

NextGen Advisory Committee (NAC) April 29, 2022 Meeting Summary

The NextGen Advisory Committee (NAC) convened in a virtual format April 29, 2022. 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
- Attachment 3: Prioritize NextGen Programs for Implementation NAC Task 22-1 Report

Opening of Meeting

NAC Chairman, Mr. Chip Childs (SkyWest, Inc.), opened the meeting and welcomed virtual attendees.

Public Meeting Announcement

Ms. Kimberly Noonan (FAA) read the public meeting announcement. She indicated that due to time constraints for the meeting, oral presentations from the public were not accepted. However, she said that the public did have the option to provide written statements for inclusion into the public record of the meeting.

Chairman's Report

Mr. Child's began by saying he convened a brief, out-of-cycle NAC Meeting to respond to NAC Tasking 22-1: Prioritize NextGen Programs for Implementation. He explained that the NAC received this tasking on April 4 from the NAC's Designated Federal Officer and FAA Deputy Administrator, Mr. Brad Mims, to produce a consensus prioritized list of six NAC programs to help the FAA reassess its near-term priorities coming out of the COVID-19 pandemic and ensure they have the right balance between sustaining NAS operations and continuing investments to operationalize NextGen. He said that since the advice was due by late April, the NAC could not wait until its summer meeting to respond.

Mr. Childs thanked all the NAC members for attending on short notice so they can deliberate on the consensus advice back to the FAA. He said that, as discussed at the March 28th NAC Meeting, the NAC asked the NAC Subcommittee for support in developing a recommendation. He thanked NAC Member and NAC Subcommittee Chairman, John Ladner, and all the NAC Subcommittee representatives for their efforts to develop this recommendation over the last month. Mr. Childs said that this was an extremely tight window to develop a response that would not have been possible without the efforts of the NAC Subcommittee. He indicated that the team will provide more information on the recommendation shortly. Mr. Childs then handed off to Mr. Mims.

FAA Report

Mr. Mims began by sharing that Captain Billy Nolen has been named acting FAA Administrator, taking over for Mr. Steve Dickson who retired at the end of March. He said Captain Nolen joined the agency

in January to lead the Office of Aviation Safety. Mr. Mims described him as an experienced and accomplished aviation safety professional. He explained that Captain Nolen has held safety leadership positions at Qantas Airways, Airlines for America, and American Airlines. He said he has a passion for helping the agency reaffirm its global leadership and using new tools and data to ensure they continue to provide the safest and most efficient aerospace system in the world. Mr. Mims said he knows Captain Nolen will lead the FAA with integrity and passion for its safety mission. Before continuing, he added that he is also pleased to announce that the FAA selected Mr. Earl Lawrence to be the new Deputy Assistant Administrator for the Office of NextGen. He said Mr. Lawrence brings a wealth of knowledge and experience to the position, including prior roles with Aircraft Certification and the Unmanned Aircraft Systems Integration Office. He said he knows Mr. Lawrence will be critical to helping NextGen continue to move the FAA into the future through NAS modernization and research and development.

Mr. Mims then said the FAA issued a tasking earlier this month requesting NAC advice on prioritizing key NAC programs in line with the conversation that Mr. Dickson and Air Traffic Organization Chief Operating Officer, Mr. Tim Arel, started at the March 28 NAC Meeting. He said they need the NAC's advice in an extremely condensed timeframe to inform the FAA's planning, as it moves forward on making challenging decisions to sustain and evolve the National Airspace System (NAS). He said that while they apologize for the short response window, the FAA wants to ensure that the NAC's cross-section of perspectives are taken in to account during these discussions. He then handed off to Mr. Arel to provide more context on this tasking.

Mr. Arel said that they are in a sprint so the FAA can seek aviation community input during a small window of opportunity before the Fiscal Year 2024 capital budget requests are finalized. He said this requires the FAA and industry to assess programs that have been delayed so they can align budgets, re-sequence timelines and waterfalls, and make any necessary adjustments. He said this action is even timelier as the FAA and industry have been able to restart airspace and aircraft modernization efforts that were impacted by COVID. He said the request for advice is centered on six NextGen programs, four in existing NextGen Joint Implementation Plan (NJIP) priorities and two included as a result of an ad hoc tasking to the NAC, including the following:

- Terminal Flight Data Manager (TFDM)
- Time Based Flow Management (TBFM)
- En route Data Comm Initial Services
- En route Data Comm Full Services
- ADS-B In: CDTI Assisted Separation (CAS)
- ADS-B In: Interval Management

He emphasized that they have a math problem and need aviation community representatives to help them understand industry priorities in key NextGen programs and deliver NextGen priorities with the most optimal benefits for aviation. He added that over the next several months, the FAA will begin working with NAC representatives to update NAC priorities. He said they will plan to report out on progress at the next NAC meeting. He then handed off to Mr. Mims.

Mr. Mims concluded the FAA Report and handed off to Mr. Childs.

NAC Subcommittee Report – NAC Task 22-1: Prioritize NextGen Programs for Implementation

Before moving on to the NAC Subcommittee Report, Mr. Childs shared that Mr. Ladner informed him that he will be returning to the line to fly as a 737 captain and will be stepping away from his NAC roles after today's meeting. Mr. Childs commended and thanked Mr. Ladner for his years of service. He said his leadership has been greatly appreciated and they wish him well as he transitions to his next phase. Mr. Childs mentioned that he is currently reviewing options for Mr. Ladner's replacement as NAC Subcommittee Chair and hopes to make an announcement very soon. Mr. Childs then handed off to Mr. Ladner who walked through the NAC Subcommittee's approach and recommendation for NAC Task 22-1.

Mr. Ladner explained that the NAC SC's approach focused on qualifying the operational benefit of the programs in question, leveraging a process similar to what was used for the PBN Clarification and Section 547 recommendations. He said that given her experience with both of these efforts, he asked Ms. Lee Brown (JetBlue) to act as lead in pulling together the materials for this expedited effort. He said that they asked each NAC member organization to provide benefits and readiness/risk scores for each program or program element. The aggregated scores provided the basis for the findings and recommendations on prioritization. He thanked the FAA for its willingness to provide subject matter expertise to answer questions over the last several weeks. He said that while this was not an easy effort, he is pleased with the team's quick attention to developing a consensus recommendation report for the NAC's consideration, despite many concerns raised with the condensed timeline. Mr. Ladner then handed off to Ms. Brown.

Ms. Brown began by reviewing the tasking language. She then reiterated the overall approach to responding to the tasking, including meeting with FAA subject matter experts, conducting an assessment of each program's expected level and likelihood of benefit, and documenting the findings and conclusions. She then reviewed the scoping, including the six programs under consideration mentioned previously and the scoring approach. Before discussing the results, she reviewed the following caveats that the team agreed to note in the report:

- Limited cost data costs/financials are an important component of assessment of program "readiness"
- Varying levels of awareness around program status and benefits
- Limited deliberative time within organizations

She then reviewed the following scoring results:



She then provided the following insights on the scoring results:

- Clustered benefits expectations all of the programs have at least a moderate expected level of benefits
- More spread in the expected level of readiness
 - Noticeable shift in readiness scoring when including broader operator inputs
- Total responses and operator-only responses are aligned
 - o Recognizing the majority of responses came from operators

Ms. Brown concluded by reviewing the following conclusions and recommendations:

- FAA programs that will improve safety, efficiency, and throughput are priorities to industry all of the six programs contribute to those benefits
- Industry has continued to make investments, reflecting commitment to MCL and NAS modernization
 - FAA commitments and deployment schedules, and associated ROI, have been part of the rationale for the investments
 - Delivery delays and re-scoping of FAA plans could erode industry's confidence and may lead to future investment reluctance
- This feedback does not endorse schedule extension or scope reduction for any of the six programs/subprograms in the tasking
- Without a full picture of the decision space other programs, trade-offs in consideration, etc.
 this feedback is not a ranked list
 - o Industry is very willing in participating in a more comprehensive evaluation

Mr. Ladner recommended the NAC approve the NAC SC's recommendation report as advice to the FAA for its consideration in response to NAC Task 22-1. Mr. Childs called for a motion to approve the report as advice to the FAA, which the NAC passed.

Outcome: The NAC passed a motion to approve the *Prioritize NextGen Programs for Implementation NAC Task 22-1 Report* as advice to the FAA

Closing Comments and Adjourn

During the Other Business portion of the action item review, Mr. Arel provided a quick update on FAA plans to meet with major fleet operators in Florida next week to discuss current operations. He said the FAA will host a two-day meeting with airlines to discuss ways to increase the efficiency of the existing airspace structure. In recent months, a number of factors have contributed to increased congestion in the already busy airspace in the Florida market. He said these include a higher number of operations in nearby military airspace, more frequent thunderstorm activity across the peninsula, as well as a stepped-up cadence of space launches. He said that at the same time, the number of flights scheduled for Florida's busiest airports has rebounded to well above pre-pandemic levels.

The combination of these factors leaves little margin for the system to absorb flight delays, particularly during periods of peak travel demand, such as weekends and holidays. He said this meeting is a tactical session between air carrier operation center executives and FAA command center experts to share data, reinforce existing airspace options, and to explore opportunities or combinations of opportunities that might help mitigate the effects of increased air traffic. He emphasized that the FAA is not going to entertain discussions on any new technology, policy, or publish new procedures. They will focus on making sure that they are utilizing all of the options they currently have available in the most effective way. He said he looks forward to sharing the outcome of this meeting at the next NAC Meeting.

In closing, Mr. Childs said he know that he speaks for everyone on the NAC when he says that they look forward to hearing how the FAA was able to leverage the NAC advice at a future NAC Meeting. Mr. Childs then handed off to Mr. Mims for any closing comments.

Mr. Mims thanked the NAC for its efforts in providing the advice on a short timeline. He said the FAA will provide an initial status update response on how the FAA has used this important information at the summer NAC Meeting. Mr. Mims handed off to Mr. Childs.

Mr. Childs then adjourned the meeting.



Attachment 1



NAC Meeting

April 29, 2022



Opening of Meeting

Chip Childs, NAC Chairman President & CEO, SkyWest, Inc.



Public Meeting Announcement

NextGen Advisory Committee (NAC) April 29, 2022





Chairman's Report

Chip Childs, NAC Chairman President & CEO, SkyWest, Inc.



FAA Report

Brad Mims, FAA Deputy Administrator

NAC Designated Federal Officer



FAA Report

Tim Arel, Acting ATO Chief Operating Officer



NAC Subcommittee (SC) Report

John Ladner, NAC SC Chairman (Alaska Airlines)



NAC Tasking 22-1:

Prioritize NextGen Programs for Implementation

Lee Brown (JetBlue Airways)

Task 22-1: Prioritize NextGen Programs for Implementation

- Provide advice on key NAC priorities to inform the FAA's decisions on sustaining and evolving the NAS
- Consensus-based advice from the NAC will help FAA to reassess near-term priorities coming out of the COVID-19 pandemic
- Focus on near-term (2025) capabilities
- Advice to be provided by the end of April 2022



Overall Approach to Tasking

- Meet with FAA SMEs
 - > Review the tasking and consider the scope of the request
 - > Receive further information on the programs of interest
- Conduct an assessment of each program's expected level and likelihood of benefit
- Formulate and document findings and conclusions



Task 22-1 Scope – Six Programs

- Terminal Flight Data Manager (TFDM)
- Time-Based Flow Management (TBFM)
- En Route Data Communications Initial Services
- En Route Data Communications Full Services
- Automatic Dependent Surveillance Broadcast (ADS-B) In Cockpit Display of Traffic Information (CDTI) Assisted Separation (CAS)
- ADS-B In Interval Management (IM)



Scoring Approach

- Essentially the same approach that was used with PBN Clarification and Section 547 prioritization tasks
 - > Primary input from NAC SC participants with NAC members
 - > Included request for broader operator feedback (through A4A and RAA)
- Subjective assessment of benefits and readiness/risk
- Focus on what can be achieved by 2025
- Focus on six initiatives presented by FAA at April 6th NAC SC meeting
 - > Added sub-elements based on the presentation materials
- Supporting materials provided by the FAA



Caveats

- Limited cost data costs/financials are an important component of assessment of program "readiness"
- Varying levels of awareness around program status and benefits
- Limited deliberative time within organizations







Scoring Results (cont.)



A SITES TFDM Level of Benefits B SITES Level of Readiness





Level of Readiness

Insights from Scoring Results

- Clustered benefits expectations all of the programs have at least a moderate expected level of benefits
- More spread in the expected level of readiness
 - > Noticeable shift in readiness scoring when include broader operator inputs
- Total responses and operator-only responses are aligned
 - > Recognizing the majority of responses came from operators



Conclusions and Recommendations

- FAA programs that will improve safety, efficiency and throughput are priorities to Industry all of the six programs contribute to those benefits
- Industry has continued to make investments, reflecting commitment to MCL and NAS modernization
 - > FAA commitments and deployment schedules, and associated ROI, have been part of the rationale for the investments
 - Delivery delays and re-scoping of FAA plans could erode industry's confidence and may lead to future investment reluctance
- This feedback does not endorse schedule extension or scope reduction for any of the six programs/subprograms in the tasking
- Without a full picture of the decision space other programs, trade-offs in consideration, etc. this feedback is not a ranked list
 - > Industry is very willing in participating in a more comprehensive evaluation



Motion for NAC Approval as Advice to the FAA

• NAC Tasking 22-1: Prioritize NextGen Programs for Implementation





Review of Action Items & Other Business

Kimberly Noonan, NAC Committee Manager (FAA)

Upcoming Meetings

• NAC

- > Summer 2022 (TBD)
- > Fall 2022 (TBD)





Closing Comments

Brad Mims, FAA Deputy Administrator

NAC Designated Federal Officer



Closing Comments & Adjourn

Chip Childs, NAC Chairman President & CEO, SkyWest, Inc.



Attachment 2



NextGen Advisory Committee (NAC) April 29, 2022 Attendance List

Last Name	First Name	Affiliation
Adcock	Tom	National Air Traffic Controller Association
Allen	Dan	FedEx Express
Arel	Tim	Federal Aviation Administration
Aron	Ludovic	European Union Aviation Safety Agency
Arrighi	James	Federal Aviation Administration
Baker	Mark	Aircraft Owners and Pilots Association
Bechdolt	Anne	Federal Aviation Administration
Berlucchi	Robert	American Airlines
Bertapelle	Joe	Public
Bolen	Ed	National Business Aviation Association
Borten	Matt	Federal Aviation Administration
Boyle	Virginia	Federal Aviation Administration
Braxton	Keisha	Federal Aviation Administration
Birmingham	Ellen	United Airlines
Brown	Lee	JetBlue Airways
Burke	Gregory	Federal Aviation Administration
Burns	Patrick	Delta Air Lines
Butler	Steven	Federal Aviation Administration
Buttie	Steve	Department of Defense
Cebula	Andy	Airlines For America
Childs	Russell	SkyWest Airlines
Christianson	Cindy	Aviation-Impacted Communities Alliance

Last Name	First Name	Affiliation
Christie	Warren	JetBlue Airways
Cointin	Becky	Federal Aviation Administration
Collings	Chris	L3Harris
Crandall	Kathy	L3Harris
Dalton	Rick	Southwest Airlines
DeNicuolo	Mark	Federal Aviation Administration
Denning	Jana	Professional Aviation Safety Specialists, National
Dillman	Donald	FedEx Express
Dodgen	Joey	Delta Air Lines
Donnelly	Kurt	Professional Aviation Safety Specialists, National
Donohue	Denis	Raytheon Technologies
Duffy	Kent	Federal Aviation Administration
Fontaine	Paul	Federal Aviation Administration
Gibson	Tara	Federal Aviation Administration
Goebel	David	Vashon Island Fair Skies
Goldman	Robert	Delta Air Lines
Griffin	Shannetta	Federal Aviation Administration
Gupta	Vipul	Honeywell Aerospace
Gusky	Amy	Federal Aviation Administration
Guy	Rebecca	Federal Aviation Administration
Hennig	Jens	General Aviation Manufacturers Association
Heron	Dave	Department of Defense
Hill	Fran	Leidos
Норе	Chris	Federal Aviation Administration
Hoskins	Craig	Airbus
Hunt	Rob	Federal Aviation Administration

Last Name	First Name	Affiliation
Johnson	Antionette	Federal Aviation Administration
Joly	Pascal	Airbus
Kagzi	Ayaz	Federal Aviation Administration
Kamyab	Ahmad	Federal Aviation Administration
Kasher	Alan	Southwest Airlines
Kauffman	Don	Honeywell Aerospace
Kenagy	Randy	Air Line Pilot Association
Kessler	Steve	Federal Aviation Administration
Knorr	Dave	Federal Aviation Administration
Kozica	Shawn	Federal Aviation Administration
Ladner	John	Alaska Airlines
Landesmann	Jennifer	Public
Landon	Joe	Lockheed Martin
Lawrence	Huntley	Port Authority of New York and New Jersey
Loring	Christopher	Federal Aviation Administration
Maffei	John	Federal Aviation Administration
McClay	Jim	Aircraft Owners and Pilots Association
McCullough	Angela	Federal Aviation Administration
McDowell	Mike	Collins Aerospace
Merkle	Michele	Federal Aviation Administration
Mims	Brad	Federal Aviation Administration
Moloney	John	The Boeing Company
Morse	Glenn	Public
Mulligan	Jessica	SkyWest Airlines
Noonan	Kimberly	Federal Aviation Administration
O'Connor	Wendy	Federal Aviation Administration

Last Name	First Name	Affiliation
O'Kelly	Caitlin	Federal Aviation Administration
Olson	Lee	NASA
Olson	Loren	City of Minneapolis
Oswald	Chris	Airport Council International - North America
Pearce	Robert	NASA
Pennington	Darrell	Air Line Pilot Association
Peyton	Bret	Alaska Airlines
Pfingstler	Susan	United Airlines
Pierce	Brad	N.O.I.S.E.
Quigley	Bryan	United Airlines
Quinn	Cheryl	NASA
Reimold	Dorothy	Federal Aviation Administration
Rocheleau	Chris	Federal Aviation Administration
Rodriguez	Alex	Federal Aviation Administration
Rubio	Greg	Primacy Strategy
Ruehl	Steve	Department of Defense
Santa	Rich	National Air Traffic Controller Association
Schwab	Gregory	Federal Aviation Administration
Sinnett	Mike	The Boeing Company
Spero	Dave	Professional Aviation Safety Specialists, National
Stevenson	Dawn	Evans Consulting
Storey	Brantley	Federal Aviation Administration
Sultan	Akbar	NASA
Surridge	David	American Airlines
Swol	Doug	Federal Aviation Administration
Tamburro	Ralph	Port Authority of New York and New Jersey

Last Name	First Name	Affiliation
Tennille	Greg	The MITRE Corporation
Toffler	Aaron	Massport Community Advisory Committee
Vaughn	DeShawn	Federal Aviation Administration
Whyte	Bill	Regional Airline Association
Wijntjes	Jesse	Federal Aviation Administration
Wilkins	Aaron	Federal Aviation Administration
Willey	Doug	Air Line Pilot Association
		Aviation-Impacted Communities Alliance (AICA) and
Yaplee	Darlene	Concerned Residents of Palo Alto
Zagaroli	Lisa	Federal Aviation Administration



Attachment 3



Prioritize NextGen Programs for Implementation NAC Task 22-1 Report

To be presented to the NextGen Advisory Committee April 29, 2022

Table of Contents

Executive Summaryi	ii
Background	1
Methodology Overview	1
Initial Informational Meeting and Scope Modification	2
Scoring Assessment and Results	2
Conclusions and Recommendations	6
Appendix A: FAA Tasking Letter	8
Appendix B: Contributors from NextGen Advisory Committee Subcommittee and Other Supporting Organizations	0
	2 0
Appendix C: Acronyms	U

Executive Summary

During the March 28, 2022 NAC meeting, attendees were informed of a significant budget shortfall impacting FAA modernization programs. The FAA stated the wish to resume deployment and training in a way that provides optimal benefits to the aviation industry as a whole. The FAA tasked the NAC with providing advice on key priorities before the end of April 2022.

The tasking included six key NextGen programs – Initial En Route Data Comm, Full En Route Data Comm, TFDM, TBFM, ADS-B In CAS and ADS-B In IM. Despite concerns with the scope, timing and utilization of the results, the NAC SC completed a subjective assessment of the six programs/sub-programs. This assessment provides consensus feedback on operational benefits and readiness expectations.

Modernization of the NAS through efforts like NextGen has depended on the partnership of FAA and industry investment. Despite the challenges of the COVID 19 pandemic, industry has continued to make investments in NextGen equipage, information technology, and operational planning capabilities, based on understood FAA deployment plans and ROI expectations tied to these plans. Delivery delays and re-scoping capabilities of FAA plans could erode industry's confidence and may lead to future investment reluctance in efforts such as the MCL. While industry does not know how the FAA will use the feedback in this report, there is hope that it will aid in the FAA's restart of key programs to meet the needs of a modernized NAS that enhances safety, efficiency, capacity, and schedule reliability; and that reduces environmental impacts.

Background

During the March 28, 2022 NextGen Advisory Committee (NAC) meeting, then Federal Aviation Administration (FAA) Administrator Steve Dickson and Acting Air Traffic Organization (ATO) Chief Operating Officer Tim Arel informed the meeting attendees of a significant budget shortfall impacting FAA modernization programs. Mr. Arel explained that the FAA had absorbed almost \$300M in additional costs in delaying the implementation of several key programs due to the Coronavirus (COVID) 19 global pandemic. The budget dilemma would impact the restart of NextGen implementation, requiring re-sequencing timelines and scope adjustments. Mr. Arel stated that in the face of the realignment of resources, the FAA wished to resume deployment and training in a way that provides optimal benefits to the aviation industry as a whole.

A week after the NAC meeting, FAA Deputy Administrator Brad Mims tasked the NAC with providing advice to the FAA on key NAC priorities before the end of April 2022 (see Appendix A for full tasking letter). To address the tasking in the unprecedented short time period dictated by the FAA, the NAC Chairperson, Mr. Chip Childs, notified NAC members that the NAC Subcommittee (NAC SC) Chairperson, Mr. John Ladner, would convene the NAC SC to meet with FAA subject matter experts (SMEs) and start deliberations in early April.

This report documents the efforts of the NAC SC under the April 2022 tasking and presents the group's findings and conclusions.

Methodology Overview

The NAC SC applied a multi-step approach to address the tasking request:

- 1. Meet with FAA SMEs to review the tasking, consider the scope of the request, and receive further information on the programs of interest.
- 2. Conduct an assessment of each program's expected level and likelihood of benefit, using methodology similar to that used in recent past NAC prioritization efforts.
- 3. Formulate and document findings and conclusions, including any concerns with the request, process and subsequent results.

The NAC SC currently has well over 100 non-FAA participants. Contributions to the tasking were balanced between NAC SC participants who represent NAC members directly and others who are aviation industry stakeholders. This was done to produce responses within the short tasking time period but also meet the FAA's expectation for responses that reflect a broad industry view. The full NAC SC non-FAA roster was invited to participate in the information, deliberative and documentation meetings. Inputs to the benefits scoring assessment were limited to NAC organizations, with limited exception explained in the "Scoring Assessment and Results" section below.

With the budgetary nature of the requested input and to ensure no undue influence in accordance to the Federal Advisory Committee Act (FACA), the FAA did not participate in any of the NAC SC deliberative sessions. FAA SMEs from the Air Traffic Organization were available to the NAC SC to answer clarifying questions and provide additional programmatic information.

Initial Informational Meeting and Scope Modification

The NAC SC met with FAA leadership and SMEs approximately one week after the March 2022 NAC meeting. During the meeting, the FAA presenters provided rationale for the tasking scope and timing, including the following:

- The FAA chose the NAC for this advice as it provides the widest cross section of aviation industry and has more than a decade of success in prioritizing NextGen initiatives.
- The short timeframe for the request was driven by the FAA's need for input before the 2024 budget request is finalized.
- Over the last few years, the FAA has been making tactical budget adjustments at the program level, however these have not been enough. There is a need to realign resources across the entire modernization portfolio, which is about 14% of the FAA budget (86% of the FAA budget is dedicated to safe and efficient operation of National Airspace System (NAS)).
- While the FAA tasking letter identified five programs of interest Terminal Flight Data Manager (TFDM), Time Based Flow Management (TBFM), En Route Data Communications Initial Services, En Route Data Communications Full Services, and Automatic Dependent Surveillance Broadcast In (ADS-B In) the FAA SMEs chose to expand the scope to six programs/sub-programs by breaking ADS-B In into two capabilities: Cockpit Display of Traffic Information (CDTI) Assisted Separation (CAS) and Interval Management (IM).
- The programs identified in the tasking scope fall within the 14% of the budget for modernization. They also represent programs with remaining NextGen Joint Implementation Plan (NJIP)¹ commitments and with recent NAC recommendations.²
- The timeframe of interest should be near-term, focusing on capabilities and services that could deliver benefits by 2025.

While the FAA expanded the tasking scope to separate ADS-B In CAS and ADS-B In IM capabilities, further breakdown of the other larger programs (i.e., TFDM or TBFM) to reflect sub-programmatic functions or site-specific functions was not requested. The FAA's rationale for that decision was that there was not adequate time to accomplish site-specific prioritization.

Scoring Assessment and Results

Process Overview: A scoring process similar to that used for the recent PBN Clarification³ and the Section 547⁴ tasks was employed as a foundation for this tasking. This has proven to be a

¹ "NextGen Advisory Committee NextGen Priorities Joint Implementation Plan, CY2019–2022," June 2021.

² "ADS-B In Commercial Application Technologies Ad Hoc Team NAC Task 20-1 Final Report," June 2021.

³ "Performance Based Navigation (PBN) Clarification Ad Hoc Team NAC Task 19-4 Report." November 2020.

⁴ "FAA Reauthorization Act of 2018, Section 547 Enhanced Air Traffic Services NAC Task 20-3 Report," March 2021.

successful method for industry to derive consensus. The NAC SC participants representing the thirty NAC member organizations were asked to provide a set of assessments concerning the benefits of each of the six programs/sub-programs. The set of scores included two assessments:

- Benefits Readiness the likelihood that the capability can be implemented and deliver benefits by 2025, including level of operator equipage required and achieved, availability of interdependencies, and other challenges.
- Benefits Magnitude the expected level of benefit, whether that benefit is localized or has national impact, and how that benefit aligns with operational priorities (safety, efficiency, capacity, etc.)

A subjective scale of 1 to 5 was used for each score, where 1 represented the lowest expected benefit or readiness, and 5 represented the highest.

The respondents were asked to provide one set of scores per NAC organization. These were then averaged across the respondents to produce an aggregate score. While primary input was derived from NAC SC participants who directly support NAC members, two NAC SC participants (Airlines for America (A4A) and Regional Airlines Association (RAA)) were asked to solicit their membership for broader operator input from those organization not represented on the NAC.

While the FAA did not want the TBFM and TFDM programs broken into smaller components, many of the NAC SC operator representatives felt that there were important distinctions in each of these initiatives. Therefore, in addition to an overall set of scores for TBFM, separate scores were requested for Terminal Sequencing and Spacing (TSAS) in Northwest Mountain and for TBFM in Northeast Corridor (as described under the scope for TBFM in FAA read-ahead materials). Similarly, in addition to an overall set of scores for TFDM, separate scores were requested for 2023-2025 A site implementations (which include surface metering capabilities) and for 2023-2025 B site implementations (which does not include surface metering capabilities).

The FAA SMEs and their support consultants provided materials to support the scoring process. These materials included:

- Read-ahead presentation for the April 6, 2022 NAC SC meeting which included an overview of the capabilities, projected benefits, current NAC commitments/milestones, and other related information (e.g., capital investment milestones).
- FAA benefits calculation and other information from the ADS-B In Benefits Case (previously presented to the Northeast Corridor NextGen Integration Work Group and the ADS-B In Capabilities Ad Hoc Work Group).
- The draft post-COVID TFDM deployment waterfall (previously presented to the Surface and Data Sharing NextGen Integration Work Group).
- Slides describing TSAS and Time Based Metering (TBM) benefit mechanisms and opportunities.

• Data Communications deployment schedule, showing waterfall for Controller-Pilot Data Link Communications (CPDLC) Departure Clearance, Initial En Route Services, Full En Route Services, and candidate enhanced services.

Caveats: Before presenting the results of the scoring assessment, there are several caveats that must be shared:

- First, the NAC organizations were given a short amount of deliberative time (approximately two working days). This was driven by the overall timing of the tasking. More time would have allowed for more in depth discussions and perhaps more refined scoring.
- Second, there were varying levels of awareness around program status and benefits amongst the respondents. Related to the previous caveat, more deliberative time would have allowed for more expansive discussions for each NAC organization and in the larger NAC SC group, and ultimately level-setting of the overall understanding of each program/sub-program.
- And finally, while the FAA provided some information about the six programs/subprograms, they did not provide any cost/financial information. Some respondents had access to limited budget data available through the FAA's 2023 budget⁵ estimates that are publically available. Many respondents felt that the cost/budget information was a necessary component of formulating an accurate benefit readiness score; in particular, the magnitude of resources needed to provide benefits by 2025. Respondents asked the FAA for materials that could inform an understanding of the relative costs between the programs in several ways, but the FAA declined to provide this information stating that they did not believe it was needed to complete the tasking.

Scoring Results: Of the thirty organizations that make up the NAC, approximately two-thirds provided input to the scoring assessment. In addition to the operators represented on the NAC, A4A provided input from two additional air carriers and RAA provided input from four additional regional airlines. A full list of contributors is included in Appendix B. As noted under the caveats, there were varying levels of benefits and readiness awareness amongst the respondents, and in some cases, partial input was provided. Some contributors also limited their inputs to readiness scoring, feeling that assessment of operational benefits should be left to the operator respondents. These circumstances were accounted for in the development of the average scores.

Figure 1 shows the scoring results for all respondents. This includes operators and equipment manufacturers. Because the FAA emphasized the need to understand which programs/sub-programs are expected to be the most operationally beneficial, the operator scoring was also considered separately. Figure 2 shows the scoring results for only the operator respondents⁶. In

⁵ https://www.transportation.gov/sites/dot.gov/files/2022-03/FAA_Buget_Estimates_FY23.pdf

⁶ The operator respondents are identified as air carriers, regional airlines, business aviation, and associations representing controllers and pilots.

Figure 2, the scoring responses for operators that are represented on the NAC is distinguished from the scoring from non-NAC operators.

From both figures, the scoring around the expected magnitude of benefits is relatively close. These capabilities are all expected to provide moderate to high benefits. There is a wider spread in the expected level of readiness, which tracks with the known equipage levels (for Data Comm and ADS-B In) for the various operators. This is more noticeable when the broader operator inputs are included.

Comparing Figure 1 and Figure 2, it is fairly clear that the response of the full set of respondents is aligned with the operator responses.



Figure 1. Scoring Results for All Respondents



Figure 2. Scoring Results for Operator Respondents

Figure 3 shows the scoring results for the further breakdown of the TFDM and TBFM programs. Even though there was an expectation that the TSAS and TBFM would score differently, the actual responses do not present a significant difference in either benefits or readiness scores. For the TFDM breakdown, the difference in expected benefits associated with surface metering is the main reason for the variability in the expected magnitude of benefits.



Figure 3. Scoring Results for TBFM and TFDM Sub-Elements

Conclusions and Recommendations

The last two years of the COVID 19 pandemic has severely impacted the modernization of the NAS. NextGen implementations were essentially suspended due to restricted access to FAA ATC facilities in the effort to reduce infection and ensure the operation of the NAS. The understanding of the NAC was that the deployment schedules would be extended, but given FAA fiscal management, it is now apparent that budget and scope are also impacted. For its part, despite the cataclysmic reduction in revenue streams resulting in austerity and right-sizing, industry has continued to make investments in NextGen, based on understood FAA deployment plans and expected return on investment (ROI) associated with these plans. These investments include but are not limited to aircraft equipage, information technology, and operational planning capabilities. These significant investments total in the hundreds of millions of dollars.

This tasking involves six key NextGen programs and capabilities that are critically important to the NAC and industry. These programs and capabilities – Initial En Route Data Comm, Full En Route Data Comm, TFDM, TBFM, ADS-B In CAS and ADS-B In IM – have been supported by the NAC from inception to their current level of maturity. Industry continues to support them to full implementation so that their many benefits can finally be realized, including enhancements in safety, efficiency, throughput, and/or capacity. These benefits are essential to continued health of the aviation system and are also necessary steps toward the goals of environmental sustainability.

The NAC understands the importance of the request for industry input on priorities in light of the FAA's budget deficit. However, concerns about the tasking scope and timing constrained the ability to respond beyond the scoring results. The primary concerns include:

- The scope only covered the six programs/capabilities. There are many other FAA modernization programs that were not included, even though it appears that a budget deficit of this size would go beyond these six identified programs.
- The potential trade-offs with other programs or capabilities were not presented or discussed with the NAC SC. Similarly, there was not enough time to explore the potential impacts caused by interdependencies with other sustainment or modernization programs. These interdependencies include other industry-priority programs such as Performance Based Navigation (PBN), Multiple Airport Route Separation (MARS), TBO (Trajectory Based Operations), Flow Management Data Services (FMDS), and Space-Based ADS-B.
- Operational benefits are site-specific and capability-specific. Additional information around those details would have allowed for more comprehensive assessment.
- It is not clear how the FAA will use the feedback or response to this tasking. The information included in this response should not be interpreted as endorsement of schedule extension or scope reduction for any of these efforts.
- While the FAA provided some information on existing NJIP commitments, there are larger ramifications to many of the NAC's recent recommendations. These include but are not limited to the Data Comm Avionics, Minimum Capabilities List (MCL), FAA Reauthorization Section 547 Enhanced Traffic Services, and ADS-B In Commercial Application Technologies.

In general, while the results above are provided as feedback on the operational benefits expectations, without a fuller picture of the decision space – other programs, trade-offs in consideration, etc. – this feedback is not a ranked list. If the FAA wishes to pursue more thorough prioritization input, industry is very willing to participate in a more comprehensive evaluation through the NAC, with adequate time and supporting information, as was completed during other budget challenges in 2013 and 2017.

Modernization of the NAS through efforts like NextGen has depended on the partnership of FAA and industry investment. Seeing timely ROI for industry is crucial in encouraging future participation in important endeavors such as the MCL. Delivery delays and re-scoping capabilities in FAA modernization programs could erode industry's confidence and may lead to future investment reluctance. While the NAC and industry do not know how the FAA will use the feedback in this report, there is hope that it will aid in the FAA's restart of key programs to meet the needs of a modernized NAS that enhances safety, efficiency, capacity, and schedule reliability; and that reduces environmental impacts.

Appendix A: FAA Tasking Letter



U.S. Department of Transportation Federal Aviation Administration

Office of the Deputy Administrator

800 Independence Ave., S.W. Washington, DC 20591

April 4, 2022

Mr. Russell "Chip" Childs President and Chief Executive Officer SkyWest, Inc. 444 South River Road St. George, UT 84790

Dear Mr. Childs:

The Federal Aviation Administration (FAA) is requesting that the NextGen Advisory Committee (NAC) provide advice on key NAC priorities to inform the FAA's planning as we move forward in making challenging decisions to sustain and evolve the National Airspace System (NAS). This consensus-based advice from the NAC will help us reassess our near-term priorities coming out of the COVID-19 pandemic and ensure we have the right balance between sustaining NAS operations and continued investments in operationalizing NextGen.

Task 22-1: Prioritize NextGen Programs for Implementation

The NAC is tasked to provide the FAA a consensus prioritized list of the following future implementation NextGen programs:

- Terminal Flight Data Manager (TFDM)
- Time-Based Flow Management (TBFM)
- En Route Data Communications Initial Services
- En Route Data Communications Full Services
- ADS-B In

The goal of this task is to produce a consensus prioritized list of NAC priority programs and is not intended to accelerate any of the current NAC priorities. The prioritization should focus on the near-term (e.g., now through 2025). The report shall include the assumptions and data informing the consensus recommendation.

Scope

- FAA will provide Subject Matter Expert support
- Complete work and provide Prioritization Report no later than April 27, 2022

If you have questions, please contact Kimberly Noonan, NextGen Stakeholder Collaboration Division Manager at kimberly.noonan@faa.gov.

Sincerely,

Bradley M

A. Bradley Mims Deputy Administrator

Appendix B: Contributors from NextGen Advisory Committee Subcommittee and Other Supporting Organizations

Air Line Pilots Association (ALPA) Air Wisconsin Airbus Airlines for America (A4A) Airports Council International - North America (ACI-NA) Alaska Airlines American Airlines Atlas Air Boeing CommutAir Delta Air Lines Department of Defense (DoD) FedEx Express General Aviation Manufacturers Association (GAMA) Hawaiian Airlines Honeywell JetBlue Airways L3Harris Technologies National Air Traffic Controllers Association (NATCA) National Business Aviation Association (NBAA) **Piedmont Airlines** Port Authority of New York and New Jersey (PANYNJ) Professional Aviation Safety Specialists (PASS) Raytheon Regional Airline Association (RAA) **Republic Airways** SkyWest Airlines Southwest Airlines United Airlines

Appendix C: Acronyms

ADS-B	Automatic Dependent Surveillance Broadcast
ATO	Air Traffic Organization
CAS	CDTI Assisted Separation
CDTI	Cockpit Display of Traffic Information
COVID	Coronavirus
CPDLC	Controller Pilot Data Link Communications
Data Comm	Data Communications
DCL	Departure Clearance
FAA	Federal Aviation Administration
FACA	Federal Advisory Committee Act
IM	Interval Management
MARS	Multiple Airport Route Separation
MCL	Minimum Capabilities List
NAC	NextGen Advisory Committee
NAC SC	NextGen Advisory Committee Subcommittee
NAS	National Airspace System
NextGen	Next Generation Air Transportation System
NJIP	NextGen Joint Implementation Plan
PBN	Performance Based Navigation
ROI	Return on Investment
SME	Subject Matter Expert
TBFM	Time Based Flow Management
TBO	Trajectory Based Operations
TBM	Time Based Metering
TFDM	Terminal Flight Data Manager
TSAS	Terminal Sequencing and Spacing