIWG Participation

- 12 meetings in 10 week time frame
- 30+ entities participating representing operator community, airports, labor, FAA NextGen, FAA ATO with input from field facilities

Industry Co Chairs
- Steve Brown, NBAA
- Warren Christie, JetBlue

Industry Lead SME
- Mark Hopkins, Delta

FAA Leads
- Rob Hunt, FAA
- Robert Novia, FAA

NIWG Process Leads
- Pamela Gomez, FAA
- Andy Cebula, RTCA
Goals/Metrics for NEC NIWG

NEC NIWG worked from Phase 1 near-term goals:

- Improve execution of today’s operation
  - Operate full operation
  - Operate on time
  - Operate predictably

- Critical to address degradation during weather

- Prioritized initiatives identified the benefits, metrics to evaluate and linked back to Phase 1 goal
  - Measurement plan will provide quantitative assessment
NEC NIWG Prioritized Initiatives

- NEC NIWG working in three timeframes
  - First 18-months, 18-36 months, 36+ months

- Today’s *Interim* Report is for first 18-month timeframe
  - Includes initial and ongoing coordination with facilities / industry
  - Initial list 100; reduced to 24 feasible initiatives
  - Final report in February 2018

- Initiatives are more NowGen than NextGen
  - Target improvement in Summer 2018
  - Some complete in 18-months; others begin but complete after
  - Include milestones for both FAA & Industry
Key Themes of NEC NIWG Initiatives

- Improve Situational Awareness and Flow Management Across NEC
- Deconfliction of Arrivals in the NY Area
- Improving Arrival Throughput to NY/PHL
- Improving Departure Throughput from NY/PHL
- Easing Key Airspace Congestion Points that Restrict NEC Throughput

Note: themes above do not depict all initiatives recommended for the first 18-month timeframe
Details of NEC NIWG Initiatives

NY Departure Focus
- Capped routes
- Reduce MIT on NY departures
- IDAC
- Surface CDM data
- EDC for ZNY
- ZNY Offshore routes

NY Arrival Focus
- Pre departure scheduling

Across NEC:
- Additional metering sites
- NOD
- PERTI
- Evaluate TFMS capabilities
Milestones

- 45 FAA & industry milestones identified for the 24 prioritized initiatives
Key Risks & Pacing Items

- Controller, support and operator staffing and resources
- Facility-level feedback, constraints and nuances that may impact individual initiatives
- Funding and budget priorities
- Environmental – community issues and concerns
- Cultural issues – i.e. controller, pilots, dispatcher acceptance and implementation
- Mixed equipage of aircraft/differing capabilities
Future NEC NIWG Effort

- Two NextGen initiatives identified in this report

  - Analyze and identify site(s) for new NextGen procedures – RNAV and Required Navigation Performance procedures for implementation beyond the initial time frame

  - Assess concept to allow simultaneous operations at widely spaced approaches to different airports

- Reports for 18-36 month and 3+ year timeframes expected to include more NextGen-focused initiatives
DISCUSSION

and

Consideration for approval of Interim Report
BREAK
Joint Analysis Team

Co-Chairs:
Ilhan Ince, American Airlines
Dave Knorr, FAA
Optimal Profile Descents in Boston

PRE-Study Period

Level offs that typically occurred at 11,000 feet in the past...

POST-Study Period

...now typically happen at 23,000 feet.
Impact of OPDs in BOS

For flights that reach cruise altitude outside 200 NM from Boston

- Vertical profiles improved through increased proportion of continuous descent operations, and shorter time and distance in level flight
- Approximately 9.8 gallons fuel savings per flight attributable to OPDs
- Minimal change in flight time, and 0.2 to 0.6 nm increase in distance

For flights that do reach cruise altitude inside 200 NM (includes flights from New York area to Boston)

- Vertical profiles improved through shorter time / distance in level flight
- Approximately 6.5 to 8.1 gallons fuel savings per flight attributable to OPDs
- Minimal change in flight time, and 0.7 to 1.1 nm decrease in distance
Impact of OPDs in Gary, IN

- Safety benefits resulting from reduced interaction of high performance jets with VFR traffic, and from reduced interaction between Midway and Gary-Indiana traffic flows.

- The JAT was unable to quantify benefits because of the small data sample; however, operator reported savings in fuel burn.
Operator Experience
with GYY OPDs

Brad Sunshine
Assistant Chief Pilot
Boeing Executive Flight Operations
Gary Airport LUCIT 1 STAR

Improving Safety; Enhancing Efficiency
Gary International Airport (KGYY)
Safety Concerns; Mutual Benefits

- Safety Management System
  - TCAS (Traffic Collision Avoidance System) Resolution Advisories
  - Pilot Safety Reports
  - Increased Cockpit Workload
  - Weather (turbulence, icing, etc.)
  - Untimely Speed Reductions

- Air Traffic Sequencing and Handling
  - Increased Traffic Point-Outs
  - Frequency congestion
  - (Pilot) Altitude Requests
Collaboration and Informational Exchange

- First Time Quality
- Consistent Message During Approval Process
- Mutual Education and Awareness
- Airport Arrival Routes (AARs)
Findings and Future Innovations

- Eradication of TCAS Events

- Fuel Savings*

- Inconsistencies with “Descend Via Clearances”

- New Transition?
  - Connecting the LUCIT STAR with Gary Approaches
Benefits from DataComm
Pre-departure Route Revision Clearance
DataComm Benefits: Pre-Dep Reroutes
Example: Off-nominal Event at EWR on April 20, 2017

Benefits:

- CPDLC flight pushes after voice flight, able to depart first
- 56 minute time savings for CPDLC flight compared to voice flight

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>20:55</td>
<td>UAL751 (CPDLC) Clearance</td>
</tr>
<tr>
<td>21:06</td>
<td>UAL751 (CPDLC) Revision</td>
</tr>
<tr>
<td>21:31</td>
<td>UAL751 (CPDLC) Departure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>20:30</td>
<td>UAL1600 (Voice) Clearance</td>
</tr>
<tr>
<td>20:43</td>
<td>UAL1600 (Voice) Revision</td>
</tr>
<tr>
<td>22:04</td>
<td>UAL1600 (Voice) Departure</td>
</tr>
</tbody>
</table>

Source: Harris Corp.
Use of DataComm for delivering route revision delivers benefits
  - Reduced workload for pilots and controllers
  - Reduced taxi out time for equipped aircraft

For a sample of airports, taxi out savings of 0.2 to 8.5 min per flight, average 3.8 min

Network analysis of one large operator – 2.8 min taxi out savings
  - Individual airlines prefer to evaluate DataComm benefits on a network (including all airports that provide DataComm service) or fleet level (i.e., narrow vs. wide body aircraft)
Data Comm Benefits
Taxi Out Analysis
First, why Data Comm you ask.....

➢ Southwest Airlines believes in the importance of our commitment to NextGen.

➢ Southwest views Data Comm as an enabler for more efficient utilization of NAS capacity.

➢ Data Comm allows system stakeholders to harness capacity that may otherwise be left to spoil.

➢ Data Comm gives us a greater chance of keeping our promises to our Customers.

➢ Data Comm leverages Next Generation capabilities and improves the foundation for other elements of NextGen such as TBFM.
## SWA Data Comm Transition Timeline

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2014</td>
<td>We began activating aircraft with FANS</td>
</tr>
<tr>
<td>May 2015</td>
<td>A056 OpSpec submitted for CPDLC operations</td>
</tr>
<tr>
<td>September 2017</td>
<td>We currently have 525 aircraft equipped</td>
</tr>
<tr>
<td>September 2018</td>
<td>All aircraft will have the FANS software installed</td>
</tr>
<tr>
<td>December 2018</td>
<td>All aircraft will be equipped with the MK II+ CMU enabling the auto-tune capabilities</td>
</tr>
</tbody>
</table>
Harris Data Review

Reporting period: May 1, 2017 – July 31, 2017
Data Comm Equipped Flights: 172,319 out of 305,017 (56.5%)

Top Data Comm Airports

<table>
<thead>
<tr>
<th></th>
<th>Data Comm Flights</th>
<th>Non-Data Comm Flights</th>
<th>Total Flights</th>
<th>Data Comm % of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MDW</td>
<td>14,614</td>
<td>7,311</td>
<td>21,925</td>
</tr>
<tr>
<td>2</td>
<td>DEN</td>
<td>11,341</td>
<td>6,464</td>
<td>17,805</td>
</tr>
<tr>
<td>3</td>
<td>LAS</td>
<td>11,275</td>
<td>7,311</td>
<td>18,586</td>
</tr>
<tr>
<td>4</td>
<td>BWI</td>
<td>11,114</td>
<td>8,604</td>
<td>19,718</td>
</tr>
<tr>
<td>5</td>
<td>PHX</td>
<td>9,171</td>
<td>5,962</td>
<td>15,133</td>
</tr>
<tr>
<td>6</td>
<td>HOU</td>
<td>7,227</td>
<td>6,607</td>
<td>13,834</td>
</tr>
<tr>
<td>7</td>
<td>DAL</td>
<td>7,104</td>
<td>8,363</td>
<td>15,467</td>
</tr>
<tr>
<td>8</td>
<td>MCO</td>
<td>6,066</td>
<td>4,955</td>
<td>11,021</td>
</tr>
<tr>
<td>9</td>
<td>LAX</td>
<td>5,874</td>
<td>4,880</td>
<td>10,754</td>
</tr>
<tr>
<td>10</td>
<td>OAK</td>
<td>5,732</td>
<td>4,279</td>
<td>10,011</td>
</tr>
</tbody>
</table>
## Harris Data Review
### Top Airports for Route Revisions

<table>
<thead>
<tr>
<th></th>
<th>Tot. Flts. w/ Revision</th>
<th>% of Flts.</th>
<th></th>
<th>Data Comm Revision</th>
<th>% of Revisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BWI</td>
<td>2,971</td>
<td>15.1%</td>
<td>BWI</td>
<td>1,635</td>
</tr>
<tr>
<td>2</td>
<td>LAS</td>
<td>2,068</td>
<td>11.1%</td>
<td>LAS</td>
<td>1,102</td>
</tr>
<tr>
<td>3</td>
<td>DAL</td>
<td>1,920</td>
<td>12.4%</td>
<td>OAK</td>
<td>1,006</td>
</tr>
<tr>
<td>4</td>
<td>OAK</td>
<td>1,816</td>
<td>18.1%</td>
<td>PHX</td>
<td>943</td>
</tr>
<tr>
<td>5</td>
<td>ABQ</td>
<td>1,575</td>
<td>52.9%</td>
<td>DEN</td>
<td>893</td>
</tr>
<tr>
<td>6</td>
<td>DEN</td>
<td>1,546</td>
<td>8.7%</td>
<td>ABQ</td>
<td>874</td>
</tr>
<tr>
<td>7</td>
<td>PHX</td>
<td>1,445</td>
<td>10.0%</td>
<td>LAX</td>
<td>773</td>
</tr>
<tr>
<td>8</td>
<td>SJC</td>
<td>1,349</td>
<td>21.3%</td>
<td>MDW</td>
<td>767</td>
</tr>
<tr>
<td>9</td>
<td>LAX</td>
<td>1,314</td>
<td>12.2%</td>
<td>DAL</td>
<td>751</td>
</tr>
<tr>
<td>10</td>
<td>MDW</td>
<td>1,204</td>
<td>5.5%</td>
<td>SJC</td>
<td>735</td>
</tr>
</tbody>
</table>

- Data Comm equipped flights which received a Voice Route Revision were treated as non-equipped flights.
- For taxi-out benefit analysis only included flights which received a revision.
Blend of Harris Data to SWA

For May – July 2017
Southwest Airlines had 355,802 flight records to
Harris’ 305,017 flight records.

Data was blended on Scheduled Departure Date, Flight
Number, and Departure Airport in order to add OOOI times to
the Harris dataset.

Matched 301,575 flights from Harris records to the SWA db.
### Data Comm vs. Voice Clearance Taxi Out Times-Rerouted flights only

<table>
<thead>
<tr>
<th></th>
<th>May 2017</th>
<th>June 2017</th>
<th>July 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Data Comm</td>
<td>Voice Clearance</td>
<td>Data Comm</td>
</tr>
<tr>
<td>BWI</td>
<td>17:00</td>
<td>17:11</td>
<td>15:56</td>
</tr>
<tr>
<td></td>
<td>492</td>
<td>437</td>
<td>543</td>
</tr>
<tr>
<td>LAS</td>
<td>14:31</td>
<td>15:36</td>
<td>13:14</td>
</tr>
<tr>
<td></td>
<td>307</td>
<td>274</td>
<td>298</td>
</tr>
<tr>
<td></td>
<td>192</td>
<td>294</td>
<td>295</td>
</tr>
<tr>
<td></td>
<td>268</td>
<td>246</td>
<td>332</td>
</tr>
<tr>
<td></td>
<td>213</td>
<td>212</td>
<td>257</td>
</tr>
<tr>
<td>All Airports</td>
<td>14:08</td>
<td>14:36</td>
<td>14:55</td>
</tr>
<tr>
<td></td>
<td>4,171</td>
<td>3,874</td>
<td>5,129</td>
</tr>
</tbody>
</table>
Summary

➢ Average Taxi Out times:
   Data Comm = 14:55 mins
   Non-Data Comm = 15:47 mins

➢ Overall, flights receiving revised routings via Data Comm had a 52 second benefit over Non-Data Comm flights.

➢ As of 09/22/2017, CPDLC clearances are being received by an average of 5140 flights/day.

➢ SWA flights are receiving on average 2,300 DCL clearances/day or ~45% of all CPDLC clearances.

➢ A reduction of 13,725 taxi out mins measured in the Southwest Airlines operation over just a 3 month period and that’s with only 73% of the fleet equipped.
Don’t forget…

- Data Comm enhances safety and reduces Pilot and Controller workload by reducing human machine interface errors, reducing frequency congestion and errors inherent with voice communications.

- Very perishable quantities of latent capacity are forfeited each day across the NAS.

- The aggregated value of forfeited capacity is not yet known and won’t be without the leverage of hi-fidelity, robust data exchange such as provided by Data Comm.

- Data Comm puts some of that capacity within our reach.

- Since we are increasingly becoming a time-based system we are critically dependent upon the ability to utilize time efficiently.

- This is success that can be built upon…..enroute capabilities are right around the corner. 😊
DISCUSSION and Consideration for approval of Final Report
Regional Airline Equipage

Co-Chairs:
Equipage – Benefit Relationship

- **Individual Aircraft**
  - Enhanced route efficiency
  - More flexible airspace use

- **Clustered Aircraft**
  - Increased Departures
  - Advantages of a common path

- **Whole Fleet**
  - Trajectory predictability
  - De-conflicted throughput
PBN NIWG Survey Status

- Survey results continue to come in, we are working with Operators to address data issues

- Where we haven’t received updates, or there are open issues, we are using our existing data

- New data has not shown any significant change in overall navigation equipage trends
Operator PBN Equipage Update Status

Operator Plans Received (21 Airlines) 65%
- Air Wisconsin
- Alaska
- Cape Air
- CommutAir
- Compass
- Delta
- Endeavor
- Envoy
- ExpressJet
- FedEx
- GoJet
- Horizon
- Jazz
- JetBlue
- Piedmont
- PSA
- Republic
- SkyWest
- Trans States
- United
- UPS

Operator Plans in Process (1 Airline) 11%
- Southwest

Remaining Operators (48 Airlines) 30%

RAA (5 Airlines) 2%
- NACA (14 Airlines) 5%
- A4A (3 Airlines) 16%
- Unassociated (26 Airlines) 7%

Operator plan data current as of 09/19/2017
Fleet sizes based on 2017 APO Aerospace Forecast

Graph sums to 106% due to operator plans accounting for more aircraft than forecast
Expected Air Transport Fleet LNAV/VNAV Equipage

- 72% of the 2017 fleet are operationally approved
- "Challenging" WB / NB Retrofit
- RJ / TP Retrofit
- Forward Fit Options
- Equipped Capable

Expected Air Transport Fleet RNP 1 with RF Equipage

Expected Air Transport Fleet RNP AR Equipage
Conclusions

- There is a gap between current fleet plans and PBN Navigation Strategy equipage targets

- Equipage drives benefit realization
  - Individual aircraft receive direct equipage benefits
  - Clusters of equipped aircraft receive additional benefit
  - Full benefits require whole fleet equipage

- What is needed to close the gap?
2016 PBN NAS Navigation Strategy Equipage Targets

- The minimum PBN avionics capabilities that support the transition to a PBN-centric NAS at NSG 1 and 2 airports:

<table>
<thead>
<tr>
<th>Navigation Service Group (NSG)</th>
<th>NSG Criteria</th>
<th>Mid Term (2021-2025)</th>
<th>Far Term (2026-2030)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Top 10 large hub airports and other large hub airports within 100 nmi of one another.</td>
<td>☐ GNSS and DME/DME navigation ☐ RNAV (GPS) approach capability (LNAV/VNAV or LPV) ☐ RNP 1 capability ☐ RF capability</td>
<td>☐ Time of Arrival Control guidance and automation</td>
</tr>
<tr>
<td>2</td>
<td>Remaining large hub airports, medium hub airports and additional airports with operational volume comparable to medium hub airports.</td>
<td>☐ GNSS and DME/DME navigation</td>
<td>☐ RNAV (GPS) approach capability (LNAV/VNAV or LPV) ☐ RF capability</td>
</tr>
</tbody>
</table>

- These capabilities represent the minimum set expected for routine operation at the listed NSG airport
- Aircraft without these capabilities may not be able to efficiently access the airport
Expected Air Transport Fleet LNAV/VNAV Equipage

72% of the 2017 fleet are operationally approved
Expected Air Transport Fleet LNAV/VNAV with RF Equipage
43% of the 2017 fleet are operationally approved
Expected Air Transport Fleet RNP 1 with RF Equipage
NextGen Integration Working Group
Priorities and Reporting Status

Co-Chairs:
Steve Dickson, Delta Air Lines
Melissa Rudinger, AOPA
NextGen Priorities

Performance Based Navigation Update

NextGen Advisory Committee
October 4, 2017
Aircraft equipage is a key enabler of many NextGen initiatives

Nearly 100% equipage rate may be necessary for measurable benefits

Current discussion around PBN equipage includes Radius-to-Fix (RF) capability and Vertical Navigation (VNAV)

2016 PBN NAS Navigation Strategy has agreement that operations at our busiest airport are equipped with RF and VNAV by 2025

Inventory trends are not approaching those levels
  • Industry discussing gap

Plan for identification of Causal Factors and next steps Oct 2017 NAC Meeting

Related Topics
  • ATC Tools essential to Success
  • Cultural issues of acceptance and application become more relevant as capability is available
Activities

- Recommendation for RF and TF sites in original NIWG report (October 2014/Rolling Plan June 2016)
- ALPA letter concern over VNAV (March 2017)
- NAC discussion on equipage and associated request (June 2017)
- Inventory by MITRE (Summer/Fall 2017)
- Developing understanding of VNAV concerns and possible mitigations (Summer 2017)
- Plan for identification of Causal Factors and next steps Oct 2017 NAC Meeting
EoR & TF Issue Timeline

- Identify mitigations and a plan to validate those mitigations
  
POC: Industry

- Assuming we have valid mitigations, then recommend updated/new PBN NIWG Milestones. Also, identify any necessary changes to the PBN NAV Strat
  
POC: PBN NIWG

- Complete Causal Analysis

  POC: Industry

- Complete equipage inventory

  POC: Industry & MITRE

- Validate mitigations

  POC: FAA

June update?
NextGen Priorities
Data Comm Update

NextGen Advisory Committee
October 4, 2017
Data Comm – Update

✓ **Tower Services Waterfall – Q4 2016**
  - Completed challenge waterfall in December 2016
  - Additional towers (RSW, CMH, CHS, BUF, RNO, ADW, and VNY) scheduled to all be operational by 2019

✓ **Implementation Framework for non-VDL Mode 2 Media – Q1 2017**
  - Moving forward with agreed to framework

- **Initial Operating Capability (IOC) for Initial En Route Services at first Air Route Traffic Control Center (ARTCC) – Q3 2019**
  - Started development, integration and test of Data Comm Initial En Route Services
  - Conducting early operational evaluations and flight deck demos with stakeholders
  - Working risk mitigation strategies to address challenges in ERAM and legacy avionics

- **Airlines goal is to equip 1,900 aircraft – Q4 2019**
  - 3,205 Data Comm equipped aircraft as of September 7, 2017 (includes FANS/VDL Mode 2, FANS/VDL Mode 0, business jets, and international aircraft)
  - 1,510 aircraft have been equipped through the equipage initiative

- **Operational Summary**
  - Over 36,000 Data Comm ops per week – a 62% increase since the beginning of 2017
  - Participation from 12 mainline US carriers, 39 international carriers, 39 business jet operators, and general aviation
  - 49 different aircraft types using Data Comm
The Pegasus 1 Flight Management System (FMS) contains latent issues that impact flight operations. Impact to the Data Comm Program:

- 771 US registered B757 & B767 aircraft with Pegasus 1 installed will not be able to receive re-routes in en route airspace.

Current Status:

- FAA/Industry through the Data Comm Implementation Team (DCIT) developed a temporary ground mitigation that is not viable for the long term.
- Boeing is pursuing a Pegasus 1 fix package for 757/767 fleet.
  - Including operators in assessment of which fixes should be included.

Way Forward:

- Address latent avionics issues to support Data Comm operations in En Route airspace.
- Aircraft avionics fix needs to be implemented on all affected aircraft prior to the end of CY 2021 to support Full Services.
NextGen Priorities
Multiple Runway Operations Update

NextGen Advisory Committee
October 4, 2017
Multiple Runway Operations Accomplishments

- **Wake RECAT Phase II implementation (PHL, MSP, MIA - 2017) Complete**
  - PHL implementation completed two years earlier than original commitment and provides benefit to NEC
  - MSP implemented one quarter early; MIA implemented on time

- **Dependent Stagger Reduction for 7110.308A (SFO - Q2 2017) Complete**
  - 7110.308B Order approved on 6/30/17, and went into effect 7/25/17

- **Wake RECAT Phase II benefits analysis (Q2 2017) Complete**
  - FAA is reviewing results as part of broader RECAT strategy

- **Simultaneous Independent Procedures (Trips at ATL & IAD – Q3 2017) Complete**
  - FAA has implemented at IAD and ATL

- **Simultaneous Independent Procedures (VNAV requirements – Q3 2017) Removed Milestone**
  - VNAV commitment canceled per agreement at the June NAC
Multiple Runway Operations

RECAT Issues for Potomac TRACON and future sites

- FAA is evaluating the current wake RECAT separation standards
- To accommodate the time needed to complete this evaluation, the FAA recommends moving the IAD, LAS, and PHX commitments to September 2018
- FAA is committed to wake RECAT and implementing IAD, PHX, and LAS as soon as the wake standard evaluation is complete
- Collaboration with Industry has been a tenet of this program and FAA will continue that collaboration
- FAA will work with MRO NIWG team outlining the FAA’s proposed direction for RECAT and an updated working schedule
NextGen Priorities
Surface Operations & Data Sharing Update

NextGen Advisory Committee
October 4, 2017
Surface Ops & Data Sharing

Accomplishments (Completed Since June 2017)

- FAA to Increase Data Sharing: provide raw sensor surface data in the non-movement area (Surface Surveillance Multilateration Category 10 data) to Industry via SWIM – Q4 2017
  - Complete – All 35 sites completed on July 28th

- NASA Surface Departure Management Demonstration Charlotte (ATD-2) – Q4 2017
  - Complete – NASA ATD-2 Phase 1 Demonstration started September 29th
Surface Ops & Data Sharing Discussion Issue

Provision of Surface Data Elements-Status

- Airlines in various stages of completeness and development
- Other airspace users (i.e. business aviation, airports) discussions on-going
- Use of data in advance of Terminal Flight Data Manager (TFDM) considerations continue

FAA to jointly work with industry to develop a SWIM “Data Dictionary”

- February 2017 NAC Action - **In Progress**
- Functional description underway, defining and mapping data elements
  - Airport Surface Movement Events Service
- Operational context through use case development effort kicked off in August
  - Presented use cases on 1st data set to three airlines: American, Jet Blue, and Alaska for review and feedback
NextGen Priorities
Plan Update

NextGen Advisory Committee
October 4, 2017
NextGen Priorities Development

1. Monitoring and Oversight Plan Update
   - 07/24 Interim
   - 08/14 Review draft
   - October Publication

2. Priorities Annual October Update
   - 08/25 Brief Update @ NIWG
   - 09/27 Brief NACSC
   - 10/18 Publish Plan
   - 03/2018 Publish Rev 1 to 2017 Plan

3. NEC Commitments
   - 08/08 NIWG Scope
   - 09/12 NAC SC Draft
   - 10/04 NAC Approval 18 month milestones
   - 02/01 NAC Approval 3 year milestones
   - Report out
   - Report out

4. Equipage Inventory

5. NextGen Priorities Rolling Plan 2019-2021
   - PBN NIWG
   - Surface NIWG
   - NEC NIWG
   - Data Comm NIWG
   - MRO NIWG

Rolling Plan Development for NIWG Teams
June 2018 Recommendations

FAA

NextGEN
Important Dates

• Milestone changes approved by the NAC SC Oct. 27th
• Seeking NAC endorsement on Changes Oct. 4th
• Deliver to Congress late Oct. 2017

Plan Content

• Executive Summary
• Background of Priorities
• Successes – Documenting milestone operational outcomes
• Changes – Detailing changes to existing milestones
• NEC Rolling Plan (incorporate after NAC)
• Appendix A – Milestone completion to date
• Appendix B – Milestone changes
• Appendix C – Goals and Priorities for Improving Operations in the Northeast Corridor Phase One
• Appendix D – Joint Implementation Commitments for Improving Operations in the Northeast Corridor Phase Two - Interim Report (incorporate after October 4th)

Copy of the updated annual plan can be found here post October 2017:
https://www.faa.gov/nextgen/snapshots/priorities/
<table>
<thead>
<tr>
<th>Focus Area</th>
<th>#</th>
<th>Implementation / Preimplementation Commitment</th>
<th>Original Date</th>
<th>Change Date</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Comm</td>
<td>1</td>
<td>Tower Services Waterfall - Additional towers (RSW, CMH, CHS, BUF, RNO, ADW, and VNY) scheduled to all be operational by September 2019</td>
<td>N/A</td>
<td>Q4 2019</td>
<td>These additional seven sites were added due to early program implementation successes.</td>
</tr>
<tr>
<td>MRO</td>
<td>2</td>
<td>Amend National Standards for Vertical Navigation (VNAV) for Simultaneous Independent Parallel Approaches</td>
<td>Q3 2017</td>
<td>Removed</td>
<td>This milestone was removed due to industry concerns about the milestone. The VNAV issue will move to PBN.</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Wake RECAT</td>
<td>IAD Q3 2017, LAS, PHX Q4 2017</td>
<td>IAD, LAS, PHX Q3 2018</td>
<td>Operational impacts on air traffic at facilities Examine breaking out 757 into separate category</td>
</tr>
<tr>
<td>Surface</td>
<td>4</td>
<td>Data Sharing: Airports Supplement Actual In Block Time (AIBT), Actual Off Block Time (AOBT), Actual Take Off Time (ATOT), Actual Landing Time (ALDT)</td>
<td>Q3 2017</td>
<td>Removed</td>
<td>Correction to plan, airports to provide data was inadvertently added as milestones. Airport data sharing will be part of next steps with the four pilot airports.</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Data Sharing: Airports Additional Airports Providing Data</td>
<td>Q2 2018</td>
<td>Removed</td>
<td></td>
</tr>
<tr>
<td>PBN</td>
<td>6</td>
<td>EoR - RF/TF to xLS Safety Analysis</td>
<td>Q2 2018</td>
<td>Dependent on Milestone #10</td>
<td>These milestones are now dependent on the analysis of aircraft equipage inventory and subsequent actions. (Milestone #10)</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>EoR - Dependent Operations Safety Assessment</td>
<td>Q1 2019</td>
<td>Dependent on Milestone #10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>EoR - Site Selection Decision</td>
<td>Q3 2017</td>
<td>Dependent on Milestone #10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>EoR - Feasibility Assessment: Concurrent use of Track to Fix and Radius to Fix</td>
<td>Q4 2017</td>
<td>Dependent on Milestone #10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Aircraft Equipage Inventory - Analyses of Aircraft equipage inventory, VNAV causal factors, equipage strategy, and identification of subsequent actions</td>
<td>N/A</td>
<td>Q2 2018</td>
<td>Equipage inventory and causal analyses needed to develop an understanding of VNAV implications, mitigations and way forward.</td>
</tr>
</tbody>
</table>
DISCUSSION
DISCUSSION
and
Consideration for approval of Milestone Updates
Automatic Dependent Surveillance – Broadcast (ADS-B)

FAA Update

Mark Steinbicker, FAA Flight Standards Service
Equip 2020

• Call to Action in 2014 - 90% of task areas closed
• Remaining items ongoing along with new efforts
• Outreach by FAA and Industry to operators and pilots
• Work to reduce the number of call sign mis-match (CSMM) occurrences and non-performing emitters
• Security/privacy issues for U.S. Government & GA aircraft
• Identification of programmatic risk areas associated with ADS-B installation and equipage
• Operational procedures and tools for service availability prediction
Reduced Vertical Separation Minimum (RVSM) and ADS-B

- Recent Notice of Proposed Rulemaking (NPRM) proposes to eliminate the requirement for operators to make application for RVSM authorization
- Takes advantage of continual monitoring of ADS-B data stream
- Operators equipped with ADS-B and meeting the NPRM requirements would be able to begin RVSM operations in U.S. monitored airspace immediately

“Leveraging ADS-B to Reduce Workload and Increase Safety”
US Air Carrier Installation Plans and Observed Installs

26 Plans Received

2017 Q2:
- Compass
- ExpressJet
- GoJet
- Horizon
- Piedmont
- SkyWest
- Trans States
- United
- UPS

2017 Q1:
- Delta
- Envoy
- FedEx
- JetBlue
- Southwest

2016:
- 12 additional operators

Operator plan data current as of 09/13/2017
Compliance data current as of 08/01/2017
Fleet sizes based on 2017 APO Aerospace Forecast
US GA Fixed-Wing Equipage and Avionics Performance

Number of Aircraft

- Equipped
- Good Installs
- NPE Aircraft

Data excludes Experimental & LSA aircraft
General Aviation Rebate Program Status
(as of 9/19/17 – reservations now closed)

**ADS-B Rebate System Metrics**

<table>
<thead>
<tr>
<th>Rebate Status</th>
<th>Weekly Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserved</td>
<td>2689</td>
</tr>
<tr>
<td>Fly &amp; Validate</td>
<td>197</td>
</tr>
<tr>
<td>Claim</td>
<td>188</td>
</tr>
<tr>
<td>Export for Payment</td>
<td>200</td>
</tr>
</tbody>
</table>

**Graph Details:**
- **Quantity** ranges from 0 to 20,000.
- **Timeline** covers from Launch, 2016 to Sept, 2017.
- **Desired Rate** and **Projected Rate** are shown with corresponding data points.
OTHER BUSINESS
Summary of Meeting and Next Steps

DFO and NAC Chairman Closing Comments
Action Items

- TBD
Adjourn