

### NextGen Advisory Committee October 4, 2023 Meeting Summary

The NextGen Advisory Committee (NAC) convened in a hybrid format on October 4, 2023, with inperson attendees convening at Federal Aviation Administration (FAA) Headquarters in Washington, DC. The meeting discussions are summarized below. Reference the attachments for additional contextual information.

List of attachments:

- Attachment 1: NAC Presentation Deck
- Attachment 2: Attendance List

#### Opening of Meeting

NAC Chair, Mr. Russell "Chip" Childs (SkyWest, Inc.), opened the meeting and welcomed in-person and virtual attendees. He began by handing it off to NAC Committee Manager, Ms. Kimberly Noonan (FAA) for administrative and housekeeping announcements.

#### Chair's Report

Mr. Childs began by thanking the FAA Deputy Administrator and NAC Designated Federal Officer, Ms. Katie Thomson for hosting today's meeting. He also thanked those who traveled to attend this meeting in-person.

He then called for motion to approve the June 12, 2023, NAC Meeting Summary Package.

Outcome: The NAC passed motions to approve the June 12, 2023, NAC Meeting Summary Package

Mr. Childs then provided a state of the industry update. He said it has been an eventful year in the aviation community. They worked through tremendous surge in demand, an ongoing and acute shortages of Captains and loss of service in small communities. He continued that the volatile oil prices as well as inflationary pressures and supply chain challenged the aviation industry.

Mr. Childs said that while the FAA has done strong work, the aviation community will all agree it is beyond time for an Administrator to be named and confirmed in order to advance our efforts. He said a confirmed Administrator is not only essential to advancing NextGen objectives, but for the overall progress of industry's critical operations and infrastructure.

Mr. Childs noted that the NAC received a tasking from the FAA extending the NAS Airspace Efficiencies task from fall 2023 to fall 2024. This extension will allow time for additional data collection.

Prior to concluding the Chair's Report, Mr. Childs handed off to Mr. Andreas Boschen (SESAR Joint Undertaking) for remarks regarding SESAR 3 JU campaign to update the European Air Traffic Management (ATM) Master Plan (Europe's roadmap for ATM modernization).

Mr. Boschen greeted the NAC from Brussels where it was 7:00 PM local time. He apologized for not being in Washington, DC for this meeting, but requested to speak at the NAC to inform the members

about the process for updating the European ATM Master Plan. He said the campaign launches next week and they want to have a new master plan adopted by the end of 2024. He goes on to explain that the ATM Modernization Plan in Europe is endorsed by all stakeholders with the goal of delivering the Digital European Sky. This is a long-term vision and defines priorities for research and deployment. The focus of the campaign is sustainability. They have set the bold ambition to make Europe the most efficient and friendly skies to fly in the world.

Mr. Boschen continued that they are happy to be in a constructive completion with the United States. He said digitalization will be the sky to deliver on sustainable aviation. He then raised the point about the new entrance. He said looking ahead at 2040, they will see many different aerial vehicles operating in our skies such as drones, eVTOLs, higher airspace operations, new military vehicles, and new types of commercial airplanes with electric or hydrogen engines. Automation will change the way pilots and air traffic controllers work. So, the need to define how to organize our airspace and ATM to cater for all of these request for air space.

The second important aspect Mr. Boschen raised is accelerated implementation. He said SESAR JU has delivered 127 solutions. These solutions are validated as research projects and are ready for industrialization. He said it takes too long for research results to reach the operation phase. So, SESAR will have a very sharp focus on how they can accelerate the transition from research to deployment.

Mr. Boschen concludes his announcement with a comment on global interoperability. He said while his comment is focused on the European ATM Master Plan, they are very keen to work with the international community, in particular with their partners in the United States and the FAA. The timing of this effort fits with ICAO's calendar for the next Air Navigation Conference, which is scheduled for September 2024 and the assembly in 2025. Mr. Boschen thanked the chair and the NAC for their attention.

Mr. Childs thanked Mr. Boschen for his participation on the committee and giving the NAC insights into what is happening in Europe. Mr. Childs thanked everyone for attending the meeting and handed it off to the FAA Deputy Administrator and NAC Designed Federal Officer (DFO), Ms. Kathryn "Katie" Thomson, for the FAA Report.

### FAA Report

Ms. Thomson began by thanking the NAC and members of the public for attending this meeting. She said this group is a tremendous resource for the FAA. Ms. Thomson referenced to Mr. Childs remarks regarding FAA leadership and said that the FAA is very focused on securing permanent leadership. Mr. Michael Whitaker had a hearing at the Senate Commerce Committee, and it went as well as one could possibly imagine. She noted that Mr. Whitaker is a strong nominee for many reasons and hoped that the confirmation would move forward quickly in the Senate. Ms. Thomson said that she and Ms. Polly Trottenberg, FAA Acting Administrator, are focused on ensuring that the FAA has strong career leadership at all levels of the organization. In late August 2023, Mr. David Boulter was named as the Associate Administrator for Aviation Safety and last week Mr. Paul Fontaine was announced as the Assistant Administrator for NextGen Organization. She said Mr. Fontaine is a great visionary and a tremendous contributor to the FAA leadership team.

Ms. Thomson continued with sharing that FAA Acting Administrator and herself have been working very closely with the Office of the Secretary and the White House for viable long-term options that will

put the FAA on a sustainable path to really modernize and build for the future. She thinks the FAA will be able to create opportunities that we haven't seen in a long time.

Ms. Thomson concluded her opening remarks by noting that the FAA extended the response time for NAC Tasking 23-1: National Airspace System (NAS) Airspace Efficiencies. She said the FAA is looking toward valuable input from the NAC as they think about opportunities to reduce their dependence on and divest from legacy systems and invest in more efforts to continue to modernize and evolve to meet not only the needs of today. Ms. Thomson then handed it off to the Chief Operating Officer, Mr. Tim Arel.

Mr. Arel began with an update on the summer traffic. He said that the actions that were taken and the collaboration with industry helped avoid major meltdown. There were challenging weekends as the traffic continued to climb and there were several days with more than 50,000 operations in the NAS, he said and that they are moving in the right direction.

Mr. Arel said he was hoping to provide more of a FY24 Budget update, however, was unable to due to the relatively short Continued Resolutions (CR). He then focused his comments on the Department of Transportation's (DOT) submission and where the FAA is going on the priorities from an Air Traffic Organization (ATO) perspective. Mr. Arel listed the following as the budget priorities for ATO:

- 1. Hiring, training, and certification of the controllers and technicians
- 2. Sustaining existing NAS operations
- 3. Modernizing the NAS

He continued by saying that the budget request is aimed at hiring 1,800 controllers and the FAA has met 12% of that goal within the first week of the fiscal year. He said ATO's emphasis is on providing core services and shoring up all of the daily operations and when it comes to modernization, ATO prioritized OPS around Data Communications (Data Comm), Terminal Flight Data Manager (TFDM), telecommunication system, and NOTAMS system.

Mr. Arel said the ATO is concentrating on modernizing the NAS and dealing with the increase in operations and ensuring they are providing core services while providing the same level of safety. He mentioned there is a degree of fragility everywhere in the system as we come back to post-pandemic level, however collaboration with the NAC is essential in making that work.

Mr. Arel shared that the NAC will hear some good news from Data Comm and TFDM. He said Ms. Kathy Torrance, Data Comm Program Manager, will share with the NAC that the ATO is on course for initial and full-service tower Data Comm. The NAC's work with equipage has made a difference in making technology reliable and improve efficiencies in the system.

Next, he talked about TFDM's deployment to 5 locations and is testing Build 1, which is electronic flight strips and some surface metering. He said Build 2 will have more robust features and the FAA will begin testing in Charlotte, NC. Mr. Arel continued that they are moving in the right direction, but emphasized that it is key on industry to share data with the FAA and invest in technology that shore up the sharing of data. TFDM along with Data Comm are being looked at from both sides of the microphone to make sure that the ATO can exchange that information.

Mr. Arel then mentioned the media attention the FAA received regarding safety events. He said that FAA has several close calls, however, having just one close call is too many. He is proud of the safety

reporting system and acknowledged the events but is concentrating on address the legacy system. The ATO has prioritized some of their precious resources on what the Secretary of Transportation is endorsing as a technology sprint for the Agency. He said those sprints are directly related to where they are seeing the most risk in the system, which is in the terminal environment, particularly around Surface.

Mr. Arel then described the following three technology sprints initiatives:

- 1. Surface Awareness Initiative / Surface Awareness Tool -
- 2. Approach Runway Verification (ARV) Mr. Arel said that they worked with labor and Tech Ops to add technology to the FAA's surface surveillance equipment, so they are able to see electronically that an aircraft is lined up at the wrong runway. This technology is ingested into STARS and is being tested.
- 3. Runway Incursion Device (RID) He said this sprint initiative is around protection. RID will provide both audio and visual alarm to controllers if they cleared someone subsequently onto a runway that has been released or is occupied. The goal is to deploy this initiative to 73 towers within the system.

Mr. Arel said all these efforts are focused on safety and efficiency and the FAA looks forward to sharing more with the NAC. He conclude by saying that he appreciate all of the NAC's input and for their collaboration as they continue to work back to a very robust operation.

Ms. Thomson then handed off to the Assistant Administrator for NextGen Organization, Mr. Paul Fontaine.

Mr. Fontaine began by addressing the various forms of Reauthorization. He said that NextGen officially has an end date and is probably coming to an end in the 2025 time. He continued by saying that when he first started at the NAC, they were talking about a set of programs that were getting deployed. The FAA has largely deployed several programs successfully and they are down to a handful that are being discussed at the NAC today. He gave credit to the FAA and industry that worked to get this accomplished.

Mr. Fontaine said that all things come to an end, such as NextGen, which will be measured in perpetuity. He said the important part of the lasting legacy is being able to answer the following questions:

- 1. What is the cost versus the benefit?
- 2. What was achieved in deploying the NextGen capabilities?

He said that the NextGen office has measured the cost versus benefits, and you can find them on the NextGen website. The NextGen office measured a lot of activities through the NAC's Joint Analysis Team in terms of measuring specific benefits as the FAA has deployed NextGen capabilities at several locations. The measurement of benefit is based on usage, and they had a hard time measuring the benefits during COVID time period. He is hopeful that as they move to quantify the 2023 numbers, there will be an uptick in benefits.

Mr. Fontaine concluded his remarks by highlighting the importance of equipping. He said as they look at some of the capabilities, such as the use of Data Comm, Performance Based Navigation (PBN) procedures, all things the FAA invited in are going to be a part of the cumulative report to measure the cost of benefits for NextGen. He said he thinks the Minimum Capabilities List (MCL) was a great step forward. He said as we start to wind down, he wants to leave the Hill with a very positive message of the cost and benefit and that NextGen was beneficial for the community at large. He said he appreciates all of the NAC's efforts and the progress they are making towards deployment and use of NextGen capabilities.

Ms. Thomson then handed off the Deputy Associate Administrator for Aviation Safety, Ms. Jodi Baker.

Ms. Baker began her remarks by providing an update on 5G. She said on October 20, 2023, 96% of the part 121 are equipped with a high power radio altimeter. 92% of commercial transport are also equipped. OEM's and radio altimeter manufacturers continue to work on solutions for the smaller and older fleets.

She said last week the FAA published an alternate means of compliance (AMOC) for Boeing equipped with Honeywell ALA 52B radio altimeter, which opens up almost all airports and runway to the United States. She continued that they continue to work on future solutions.

Ms. Baker concluded that spectrum is a precious commodity and that there's a lot of people looking to use it. She said it is also a finite commodity, so we are going to have to figure out how to use it differently to be smarter and this will require us to work collaboratively.

Ms. Thomson added on to Ms. Baker's point that the White House has been very receptive to the FAA's concerns about additional uses and sales portions of spectrum. She said that the FAA is going to continue to engage with them to understand potential implications as they consider the opportunities to use spectrum for other purposes. Ms. Thomson then concluded the FAA Report and handed it to Mr. Childs.

Mr. Childs thanked Katie and the FAA leaders. He then opened the floor for questions or comments. No questions or comments were made.

### NAC Subcommittee (SC) Chair's Report - NAC Taskings Status

Mr. Childs then turned time over to the NAC Subcommittee Chair, Mr. Warren Christie (JetBlue Airways) for the NAC Subcommittee Chair's Report.

Mr. Christie began by addressing Mr. Fontaine's comments and said the NAC looks forward to working with the FAA to tell the NextGen story. He said there are certainly benefits to collaboratively briefing NextGen's success.

He then said there were several items to update at today's meeting. Mr. Christie was happy to see that the FAA provided an extension to the NAC Task 23-1: NAS Airspace Efficiency tasking because the team has been hard at work. He also included that in lieu of multiple briefings from the NextGen Integrated Working Groups (NIWGs), Mr. Christie provided the following update for the NIWGs. Mr. Christie said that most of the information is available on the read-ahead briefing deck.

Mr. Christie said the agenda for the NAC SC Chair's Report focused on a couple of items with the intent of stimulating engagement and open dialogue. Mr. Christie then provided the following overview of the status of the below NIWG milestones:

• Northeast Corridor NIWG

- Atlantic Coast Routes have been available for approx. 6 months (April 2023). The summer sever weather has made it challenging to gauge the full benefits. However, Industry looks forward to working with the FAA on identifying the benefits.
- The Port Authority of New York and New Jersey (PANYNJ) moved ahead with the GBAS installation in LaGuardia International Airport and John F. Kennedy International Airport. The PANYNJ drafted and began socializing the fly quiet scorecard.
- Data Comm NIWG
  - o 12 centers operating in tower Data Comm 24/7
  - Two additional centers (ZFW and ZJX) are planned to go operational by the end of the 2023.
- Surface and Data Sharing NIWG
  - Electronic flight strips are operational at five sites with one additional site planned for late October 2023
  - Collaborative Site Implementation Team (CSIT) visits completed at six sites (where surface metering is planned)

Mr. Christie opened the floor for questions. No questions or comments were received.

#### NAC Tasking 23-1: NAS Airspace Efficiencies: Interim Findings

Mr. Christie then handed it off to the MRO He proceed to hand off to Mr. Ron Renk (United Airlines) and Ms. Lee Brown (JetBlue Airways) to share the current findings from the NAC Task 23-1: NAS Airspace Efficiencies.

Ms. Brown began by reviewing the tasking language. She said the tasking is called NAS airspace efficiencies, which is pretty broad. The main objective the team is trying to get to is what do we have and for those things we don't use, do we need them.

Mr. Childs chimed it that this tasking could have been rebranded to "get rid of the garbage". He talked about his experience with the NAC and that this is his favorite tasking to date. He noted that this meeting was almost canceled due to the funding for the fiscal year expiring. He also noted that there is a funding issue and the vast difference between the Senate and House of Representatives spending bills. He sees this tasking as a way for the Department of Transportation (DOT) and the FAA to evolve towards the things they should be doing and away from the things they shouldn't do.

Mr. Childs explained that this task should be taken seriously. The new Administrator and Ms. Thomson will have their own pressures relative to the work they will need to do. So, if the NAC can assist with getting rid of some of the procedures the FAA don't need to fund because they aren't in use. Mr. Childs reiterates his passion for this tasking and with the year extension he hopes the NAC takes this seriously.

Ms. Brown continued by saying that from the task leadership perspective, the team has been working this task very well. One of the reasons the team wanted to see the extension is because this is complicated and nuanced, which was discussed at the June 2023 NAC meeting. The team has been spending time to determine how to make sure the response is data driven. She said if you tease out the politics and provide the data to show where we need to be. Ms. Brown referenced a saying from Mr. Arel which there are a three NASes and that there is still some of that legacy NAS that will have to continue to work and the team is looking at way to provide those resources.

Mr. Child added that he has an enormous amount of confidence in what this team can do. He shared that he thinks the number one thing is to not be afraid to get greedy about this tasking and to share the database. He said he thinks the success of this committee and what they are trying to do depends a lot on this tasking to make sure that they are evolving and not just asking for a lot of things.

Mr. Renk then noted that he didn't want to curb the Chair's enthusiasm, but he doesn't believe the items they can remove from the legacy NAS will fund anyone's favorite NextGen pet project. He said it cost the FAA about \$3,500 a procedure and he isn't hopeful that the team will find enough procedures to fund a billion-dollar project such as ADS-B In, GLS or any particular favorite NextGen project. He continued that he thinks this tasking will help clean up and give space in the budget to build new procedures.

Mr. Childs asked if the leads only think the tasking his procedural based. He noted that the scope of the tasking is very broad and doesn't only focus on procedures as the tasking says, "divest from legacy systems". Ms. Brown added "and procedures". Mr. Childs continued by saying that this tasking isn't just procedure based and he would like the FAA to consider adding another tasking to open the scope.

The following is a summary of follow-on discussion between the NAC representatives and the NAC Task 23-1 leads.

- Ms. Jessica Tyler (American Airlines)
  - This tasking isn't just freeing up hard dollars but focus and energy. There should be a slide that says how many people are focused on maintaining or operating that procedures or process or system.
  - To measure the impact of this work, there must be a clear objective of either dollars or people/resources for the stakeholders. The impacts must be the measure the NAC looks at to prioritize what we go after and will determine whether this recommendation is successful.
  - o NAC Task 23-1 Leads (Ms. Brown and Mr. Renk)
    - Yes, this tasking will also free up resources. There is certainly a cost to maintaining a procedures which has a human element as a part of the cost. Operators and airports also pay a cost because they have to maintain the databases and train people on the procedures. From the three legged stool reference, there are opportunities, but the team wanted to make sure they setting expectations regarding the recommendation the NAC will deliver on this tasking.
    - The recommendation to this tasking will not solve world peace, but will help focus the FAA in the right direction towards modernization.
- Mr. Pete Bunce (GAMA)
  - We need to have a vision of what the Info-centric NAS is to be able to go and find the right sized target. What facilities, infrastructure, and technology do we need to be able to get to the next level?
  - Without this information, Mr. Bunce is concerned that the NAC will not be able to articulate the case up on the Hill to be able to fund what we is needed.

- He noted that this is a politically sensitive topic, especially when you talk about facilities, however, Department of Defense (DOD) was able to do it so why can't the NAC as an industry start working towards that goal
- o Mr. Childs concurred with Mr. Bunce statements
- Mr. Dave Spero (PASS)
  - Provided perspective from PASS with regards to legacy systems. He said there are thousands of professionals maintaining the system and working hard to ensure they are up on the technology.
  - He said that this is a skilled labor and would like the members to consider this when they talk about the intention of this tasking
- Mr. Childs
  - He noted that he has spent time in DC talking with officials regarding the authorization and the NAC/industry should be deeply concerned about the budget.
- Mr. Allen Kasher (Southwest Airlines)
  - Mr. Kasher added that the capital or operating cost in one way to look at what the NAC is trying to accomplish with this task. He used Denver Airspace as an example. He said Denver has a very efficient overlay from the arrival to the approaches. This is not a huge capital expenditure. However, the cost to optimize the airspace so it performs well.
  - He said he is a supporter of all future initiatives but noted that if this group is only focused on the capital and operating expenses with conventional ground-based procedures, this team is missing a lot.
- Mr. Childs
  - He commented that the task maybe is written too broadly.
  - Mr. Shawn Kozica (FAA) replied and said that is it written broadly for a reason. He said it is meant to cover a whole swath of area. He continued the team is not only looking at stuff that's not used enough that the FAA can divest but this is also an opportunity to use stuff the FAA have invested in.

Mr. Renk continued with he briefing. He said since June 2023 the team was able to accomplish quite a bit. He then talked about the team developing a Minimum Service Levels (MSL) tool, which will help the FAA define what the minimum things to keep when they are looking at particular locations.

The team has completed the Fourt Lauderdale case study which the objective is to put a subjective review on FAA data for particular procedures. He said the case study reviews things such as the type of operations, contingency procedures for the airport, weather patterns, runway configures, etc. Since June, the FAA were able to get the regional offices and local ATC people for Fort Lauderdale to take at look at these processes.

Mr. Renk said using the Navigation Service Groups (NSG) that the FAA published, they were able to come up with some definitions of what should be at these airports instead of what shouldn't be there. The purpose of the MSL is so when the FAA looks at various cities they don't start getting rid of stuff that is needed. He noted that it is costly to get rid of something then try to add it back.

Mr. Renk then reviewed the following slide which defines the MSL for each NSG airport.

### **Defining Minimum Service Levels**

#### To assist the FAA's review of an airport, we defined Minimum Service Levels based on airport Navigation Service Group (NSG) as defined in the FAA PBN Roadmap.

<u>NSG 1</u> - Low visibility (<200' HAT), redundancy (spaced-based/ground-based, DEP/ARR runway), arrivals, departures

NSG 2 - Low visibility (<=200' HAT), redundancy (spaced-based/ground-based, DEP/ARR runway), arrivals, departures

NSG 3 - CAT I mins, redundancy (spaced-based/ground-based, DEP/ARR runway), arrivals/departures where needed

**NSG 4** - Instrument approaches to ensure runway access, procedures to meet operational needs of primary airport users.

**NSG 5** - Instrument approaches (where users equipped) to ensure runway access, procedures to meet operational needs of primary airport users. Consideration for equipage should given to ensure any approaches available are useable by airport users.



Mr. Renk said the group came up with following blanket statements that will go in the report to help guide where not to over reduce:

- ILS, keep when: it's the only vertically guided approach, ceiling and visibility (minima) reduced compared to PBN, resiliency for GPS failure, pilot training required.
- RNP AR, keep when: curved approached required, NextGen program in use (example: established on RNP), ceiling and visibility (Minima) reduced compared to GPS, allows for airport access.
- PRM Approaches: Thanks to 7110.308, PRM approach use greatly reduced. FAA should look at the need for a separately titled approach to see if cost savings can be achieved.

Mr. Renk then went over the teams findings from the Fort Lauderdale case study which are they didn't find a lot of wasteful approaches. He pointed out that if you look at the IOAA data, some of the ILS's have very low use, however, Fort Lauderdale is one of those cities where there is two runways and any time there is an issue with the arrival runway, the departure runway becomes very critical to maintain throughput at the airport.

He said on the departure and arrival slide the team noted some redundancy there and think there are procedures that can be combined to reduce overall inventory.

A topic the team found that organically came up during discussions and is in the taskings is how to get better use of NextGen procedures. Mr. Renk said some of the concepts included:

- Making use more attractive by providing better benefits for ATC and operators.
- Better name and education of existing controller tools that support PBN operations like Converging Runway Display Aid (CRDA). Calling it something like Converging Aircraft Display Aid (CADA) would draw attention to it being use for other than converging runways. During Fort Lauderdale discussions, ATC didn't realize that tool could be used to assist sequencing curved approaches with straight-in approaches.
- Procedure design that helps support use: in Fort Lauderdale example, controllers said connecting RNPs to arrivals would assist in making them more usable.

Mr. Renk said that now the team has their first case study complete, they are moving on to start studying some additional areas to vet the process and make sure it's robust before they make the recommendation. The team will also continue to explore opportunities to increase utilization of PBN procedures. The team will look at opportunities to modify Standard Instrument Departure Procedures (SIDs) and Standard Terminal Arrival Procedures (STARs) design to gain overall airspace efficiency. He said the team will also look at opportunities to use Advanced Required Navigation Performance (A-RNP). Finally, the last task is to work with the Minimum Capabilities List (MCL) team to capitalize on cross cutting measures.

Mr. Renk then opened the floor for questions. Below is a summary of the engagement received:

- Mr. Trent Dudley (Department of Defense)
  - He asked if the data the team is going to use for GPS failures consider GPS interruption from nefarious actors.
  - Mr. Renk replied yes and that this is an growing concern. He said from the operator perspective, as they are seeing more disruption and those things are front and center.
- Mr. Chris Rocheleau (NBAA)
  - He asked if there is a bridge to not only the airlines retrofitting, but the manufacturers forward equip? He said if they wanted equipment from Boeing or Airbus how does it all tie in to the work the team is doing?
  - Mr. Renk answered by saying this falls under the last task item which is to combine with the MCL effort. He then provided an example using the CRJs 200's
- Mr. Childs
  - He said he will make the investment to equip as long as he knows strategically the other stuff is going to happen.

Mr. Childs said that the team is on a good direction and it would be nice to have all the vision and strategy to go to the Senate and Congress and say this is why the need what they have and what they are willing to get rid of. He said his problem as the Chair is there seems to be a bit of disconnect. He said they are not a committee that's asking for a lot of thing because they are running out of their voice, however the committee has to do their part to push the right stuff.

Mr. Childs then opened for final comments. Below is a summary of those comments

- Mr. Kozica
  - He said as the group starts looking at NSG 3, 4, and 5 airports, the input from the General Aviation (GA) and Business Aviation (BA) is going to be really important. He

said there are a lot of those airports that don't have scheduled air carrier missions and there are a lot of procedures there.

- Ms. Brown replied that the team has a robust GA/BA presence on the team so that perspective will be covered.
- Mr. Christie
  - He said that the construct here was to build a framework that gets applied to each NISG airport.
  - He also noted that the group uses the word procedure which tie back to technology. He said when you are utilizing procedures, you are now referring to hardware and the easiest way to determine the need for the hardware is how often the procedure is being used.

Mr. Childs thanked the team for their hard work.

#### En Route Data Communication

Mr. Christie then handed off to Ms. Kathy Torrence (FAA) and Mr. Chris Collings (L3Harris) for an update on En Route Data Comm.

Ms. Torrence began by referencing the last NAC meeting where they were asked to come back with some benefits stories. She said the team focused on ways to give more quantitative benefits. Ms. Torrence then reviewed the following Data Comm benefits slide for Washington Center (ZDC).

### Data Comm benefits example – Washington Center (ZDC)

ZDC was extremely busy supporting several Traffic Management Initiatives:

- 3 AFPs (Air Flow Programs) for ZJX and ZMA for thunderstorms on the inland routes
- PHL VIP TFR (Temporary Flight Restrictions)
- Miles in Trail Restrictions to NY Metro Airports and FL KMIA/KFLL/KPBI and KMCO
- Three southbound flights all received a similar re-route in ZDC to avoid weather



Mr. Collings added that the group has done some initial review with the FAA team comparing voice and Data Comm flights that are rerouted and they see a trend toward the Data Comm flights flying less miles than the voice flights. He said he would like to bring this information to the Joint Analysis Team (JAT) to have their industry counterpart's assessment of the information as well.

Ms. Torrence opened the floor for questions on the methodology. Below is a summary of the questions, comments, and answers.

- Mr. Peter Bunce (General Aviation Manufacturer Association)
  - Mr. Bunce noted that approximately a year ago the business aircraft stopped testing and cannot use CPDLC. He said everyone from Mr. Arel and Mr. Fontaine have been talking about the advantages of using CPDLC, however Business aviation can't use it and their members are getting frustrated. He requested that the FAA put resources to fixing this issue so they can use this capability.
  - Ms. Torrence replied that it is a resource challenge but also a data challenge. They are doing their best to be as transparent as possible. Her team have been meeting with Mr. Jens Hennig (GAMA) regularly to keep them up to date on what is going on. Ms. Torrence noted that since coming onboard as the manager for Data Comm, it has been her highest priority to find ways to figure out if they start the trail again or do something for the BA/GA communities to participate in CPDLC. She noted that the NAS safety and efficiency as always at the forefront and they are challenged with some of the avionics

configuration especially on the BA and GA aircraft. The team looked at the process the FAA can use to make sure they are monitoring all of the avionics configurations that are currently participating in Data Comm.

- Ms. Torrence continued that the process the FAA is putting into place was developed with industry and was briefed at DCIT and has moved along to the point they are expecting data collection and data analysis to be complete. The group collected the data and meet with the OEMs one by one so they can go through the avionics configurations. The team found that some of the configurations did not match up with what the OEMs have on their aircraft. She noted that led to additional questions on how the FAA got a list of confirmations that don't match what the OEM have.
- Ms. Torrence said the group is currently working on that effort and better way to improve the process to make sure that any changes to avionics are captured. She said they are going to closely track these so they can categorize them and move GA and BA to the fully participating category.
- Ms. Torrence final note was they are compiling the data and information from the OEMs and they will pull together a board meeting to evaluate the data. She said this board consists of people from the Data Comm program office, Air Traffic, and people from Flight Standards and flight certification.
- Mr. Rocheleau
  - Mr. Rocheleau said they identified this program earlier and the target date was socialized with industry. However, there is a breakdown somewhere between industry and the FAA on the data set. He noted that the FAA is collaborating with industry to address it in real-time fashion. He asked if there are any lessons learned that can be translated into the next big problem.
  - Ms. Torrence identified that the lessons learned is having a process in place for noting when equipment is upgraded or replaced. The team is working with Flight Standards and Flight Certifications on what should that process be and how to implement it.
- Mr. Childs
  - o Mr. Childs asked how many different avionics package on these fleets
  - Mr. Rocheleau replied that they have 4-5 straight from the suppliers. Once an aircraft is sold with no change in avionics, they were kicked out of the program because it went to a new owner.
- Mr. Bunce
  - Mr. Bunce added that there are a lot of sophisticated operators that are ready to use Data Comm
  - Mr. Rocheleau concurred and gave the FAA credit for keeping in contact and providing updates. He said they are trying to get their operators educated on the equipage process and requirements to get into the program.
  - Ms. Torrence said they are cross checking the information of those who want to be apart of the program.
- Mr. Christie
  - Mr. Christie asked if they think by the next NAC meeting they can try to show the financial benefits of the two examples. That would help get the business cases approved.

- Ms. Torrence replied yes. She wasn't sure if they will have the entire thing agreed upon by the next NAC but that they will come back with some examples and translate it into dollars. For En Route the benefits piece is a bit more complicated.
- Mr. Bunce added that there is also a safety case that should be considered too.
- Mr. Childs
  - Mr. Childs added that at a high level if you look at the portfolio of topics we have talked about in this committee, there is no bigger ROI than Data Comm. He urged the committee to make investments into Data Comm. He said there are a lot of heavy returns on Data Comm and there are members of Congress and the Senate that look at this stuff.
  - Ms. Torrence added that that this is more efficient for controllers and pilots. She said the comp time saved can translate into dollars in fuel and CO2 emissions. It tis a great programs that brings great advantages to everyone who uses it.

Ms. Torrence and Mr. Collings review the following slide which outlines the En Route Data Comm deployment and industry and avionic performance updates.

### Data Comm NIWG Update (October 2023)

#### En Route Data Comm Deployment

- + 12 centers operational 24/7
- + En Route Full Services Increment 1 active at all active centers
- Planning next En Route deployments to ZFW (Q4 2023), ZJX (Q4 2023), ZOB (Q1 2024), ZNY (Q2 2024)



#### Industry & Avionics Performance Updates

- Business aviation users resumed en route participation closely monitoring performance
- + Continue to receive positive user feedback as usage grows
- + Confirmed plan for A220 avionics updates Q4 2024
- NIWG members expressed concern about the "Enhanced Services" baseline slipping to end of 2029



Mr. Christie thanked Ms. Torrence and Mr. Collings for the update.

Mr. Childs reconvened the meeting after a 10-minute break. He then handed off to Mr. Christie to continue the Subcommittee Report.

Before handing off to the next briefer, Mr. Christie, with the support of the Data Comm NAC team, requested the FAA to consider a tasking to have the NAC work with the Joint Analysis Team to determine the benefits of En Route Data Comm.

Ms. Noonan recorded the action.

#### Terminal Flight Data Manager: Industry Readiness

Mr. Christie handed the time over to Mr. Doug Swol (FAA) for a briefing on the Terminal Flight Manager, Industry Readiness. He noted that this is a joint three-way project with the FAA, airports, and operators that is being deployed this year.

Mr. Swol began with saying the way to realize the benefits of TFDM require industry engagement and industry interaction. Without industry engagement the benefits of TFDM are going to be very small. The FAA is asking industry for the following:

- Engage Collaborative Site Implementation Team (CSIT)
  - o Surface data management differs at key hub airports
  - o Procedures, policies, and plan with local surface working group
- On Ramp to TFDM/TFMS System Wide Information Management (SWIM) Services
  - Provide key surface data elements to FAA and SWIM like Earliest Off Block Time and Departure Gates
  - o Use TFDM and SWIM testbeds
  - Develop infrastructure/surface management tools to utilize TFDM data
    - COTS or local IT solutions

Mr. Swol thanked industry for the engagement at the local surface working groups. He said the piece that needs work on is the SWIM services which provides data to the FAA as well as receives data back to the TFDM system.

Mr. Swol then identified the challenges he is seeing with industry in terms of how ready they are for TFDM implementation. He then reviewed the following slide which is his attempt at evaluating readiness.

### FAA Industry Readiness Assessment

Airport	IOC Date	Readiness Level			
CLT	3/2024	Medium			
PHX	12/2024	Very Low			
LAS	2/2025	Very Low			
SEA	3/2025	Low			
LAX	4/2025	Low			
SFO	5/2025	Low			
IAH	6/2025	Low			
MDW	7/2025	Very Low			
MIA	10/2025	Low			
BOS	3/2026	Very Low			
ATL	4/2026	Low			
SLC	7/2026	Low			
SAN	8/2026	Very Low			
DEN	9/2026	Low			
DFW	10/2026	Low			
Com	plete waterfall in Read-Ah	ead			

#### TFDM is coming to a Hub Near You!



Assessments based on FAA SWIM data analysis, CSIT discussions and surveys

He said the first 2-3 years of the waterfall is where readiness matters the most. Charlotte which is a key site for Build 2 surface management capability is at the medium level of readiness now. Which mean they are already getting the data needed for surface data elements. Charlotte had an advantage because they have a massive prototype.

Mr. Swol then handed off to Mr. Robert Goldman (Delta Air Lines) and Mr. Christopher Oswald (ACI-NA) for industry's perspective.

Mr. Goldman reiterated that TFDM is a key component in an integrated modern ATC system. Mr. Goldman provided the following overview of the TFDM capabilities:

- TFDM is an integral part of a suite of tools that optimizes traffic flow management (TFM) and enables trajectory based operations (TBO)
  - TFDM reconciles data from other systems such as Traffic Flow Management System (TFMS) and Time Based Flow Management (TBFM) and establishes release times that aid in surface management
  - Data exchange with TFDM enable continuity between the airport environment and en route airspace
  - Reduced taxi time equates to reduced fuel consumption and CO2 emissions
  - Reduced surface complexity increases situational awareness and safety.

Mr. Oswald provided the following overview of how airport operators will also benefit from TFDM.

- TFDM will benefit airport operators
  - o Improved utilization of airfield and termina infrastructure
  - o Improved operation efficiency
  - Increased collaboration with ATO and flight operator
  - Reduced carbon emissions and possibly taxi-out noise exposure
  - o Enhanced situational awareness and airside safety
- Clarity needed regarding airport invests needs to obtain benefits
  - Collection of key operational data for non-CDM carriers (earliest off block times, gate assignments, airside constraints)
  - Surface management capabilities that can interact through FAA's SWIM to feed TFDM in real time
  - Particularly critical for Configuration A sites, where departure metering will occur.

Mr. Christie then thanked the team for the briefing then opened the floor for conversation. Below is a summary of the questions, comments, and answers around industry readiness for TFDM deployment:

- Mr. Christie
  - Mr. Christie noted that JetBlue Airways is participating in the CSIT activities with resources dedicated to local strategic surface working group to insure they are communicating locally with the airport and airport communities. He continued with saying LAX is their focus city and since there isn't a dominate carrier all of the operators and the airport will have to data to see the benefits.
- Mr. Kasher
  - Mr. Kasher noted that Southwest Airlines is participating in the CSIT as well. He said they see the value in sharing data and have come across a few internal IT challenges, but remain committed.
- Ms. Tyler
  - Ms. Tyler noted that American Airlines is participating in the CSIT. She said they are well resourced for CLT. She asked once the team makes it through CLT, is there a roadmap for the remaining sites
  - Mr. Swol answered and said the Industry Readiness graphic shows the IOC date so the operators and airports will know which site they are focusing on next. He noted that there is a bit of a gap between CLT and PHX to allow additional time to determine if the FAA is satisfied with the system.
  - Ms. Tyler said there will be a lot of variability and ask if the FAA can assist with making sure that all the stakeholders involved are clear about the benefits and what is needed from them
  - Mr. Swol thanked Ms. Tyler for the feedback and agreed there isn't one solution for all sites.
  - Mr. Oswald chimed in that the dominate carriers have a large role in providing the data.
     He noted the work American Airlines has done in CLT and DFW regarding ATD-2 is very useful for the operator community.
  - o Mr. Goldman
- Mr. Goldman

- Mr. Goldman added that the TFDM data is complicated and there are forums around industry that will help. He said this information won't provide a competitive advantage of one carrier vs the other rather all carriers have to participate to see the full benefits of TFDM.
- Mr. Childs
  - o Mr. Childs asked Ms. Tyler if American Airlines were providing data for their regional operators
  - Mr. Swol answered Mr. Childs and said that some majors provide some of their regional's data. He said the independently owned regional operators are harder to collect data from. Mr. Swol said the FAA does special outreach in the BA/GA communities and work with the local airport authorities.
  - Mr. Childs added that he doesn't doubt American Airlines provides his data but isn't sure about the other majors operators he works under.
- Mr. Dave Mets (Alaska Airlines)
  - Mr. Mets shared that Alaksa Airlines has been involved in the CSIT activities since November 2022 and are plugged in with he airport in Seattle. He said Alaska Airlines have stood up a steering committee that crosses divisional and includes IT.
- Mr. Goldman
  - On behalf of United Airlines, Mr. Goldman also said they providing the data elements and looking at ways to make the data more accurate. United Airlines are participating in all industry work groups as well as internal working groups.
- Ms. Candace McGraw
  - Ms. McGraw added that is important for the FAA to serve as the convener and set expectations at some of the airports where there isn't a dominate carrier. She said this will be helpful in moving this information along.

Mr. Christie thanked all the members who participated in the conversation and reminded the NAC that TFDM was identified in NAC Task 21-1 as a priority and this topic will be on the docket for future meetings.

#### NAC Task 20-1 Recommendation Update: ADS-B In Operational Trail

Mr. Christie handed the time over to Mr. David Surridge (American Airlines) and Mr. Brian Townsend (American Pilots Association) for a update on NAC task 20-1 recommendation to support filed trails and provide insight on the operational benefits of ADS-B In .

Mr. Surridge began his presentation with identifying that ADS-B In had overwhelming from industry and as apart of the NAC task 20-1 recommendation, they were to report back to the NAC on the status AIRS trial.

American Airlines equipped ADS-B In Guidance Display (AGD) in the flight deck of all of the Airbus 321 aircraft. This equipment gives information to the pilots about the traffic around them. AGD is apart of a suite of Cockpit Display of Traffic Information (CDTI) capabilities.

Mr. Surridge said that as traffic continues to grow the constraints on the airspace grow they needed to use ADS-B In applications to leverage the exiting investment of ADS-B Out. He said ADS-B In has internal algorithms that looks at the environmental conditions to produce high fidelity spacing.

He said there are several ADS-B In applications including: Interval Management (IM), CDTI Assisted Approaches (CAS), In Trail Procedures (ITP), and other applications. Mr. Surridge said they are finding their pilots are using this capability to look at holding patterns and at weather going on in front of them.

Mr. Townsend shared that the feedback he has received from pilots has been tremendous. APA has looked at how this will impact the flight deck for pilots, will it cause a distraction, will it increase workload, will it be a detriment to safety or enhance safety. After receiving direct feedback from the pilots, Mr. Townsend they have found the tool allows the pilots to make more informed decisions because of the increased situational awareness and information.

Mr. Surridge said that data collection is important, and their team gives it a lot of attention to make sure they are getting the most accurate picture. They have monthly meetings with ZAB/D-10, FAA, ASCC and American Airlines, they include the SWIM data from PDARS and ADS-B.

Mr. Surridge explained that the pilots started using CAVS immediately upon equipping the aircraft. The crews reported that the increased situational awareness has resulted in avoiding go-arounds which pilots and controllers both don't like. He said the data supports more efficient spacing on final departure due to increased flight information from following traffic.

Mr. Surridge reviewed the following slide which shows the Inter-arrival Time (IAT) for DFW.

### IAT for A321s into DFW Jan 2022-Feb 2023

Metric

> Inter-arrival Time (Time between ownship threshold time and previous arrival threshold time on same runway), IAT

- Analysis Details
  - > Limited analysis to A321 and A21Ns into DFW January 2022 February 2023 (14 months)
  - > Removed arrivals with IATs > 220 sec or < 40 sec, arrivals behind a heavy, arrivals during IMC (<1000 feet ceiling OR <3 miles visibility)</p>
  - > Examined distribution of IAT comparing non-AAL A321s, AAL A321s (those Designating Traffic and those not)
  - > Also examined impact on IAT using regression on A321s

#### Results

> Average IAT smaller by 13-20 seconds for aircraft Designating Traffic



He said they are seeing these results are their other hubs too not just DFW. The left graphic shows when the pilot is designating the traffic they get a more consistent spacing on the final descend. The right graphic shows that when the pilot is designating the traffic, the spacing of final descent shrinks.

Mr. Childs asked how large their A321 fleet is and if they purchased the planes with the technology or if they were retrofitted. Mr. Surridge responded that it is all the A321 fleet and there are 290 aircraft and 6000 pilots. He also said these features were retrofitted on the aircraft.

Mr. Surridge explained that Interval Management (IM) trail began November 2022 and started off well with enthusiasm from the workforce. Several issues occurred such as: aircraft database was incomplete, learning curve for controllers and pilots, algorithm understanding from controllers and pilots, and human factor issues. The controllers really started owning this and came back with things that they needed in order for this application to work. Data shows that IM can provide spacing enhancements however, they will have to come up with solutions that will work within the restricted funding the FAA currently have for this program.

Mr. Surridge then reviewed CDTI Assisted Separation (CAS) trail which began March 2023. The controllers started using CAS clearance during hazy conditions. Mr. Townsend said the pilots had mixed feelings at first but have changed over time. The initial feedback resulted in better training tools, and they are seeing near 100% utilization.

Mr. Surridge shared the following slide which shows the flight distant and time benefit of suing CAS-A. He estimated that if 25% of arrivals area on CAS they would see a \$2.5M savings every 4 months.

### CAS-A Flight Distance and Time Benefit (Mar-Jun 2023)

- CAS-A Arrivals March-June 2023
  - 871 CAS-A arrivals listed in CountOps data

als in other Weath

- 113,295 total arrivals in same per loss than 1% of total (0.77%)
- Less than 1% of total (0.77%)
- Measured and Hypothetical Benefit

eri	od									
		Benefit 1	Benefit per CAS-A arrival in 15 min ahead:			ммс2		All other Wx		
enefit		0	Distance (NM)			0.6		0.2		
		Т	Time (seconds)		14 5		5			
		CA	S-A Arriv	als in pa	st 15	min				
	0	1	2	3	4	4	5	6	7	
	10,261	549	179	55						
	93,777	5,598	1,983	650	18	31	46	12	4	
	0	1,454	1,012	491	14	15	46	14	6	
	0.0	595	414	201	6	0	19	6	2	

Preliminary analysis using 4 months of data; full

analysis will use 1 year of test data

- Taking the benefit in minutes (1,298 minutes) and multiplying by an assumed airline cost of \$60/min results in a savings of \$78,000 from Mar-Jun 2023 with only 0.77% of operations receiving CAS-A
- If 25% of arrivals received a CAS-A clearance the result would be closer to 42,000 minutes and \$2,500,000 airline costs

#### Other possible CAS-A benefits

- There are other CAS-A benefits besides direct reduction of flight time/distance in TRACON
- If equipage was higher and IAT could be shown to be smaller and more consistent, then the overall airport arrival
  rate/acceptance rate could eventually be increased
- Tactical metering (TBFM) and strategic metering (TFMS/GDPs) could consider equipage in arrival rate calculations
- · Airlines could consider reduction in flight time to examine aircraft utilization



Mr. Surridge shared that there are a lot of advantages to ADS-B In technologies and they are going to continue the trails. He believes that the future of the airport throughput is going to be ADS-B In. He said CDTI improves safety, improves airspace efficiencies, and allows for better pilot/controller coordination.

He said America is very excited with the data they are seeing and they are working with the FAA on an extension to the trails for another year. Mr. Surridge then opened the floor for questions and comments.

Mr. Christie thanked Mr. Surridge and Mr. Townsend for the briefing. This briefing concluded the NAC Subcommittee Report and turned the floor over to Mr. Childs.

Mr. Childs thanked Mr. Christie for the Subcommittee Report and the work that is being done in the forum.

#### NAC Task 20-1 Recommendation Update: ADS-B In Operational Trail

Mr. Childs handed the time over to Mr. Juan Narvid Ms. Torrence and quick update on Section 547.

Below is an update of the 3 selected initiatives from the Section 547 team

- Simultaneous Independent Established on RNP (EoR) at Los Angeles International Airport (LAX)
   Mr. Narvid said they are seeing steady benefits and are topping out at about 600 procedures a month
- Automatic Dependent Surveillance-Broadcast (ADS-B) Out enabling 3 nautical mile (NM) in en route airspace (below FL230) for Oakland Air Route Traffic Control Center (ZOA) – Mr. Narvid said they still continue seeing opportunities from implementing the 3 MN separation exceeding the 2019 5NM separation.
- CPDLC Departure Clearance (DCL) capabilities at Orlando International Airport (MCO) Ms. Torrence said they are hitting record numbers for DCL every month, which is remarkable.

Mr. Childs asked what the timeline for communicating the findings for Section 547 to Congress. Ms. Noonan replied that the final report is due by the end of December 2023. She said the FAA leaders and Mr. Christie provided an interim report to the Hill earlier the year 2023.

Mr. Childs asked if the NAC will see the final report before going to the Hill. Ms. Noonan replied she will work with our internal affairs office to determine the format the report will be presented.

Mr. Childs thanked everyone for their hard work. He then handed off to Ms. Noonan to review action items and present any administrative announcements.

#### Review of Action Items / Other Business

Ms. Noonan said the team is still working on scheduling the NAC meetings for the next fiscal year. She said there will be a spring meeting in the February or March timeframe. She noted only one action from this meeting, which is look into tasking the NAC to prepare a JAT to review the benefits of En Route Data Comm.

Ms. Noonan handed off to Mr. Childs for closing comments.

#### **Closing Comments and Adjourn**

Mr. Childs thanked Ms. Noonan then handed off to Ms. Thomson to provide the FAA closing comments.

Ms. Thomson said that is it clean that a lot of thought and analysis went into the presentations for NAC meeting. She told the members that the FAA is appreciative of the ongoing work they are doing for the NAC Tasking and looks forward to additional conversations.

She said that she is hopeful that the next time the NAC meets, the new FAA Administrator will be named. She thanked the NAC for their collaboration then handed back off to Mr. Childs.

Mr. Childs echoed Ms. Thomson's remarks by thanking the presenters for their hard work. He said there were a lot of great ideas. He is optimistic that by the next NAC in February or March 2024, we will have a lot of clarity about the boundaries in which they feel as a committee they can operate in.

Mr. Childs said he looks forward to getting the vision of the new Administrator and was hopeful a budget deal with an authorization deal is going to pass.

Mr. Childs ended the meeting with wishing safe travels to those who were able to attend.



# **NAC Meeting**

October 4, 2023



## **Opening of Meeting**

Chip Childs, NAC Chair President & CEO (SkyWest Airlines)



## **Public Meeting Announcement**

NextGen Advisory Committee (NAC) October 4, 2023

![](_page_24_Picture_3.jpeg)

![](_page_25_Picture_0.jpeg)

## **NAC Chair Report**

Chip Childs, NAC Chair President & CEO (SkyWest Airlines)

## **Motion for NAC Approval**

• June 12, 2023 – NAC Meeting Summary Package Draft

![](_page_26_Picture_2.jpeg)

![](_page_27_Picture_0.jpeg)

### Announcement

Andreas Boschen, Executive Director (SESAR 3 JU)

![](_page_27_Picture_3.jpeg)

![](_page_28_Picture_0.jpeg)

## **FAA Report**

Katie Thomson, Deputy Administrator & NAC Designated Federal Officer (FAA)
 Tim Arel, Chief Operating officer, Air Traffic Organization (FAA)
 Paul Fontaine, Assistant Administrator for NextGen (FAA)
 Jodi Baker, Deputy Associate Administrator, Aviation Safety (FAA)

![](_page_29_Picture_0.jpeg)

## NAC Subcommittee (SC) Chair Report

Warren Christie, NAC SC Chair (JetBlue Airways)

![](_page_29_Picture_3.jpeg)

## **NAC Subcommittee Overview & Topics**

- Share interim findings from Task 23-1, Airspace Efficiencies
- Provide brief update on workgroup highlights, followed by policy level discussions facilitated by the NIWG Co-Chairs and FAA SMEs
  - > Data Communications En route data communication benefits
  - > Surface & Data Sharing Industry readiness for TFDM surface metering
- Status of the ADS-B In trials as follow-up to recommendations from Task 20-1, ADS-B In Commercial Application Technologies

![](_page_30_Picture_6.jpeg)

## **Overview of Milestones** (since June 2023 NAC)

### **Northeast Corridor**

![](_page_31_Picture_2.jpeg)

- Atlantic Coast Routes (ACR) in place since April
- PANYNJ moving forward with GBAS for JFK and LGA
- PANYNJ Fly Quiet Program draft scorecard developed

### **Data Communications**

![](_page_31_Picture_7.jpeg)

- Twelve en route centers operational with Full Services increment 1
- ZHU latest to go operational
- ZFW and ZJX planned for by the end of CY2023

### Surface & Data Sharing

![](_page_31_Picture_12.jpeg)

- Electronic Flight Strips operational at five sites
- Collaborative Site Implementation Team (CSIT) visits completed at six sites (where surface metering is planned)

![](_page_31_Picture_15.jpeg)

![](_page_32_Picture_0.jpeg)

## NAC Tasking 23-1: NAS Airspace Efficiencies Interim Findings

Lee Brown (JetBlue Airways) & Ron Renk (United Airlines) Shawn Kozica (FAA), Wendy O'Connor (FAA), & Greg Schwab (FAA)

## NAC Task 23-1: 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.

![](_page_33_Picture_11.jpeg)

## Work Completed since June

- Process Completion
- Defining "Minimum Service Levels"
- FLL Case Study
- Better Use of NextGen Procedures

![](_page_34_Picture_5.jpeg)

## **Process Completion**

- As briefed in June, the group worked on a way to take *objective* FAA procedure use data and add a *subjective* review.
- This requires a review of things such as: types of operations at the airport, contingency procedures, weather patterns, airspace constraints, runway configuration, etc.
- Since June, the FAA met with regional and local Air Traffic personnel and no additional changes were requested for this process.
- The process was used for the initial case study (FLL) with success.
  - > Will review later in this presentation when we talk about FLL

![](_page_35_Picture_6.jpeg)
## **Defining Minimum Service Levels**

 To assist the FAA's review of an airport, we defined Minimum Service Levels based on airport Navigation Service Group (NSG) as defined in the FAA PBN Roadmap.

**NSG 1** - Low visibility (<200' HAT), redundancy (spaced-based/ground-based, DEP/ARR runway), arrivals, departures

**NSG 2** - Low visibility (<=200' HAT), redundancy (spaced-based/ground-based, DEP/ARR runway), arrivals, departures

**NSG 3** - CAT I mins, redundancy (spaced-based/ground-based, DEP/ARR runway), arrivals/departures where needed

**NSG 4** - Instrument approaches to ensure runway access, procedures to meet operational needs of primary airport users.

**NSG 5** - Instrument approaches (where users equipped) to ensure runway access, procedures to meet operational needs of primary airport users. Consideration for equipage should given to ensure any approaches available are useable by airport users.



## Defining Minimum Service Levels (cont.)

- The group was also able to make some blanket statements about retiring certain approach types.
  - ILS, keep when: it's the only vertically guided approach, ceiling and visibility (minima) reduced compared to PBN, resiliency for GPS failure, pilot training required.
  - RNP AR, keep when: curved approach required, NextGen program in use (example: Established on RNP), ceiling and visibility (minima) reduced compared to GPS, allows for airport access.
  - > PRM Approaches: Thanks to 7110.308, PRM approach use greatly reduced. FAA should look at the need for separately titled approach if cost savings can be achieved.



## **FLL Case Study**

## • Approaches:

- > Did not find wastefulness with approaches. Due to runway use and need for resiliency (runway closures), right balance of ILS and PBN.
- > Industry willing to do without LOC approaches with the idea that when the full ILS is out, RNAV should be used in its place.

## Departures/Arrivals:

- > Some low use departures/arrivals needed for satellite airports, contingency and to mix prop/turbojet traffic.
- Willingness however to look at combining up some procedures to reduce overall inventory.



## **Better Use of NextGen Procedures**

- The group started discussion on how to get better use of NextGen procedures where it occurred organically in other discussions. Some concepts included:
  - > Making use more attractive by providing better benefits for ATC and operators.
  - > Better name and education of existing controller tools that support PBN operations, like Converging Runway Display Aid (CRDA). Calling it something like Converging Aircraft Display Aid (CADA) would draw attention to it being used for other than converging runways. During FLL discussions, ATC didn't realize that tool could be used to assist sequencing curved approaches with straight-in approaches.
  - > Procedure design that helps support use: In FLL example, controllers said connecting RNPs to arrivals would assist in making them more usable.
- More robust discussions will occur around this topic later this fall.



## What's Next

- Additional Case Studies (Different NSG groups, NY)
- Explore opportunities for increased utilization of existing Performance Based Navigation (PBN) procedures.
- Opportunities to modify existing IFPs/Standard Instrument Departure Procedures (SIDs)/Standard Terminal Arrival Procedures (STARs) to gain overall airspace efficiencies
- Opportunities for efficiencies with the use of Advanced Required Navigation Performance
- Work with the NAC Subcommittee Minimum Capabilities List (MCL) Team to capitalize on any cross-cutting issues that might support both tasks and industry achieving MCL-level of equipage





## **En Route Data Comm**

Chris Collings (L3Harris) & Ed Evans (Southwest Airlines) Kathy Torrence (FAA)

## Data Comm benefits example – Washington Center (ZDC)

ZDC was extremely busy supporting several Traffic Management Initiatives:

- 3 AFPs (Air Flow Programs) for ZJX and ZMA for thunderstorms on the inland routes
- PHL VIP TFR (Temporary Flight Restrictions)
- Miles in Trail Restrictions to NY Metro Airports and FL KMIA/KFLL/KPBI and KMCO
- Three southbound flights all received a similar re-route in ZDC to avoid weather



# Data Comm NIWG Update (October 2023)

## En Route Data Comm Deployment

- + 12 centers operational 24/7
- + En Route Full Services Increment 1 active at all active centers
- Planning next En Route deployments to ZFW (Q4 2023), ZJX (Q4 2023), ZOB (Q1 2024), ZNY (Q2 2024)





### **Industry & Avionics Performance Updates**

- + Business aviation users resumed en route participation closely monitoring performance
- + Continue to receive positive user feedback as usage grows
- + Confirmed plan for A220 avionics updates Q4 2024
- NIWG members expressed concern about the "Enhanced Services" baseline slipping to end of 2029



## Data Comm En Route by the numbers



# **10-Minute Break**





## NAC Subcommittee (SC) Chair Report

Warren Christie, NAC SC Chair (JetBlue Airways)





# Terminal Flight Data Manager Industry Readiness

Rob Goldman (Delta Air Lines) & Chris Oswald (ACI-NA) Doug Swol (FAA)



## To Realize Benefits of TFDM... What is Needed of Industry?

#### • Engage Collaborative Site Implementation Team (CSIT)

- > Surface data management differs at key hub airports
- > Procedures, policies, plans with local surface working group
- > **FAA feedback:** Strong engagement from industry at all CSIT events
- On ramp to TFDM/TFMS System Wide Information Management (SWIM) services
  - Provide key surface data elements to FAA via SWIM like Earliest Off Block Time and Departure Gates
    - FAA feedback: FAA receives data for five major carriers
  - > Use TFDM and SWIM testbeds
    - FAA feedback: FAA working with one carrier/partner to onramp
  - > Develop infrastructure/surface management tools to utilize TFDM data
    - COTS or local IT solutions

**Does industry have IT investment plans to become TFDM ready?** 



#### TFDM is coming to a Hub Near You!

Airport	IOC Date	Readiness Level
CLT	3/2024	Medium
РНХ	12/2024	Very Low
LAS	2/2025	Very Low
SEA	3/2025	Low
LAX	4/2025	Low
SFO	5/2025	Low
IAH	6/2025	Low
MDW	7/2025	Very Low
MIA	10/2025	Low
BOS	3/2026	Very Low
ATL	4/2026	Low
SLC	7/2026	Low
SAN	8/2026	Very Low
DEN	9/2026	Low
DFW	10/2026	Low

#### Readiness Level Legend

High	Sufficient Surface Data, Accurate Surface Data, SWIM Onramping Complete Surface Tools Ready
Medium	Sufficient Surface Data > 80%, Accurate Surface Data, SWIM Onramping In Progress Surface Tools In Progress
Low	Limited Surface Data >60%, Inaccurate Surface Data, SWIM Onramping Not Started Surface Tools Not Ready / In Progress
Very Low	Insufficient Surface Data SWIM Onramping Not Started Surface Tools Not Ready

Assessments based on FAA SWIM data analysis, CSIT discussions and surveys



Complete waterfall in Read-Ahead

## **Industry Supports TFDM Capabilities**

- TFDM is an integral part of a suite of tools that optimizes traffic flow management (TFM) and enables trajectory based operations (TBO)
  - > TFDM reconciles data from other systems such as Traffic Flow Management System (TFMS) and Time based flow management (TBFM) and establishes release times that aid in surface management
  - Data exchange with TFDM enables continuity between the airport environment and en route airspace
  - > Reduced taxi time equates to reduced fuel consumption and CO2 emissions
  - > Reduced surface complexity increases situational awareness and safety



## Airport Operators will Also Benefit, But Clarity on Supporting Investments and Investment Timing is Needed

### • **TFDM will Benefit Airport Operators**

- > Improved utilization of airfield and terminal infrastructure
- > Improved operational efficiency
- > Increased collaboration with ATO and flight operators
- > Reduced carbon emissions and possibly taxi-out noise exposure
- > Enhanced situational awareness and airside safety
- Clarity Needed Regarding Airport Investments Needed to Obtain Benefits
  - Collection of key operational data for non-CDM carriers (earliest off block times, gate assignments, airside constraints)
  - Surface management capabilities that can interact through FAA's Systemwide Information Management System (SWIM) to feed TFDM in real time
  - > Particularly critical for Configuration A sites, where departure metering will occur





# NAC Task 20-1 Recommendation Update: ADS-B In Operational Trial

David Surridge (American Airlines)

## NAC Tasking 20-1

- Asked for industry interest in ADS B In applications
  - > Industry overwhelming expressed interest in ADS B In technology
  - > Industry willingness to invest is dependent on FAA infrastructure investments
  - > Tasking included a periodic briefing on data gathered from trial



## **Cockpit Display of Traffic Information (CDTI)**





## **Current State**

- Air travel continues to grow along with population
  - > Air travel provides needed services
  - > Safest and most efficient form of transportation
- Constraints to airspace continue to grow
  - > Delay is a constant problem affecting traveling public satisfaction
  - > Limit to future NAS expansion
  - > Causes inefficiencies and increase in CO2 emissions

## Airports

- > New runways are hard to impossible to add
- TBO could help but might hurt
  - > Will need specific accurate spacing tools to work
  - > ADS B investments allow for markedly improve spacing



# **Purpose of the Trial**

• Leverage existing investments in ADS B Out mandate

## • ADS B In

- Allows for internal algorithms to use exact environmental information to produce high fidelity spacing
  - Inter Aircraft Timing is unmatched by other spacing tools
- Evaluate 25 years of research and funding for ADS B In applications
  - > Interval Management (IM)
  - > CDTI Assisted Approaches (CAS)
  - > In Trail Procedures (ITP)
  - > And other Applications
- Collect data and then more data



## **Data Collection**



#### **Multiple Sources**

Swim data to include

- PDARS
- ADSB

# Internal Data Sources gathered through the TCAS LRU

• 100 parameters examined to verify system functionality and pilot inputs

American internal data

Feedback Forms and APA follow up conversations



# Data is carefully analyzed to get the most accurate picture

Monthly meeting to analyze data with ZAB/ D-10, AA, ACSS, and FAA

Honest conversations of the operation and what works and what doesn't



## **CDTI Assisted Visual Separation (CAVS)**

- Started using CAVS immediately upon equipping aircraft
- Crews reported back that the increase in situational awareness resulted in avoiding go-arounds
- Data supports more efficient spacing on final due to increased flight information from following traffic



## IAT for A321s into DFW Jan 2022-Feb 2023

#### • Metric

> Inter-arrival Time (Time between ownship threshold time and previous arrival threshold time on same runway), IAT

#### Analysis Details

- > Limited analysis to A321 and A21Ns into DFW January 2022 February 2023 (14 months)
- > Removed arrivals with IATs > 220 sec or < 40 sec, arrivals behind a heavy, arrivals during IMC (<1000 feet ceiling OR <3 miles visibility)</p>
- > Examined distribution of IAT comparing non-AAL A321s, AAL A321s (those Designating Traffic and those not)
- > Also examined impact on IAT using regression on A321s

#### Results

> Average IAT smaller by 13-20 seconds for aircraft Designating Traffic

A321 and A21N	Non-AAL	AAL (not Designating)	AAL Designating Traffic		
Mean IAT (sec)	118	111	98		
Median IAT	107	101	92		
Stdev IAT	37	36	27		
Observations	4,159	46,707	5,287		



hegiebbion heballo						
Predictors of IAT	Coefficient (seconds)	P-Value				
Baseline IAT (constant)	135	<< 0.05				
Arrivals in past 15 min airport	-1.4	<< 0.05				
Behind a Heavy	44.0	<< 0.05				
AAL	-1.6	0.003				
AAL Designating Traffic	-11.1	<< 0.05				

Regression Results



## Interval Management (IM) – ZAB

## Trial began November 2022

- Started off well with enthusiasm from the work force
- Start up issues occurred
  - > Aircraft database was incomplete
  - > Learning curve on how to use the technology
  - > Algorithm understanding for controller and pilot alike
  - > Human/machine improvements needed
- Data shows IM can provide spacing enhancements
  - > Operation provides predictable, repeatable performance
  - > Controllers embrace the technology with ERAM automation
  - > Pilots see the benefits of added situational awareness



# IM DATA





- AT SLIDR <u>Cross and Maintain 8 NM behind.....</u>
- AT EAGUL <u>Cross and Maintain 8 NM behind.....</u>





## I-IM: Delivery Accuracy I-IM at ABP vs. GIM-S at XMP

- Examined Actual Time Spacing Required Time Spacing at Achieve By Point (ABP) for flights using IM avionics and indication of controller interaction
  - > See previous page
- Examined Actual Cross Time Scheduled Cross Time at Extended Meter Point (XMP) for flights that accepted speed advisories and had non-zero TBFM delay
  - > PHX arrivals that accepted speed advisories for ZABX1, ZDVPHXX, ALIBYX1
  - > Jan 2022 June 2023 data from online TBFM Tableau data set



		Actual Time Spacing Spacing (	– Required Time sec)	Actual Cross Time – Scheduled Time of Arrival (ATA-STA)			
Operation	Observations	Average	StdDev	Average	StdDev		
IM (Time-based)	61	4	11				
GIM-S	7017			-10	41		



## **CDTI Assisted Separation (CAS)**

## **DFW Trial Begins March 2023**

- Controllers start with issuing CAS clearances during hazy conditions
  - > Pilots can no longer see the airport
  - > Use of CDTI allows controllers to have pilots follow designated aircraft
  - > Useful for both parallel Finals
- Pilot reactions are mixed at first but change over time
  - > Startle factor plays a role early on
  - > Section six negotiations didn't help
  - > Training by bulletin not popular with pilots
  - > Over 80% of pilots accepted the clearance
  - > Today near 100%
  - > Both pilots and controllers see benefit



# CAS-A Flight Distance and Time (Mar-Jun 2023)

#### Motivation

- Reducing IAT and Threshold Spacing for CAS-A/CAVS aircraft is encouraging, but is there an impact on the overall system in terms of reduced flight time or flight distance?
- > Controllers have reported using CAS-A to reduce flight path during certain conditions
- Analysis Details
  - > DFW arrival trajectories from Threaded Track Mar–Jun 2023
  - > CAS-A determination from CountOps, Weather from ASPM
  - > Regression analysis with data per arrival
  - > Dependent Variables:
    - Flight Time 25NM to runway
    - Flight Distance 25NM to runway

#### > Independent Variables:

- Downwind (0= No, 1=Yes)
- Number of arrivals at airport in past 15 minutes
- Number of heavy arrivals at airport in past 15 minutes
- Number of CAS-A arrivals in airport in past 15 minutes
- IMC (ceiling <1000 feet and visibility<3 miles)
- MMC1 (ceiling <3500 feet and visibility <5 miles)
- MMC2 (ceiling <6000 feet and visibility <=8 miles)
- CAS-A arrivals and IMC
- CAS-A arrivals and MMC1
- CAS-A arrivals and MMC2





## CAS-A Flight Distance and Time Weather (Mar-Jun 2023)

#### • Weather conditions chosen for analysis

- > IMC uses basic minimums (<1000 ft ceiling or < 3 miles visibility)
- MMC1 based on a Visual Approach Threshold value listed in ASPM for DFW (<3500 ft ceiling or < 5 miles visibility)</li>
- MMC2 based on information gathered from facility by J Sparrow (<6000 ft ceiling or <= 8 miles visibility)</li>

Weather Condition	Arrivals	% of Arrivals
IMC	3,415	3%
MMC1	13,209	12%
MMC2	11,044	10%
VMC	85,627	75%
Total	113,295	





## CAS-A Flight Distance and Time Benefit (Mar-Jun 2023)

#### CAS-A Arrivals March-June 2023

- 871 CAS-A arrivals listed in CountOps data
- 113,295 total arrivals in same period
- Less than 1% of total (0.77%)

#### • Measured and Hypothetical Benefit

Preliminary analysis using 4 months of data; full analysis will use 1 year of test data

Benefit per CAS-A arrival in 15 min ahead:	MMC2	All other Wx
Distance (NM)	0.6	0.2
Time (seconds)	14	5

March through June 2022		CA	S-A Arriv	als in pa	ıst 15 miı	ı		
March through June 2025	0	1	2	3	4	5	6	7
Arrivals in MMC2	10,261	549	179	55				
Arrivals in other Weather	93,777	5,598	1,983	650	181	46	12	4
Benefit in NM	0	1,454	1,012	491	145	46	14	6
Benefit in minutes	0.0	595	414	201	60	19	6	2

- Taking the benefit in minutes (1,298 minutes) and multiplying by an assumed airline cost of \$60/min results in a savings of \$78,000 from Mar-Jun 2023 with only 0.77% of operations receiving CAS-A
- If 25% of arrivals received a CAS-A clearance the result would be closer to 42,000 minutes and \$2,500,000 airline costs

#### • Other possible CAS-A benefits

- There are other CAS-A benefits besides direct reduction of flight time/distance in TRACON
- If equipage was higher and IAT could be shown to be smaller and more consistent, then the overall airport arrival rate/acceptance rate could eventually be increased
- Tactical metering (TBFM) and strategic metering (TFMS/GDPs) could consider equipage in arrival rate calculations
- Airlines could consider reduction in flight time to examine aircraft utilization



# Advantages of IM, CAS, and CAVS

- Nothing compares to these types of operations
  - > The addition of traffic information allows the controller to have confidence that the flight crew can achieve accurate spacing
  - > First time the pilot can "see" the traffic around them in all environmental conditions
  - > Already has proven benefit



## What have we Learned

- Cockpit Display of Traffic Information (CDTI) results in better decisions from the pilots
  - > Improves safety
    - Better situational awareness
    - Reduces Go-arounds
  - > Improves airspace efficiencies
    - Average reduction in Final spacing
    - More consistent spacing enroute
  - > Allows for better pilot/controller coordination
    - Pilot and controller communicating exactly what the controller needs
    - Pilot has more of the big picture and becomes a partner in the controllers needs



# **Looking Forward**

- FAA along with industry developing strategies to achieve airspace efficiencies that allow for expanded use of current airspace and infrastructure
- What role does ADS B In provide to build this plan?
- How do we get there?





## Section 547 Update

Juan Narvid (FAA) & Kathy Torrence (FAA)

Section 547 Pilot Program: Preliminary Analysis Results Oct 2023


### **Overview of Selected Section 547 Initiatives**

Process: Industry provided FAA a 'short list' of candidate recommendations based on Readiness, Return, & Relevance

### Initiative

Simultaneous Independent Established on RNP (EoR) at Los Angeles International Airport (LAX)

(start date: September 12, 2021)

**CPDLC Departure Clearance (DCL) capabilities at Orlando International Airport (MCO)** 

(Focused metric tracking September 1, 2021)

Automatic Dependent Surveillance-Broadcast (ADS-B) Out enabling 3 nautical mile (NM) in en route airspace (below FL230) for Oakland Air Route Traffic Control Center (ZOA)

(start date: September 9, 2021)







**PBN RNP Equipage=** <u>Reduced</u> Flight Distance and Flight Time

### Data Communication Equipage= <u>Earlier</u> Departure During Rerouting Events, and overall system efficiency

ADS-B Out Equipage= <u>Reduced</u> spacing/distance flown



## LAX: ESTABLISHED ON RNP (EOR) INITIATIVE







### Monthly Curved RNP (RF) Usage – West Configuration Only





54

MITRE

### **RNP RF Benefits – West Flow**

Savings per Flight **Distance Flown Fuel Burn Time Flown** CO<sub>2</sub> Emissions VMC/IMC (Minutes) (Gallons) (kgs)\* (NM) VMC 2.7 0.8 8.9 86.8 177.2 IMC 6.8 2.1 18.2 60,000 1,500,000 **Cumulative RNP Benefits** From 9/14/2021 through 8/31/2023 1,350,000 50,000 Saved 49,500 NM distance  $\checkmark$ 1,200,000 Time & Distance Flown Savings flown 1,050,000 40,000 Saved 15,400 minutes of flying  $\checkmark$ (KGs 900,000 Distance Flown Savings (NM) time CO2 Savings 30,000 750,000 Time Flown Savings Saved 1.5 million kilograms of  $\checkmark$ (Minutes) 600,000 CO<sub>2</sub> emissions -CO2 Savings (KGs) 20,000 450,000 300,000 10,000 150,000 0 0 Sept Oct Nov Dec Jar Feb Mar April May June July Aug Sept Oct Nov Dec Jan Feb Mar Apr May June July August 2021 2022 2023

Flight Efficiency Improvements for RNP RF vs Non-RNP Approach Operations

\*CO<sub>2</sub> emissions use the latest U.S. Energy Information Administration (EIA) coefficient for jet fuel which is 9.75 kgs CO<sub>2</sub> per gallon of fuel.





# ZOA: ADS-B OUT, 5NM TO 3NM REDUCED SEPARATION INITIATIVE



## Rule Change – Enabling 3NM Separation below FL230 Leveraging ADS-B Out Equipage



© 2023 THE MITRE CORPORATION. ALL RIGHTS RESERVED. FOR INTERNAL USE ONLY.



## Month-to-Month Comparison (ZOA)







# All Centers with 3NM Separation Implemented

### # of Pairs < 5NM per 1,000 Flights



### **Evaluation Timeframes**

Centers	Baseline	Post
ZBW, ZDC, ZJX, ZLC, ZMA, ZOA, ZSE	01/2019 – 12/2019	09/2022 – 08/2023
ZAU, ZOB	11/2018 – 06/2019	11/2022 – 08/2023

### FY19

FY22, FY23



## ZMA and ZJX Zoom

Opportunities increased close to center boundary because of uniform separation standards





# MCO: CPDLC DEPARTURE CLEARANCE CAPABILITIES





# Section 547 Data Comm: Orlando Metrics

August 2023

FMS3





Federal Aviation Administration





### **CPDLC Departure Clearance** (DCL) **capabilities at Orlando International Airport** (MCO)

Overview

Use of DCL can provide CPDLC equipped operators revised departure clearances in a more time-efficient manner compared to unequipped operators. This is especially beneficial when reroutes are necessary due to weather or other air traffic disruptions.

### Anticipated Benefits

Minutes of Airspace User Time Saved and kilograms of CO<sub>2</sub> Emissions Prevented

Start Date

Focused data collection and metric tracking beginning 9/1/2021





63









64

# Orlando CPDLC DCL Clearances EED DIRECT TO FILTER August 2023

### **By Operator**





**By Aircraft Type** 









### Message Type



Revised Route DCL

Initial Modified





66

# **Orlando CPDLC DCL Benefits**

ASSIGNED ALTITUDE 1616Z-KUSC

ACPT

### Since January 2021



Cleared 205,949 flights



Saved 40,872 minutes of airspace user time (gate and taxi)



Prevented 1.06M kgs of CO<sub>2</sub> Emissions



Cleared 8,527 flights

In June 2023

Saved 1,211 minutes of airspace user time (gate and taxi)



Prevented 23,129 kgs of CO<sub>2</sub> Emissions

\*Benefits are derived using ASPM data which is verified 3 months after the month closes.





67



### **Time Savings and Emission Reductions**



\*Benefits are derived using ASPM data which is verified 3 months after the month closes.







### **Review of Action Items & Other Business**

Kimberly Noonan, NAC Committee Manager (FAA)



## **DFO Comments**

Katie Thomson, Deputy Administrator & NAC Designated Federal Officer (FAA)



## **Closing Comments & Adjourn**

Chip Childs, NAC Chair President & CEO (SkyWest Airlines)



### NextGen Advisory Committee (NAC) October 4, 2023 Attendance List

Last Name	First Name	Affiliation
Abshir	Hamza	Federal Aviation Administration
Adcock	Tom	National Air Traffic Controllers Association
Aguirre	Carlos	Professional Aviation Safety Specialists
Armstrong	Merrill	Federal Aviation Administration
Andrews	Malcolm	Federal Aviation Administration
Arel	Tim	Federal Aviation Administration
Arrighi	James	Federal Aviation Administration
Baker	Jodi	Federal Aviation Administration
Baker	Mark	Aircraft Owners and Pilots Association
Batchelor	David	SESAR 3 Joint Undertaking
Beck	Robert	Federal Aviation Administration
Bolen	Edward	National Business Aviation Association
Bolen	Ed	National Business Aviation Association
Boschen	Andreas	SESAR 3 Joint Undertaking
Brandt	John	MITRE
Braxton	Keisha	Federal Aviation Administration
Brez	Jason	Federal Aviation Administration
Brian	Townsend	Allied Pilots
Brown	Melissa	MITRE
Brown	Lee	JetBlue Airways
Bunce	Peter	General Aviation Manufacturers Association
Burns	Patrick	Delta Air Lines

Last Name	First Name	Affiliation
Castillo	Cash	Wisk Aero
Cavazos	Joel	Federal Aviation Administration
Cebula	Andrew	Airlines for America
challan	peter	L3Harris
Childs	Russell	SkyWest Airlines
Christie	Warren	JetBlue Airways
Cochran	Walt	Leidos
Collings	Chris	L3Harris
Cook	Charles	JetBlue Airways
Crandall	Kathy	L3Harris
DeHart	Scott	Southwest Airlines
DiMento	Patrick	FedEx Express
Donnelly	Kurt	Professional Aviation Safety Specialists
Dudley	Trent	DoD
Duffy	Kent	Federal Aviation Administration
Durbin	Martin	Federal Aviation Administration
Evans	Edward	Southwest Airlines
Flynn	Robert	United Airlines
Fontaine	Paul	Federal Aviation Administration
Ford	JoAnn	Federal Aviation Administration
Frodge	Sally	Federal Aviation Administration
Goldman	Robert	Delta Air Lines
Gorsky	John-Paul	Honeywell
Green	June	Federal Aviation Administration
Griffin	Shannetta	Federal Aviation Administration
Gusky	Amy	Federal Aviation Administration

Last Name	First Name	Affiliation
Guy	Rebecca	Federal Aviation Administration
Hahn	Edward	Air Line Pilots Association
Hargreaves	Cody	Alaska Airlines
Heibeck	Wayne	Federal Aviation Administration
Heins	Joe	United Airlines
Hines	Casey	Federal Aviation Administration
Норе	Chris	Federal Aviation Administration
Hoskins	Craig	Airbus
Huling	Murray	Aircraft Owners and Pilots Association
Hunt	Rob	Federal Aviation Administration
Ince	Ilhan	PASSUR Aerospace
Ishihara	Yasuo	Honeywell
Johnson	Antionette	Federal Aviation Administration
Johnson	Bria	Federal Aviation Administration
Johnson	Christopher	Federal Aviation Administration
Kagzi	Ayaz	Federal Aviation Administration
Kamyab	Ahmad	Federal Aviation Administration
Kandel	Jennifer	Federal Aviation Administration
Kasher	Alan	Southwest Airlines
Kauffman	Don	Honeywell
Khalil	Myriam	Boeing
King	Dennis	Department of Defense
Knorr	Dave	Federal Aviation Administration
Kovalcik	Luanne	Leidos
Kozica	Shawn	Federal Aviation Administration
Land	Matthew	Eve Air Mobility

Last Name	First Name	Affiliation
Landon	Joe	Lockheed Martin
Litke	Paul	United Airlines
Loring	Christopher	Federal Aviation Administration
Maffei	John	Federal Aviation Administration
Mathur	Rajat	U.S. Government
McClay	James	Aircraft Owners and Pilots Association
McDowell	Michael	Collins Aerospace
McGraw	Candace	CVG Airport
Mets	Dave	Alaska Airlines
Miller	Brad	Honeywell
Mitra	Trin	Mitra Aviation Consulting
morse	glenn	Opt Online
Morse	Wendy	Air Line Pilots Association
Nadarski	Nick	GAO
Narvid	Juan	Federal Aviation Administration
Newman	Philip	American Airlines
Niles	Rick	MITRE
Noonan	Kimberly	Federal Aviation Administration
Noonan	Kimberly	Federal Aviation Administration
O'Kelly	Caitlin	Federal Aviation Administration
Oswald	Chris	Airports Council International - North America
Pearce	Robert	NASA
Pennington	Darrell	Air Line Pilots Association
Perez Molina	Karina	Aerospace Industries Association
Peyton	Bret	Alaska Airlines
Pierce	Brad	N.O.I.S.E

Last Name	First Name	Affiliation
Powers	Brian	Federal Aviation Administration
Quinn	Cheryl	NASA
Renk	Ron	United Airlines
Rocheleau	Chris	National Business Aviation Association
Rubio	Greg	Primacy Strategy Group
Ruppert	John	Primacy Strategy Group
Santa	Rich	NATCA
Santa	Rich	National Air Traffic Controllers Association
Schwab	Gregory	Federal Aviation Administration
Sharma	Poorvi	Federal Aviation Administration
Sierra	Edmundo	Federal Aviation Administration
Silverman	Eric	American Airlines
Snow	Marissa	SkyWest Airlines
Spero	Dave	PASS
Spurio	Кір	Raytheon Aerospace
Stevenson	Dawn	Federal Aviation Administration
Subramanian	Prakash	MITRE
Surridge	David	American Airlines
Swol	Doug	Federal Aviation Administration
Sypniewski	Jessica	Federal Aviation Administration
Tamburro	Ralph	Port Authority of New York and New Jersey
Thomson	Katie	Federal Aviation Administration
Torrence	Kathy	Federal Aviation Administration
Tyler	Jessica	American Airlines
Valcich	Jeremy	AAAE
Walters	Terry	Alaska Airlines

Last Name	First Name	Affiliation
Williams	Ammyanna	Federal Aviation Administration
Wilson	Jamie	Concept Solutions
Yates	Kyndra	Federal Aviation Administration
Yates	Vaughn	Federal Aviation Administration
Zamora	Raul	Federal Aviation Administration