Office of Inspector General

Audit Report

PLANNING FOR HIGH-PRIORITY NEXTGEN CAPABILITIES UNDERWAY, BUT MUCH WORK REMAINS FOR FULL REALIZATION OF BENEFITS

Federal Aviation Administration

Report Number: AV-2015-012
Date Issued: November 20, 2014

Memorandum

U.S. Department of Transportation
Office of the Secretary of Transportation
Office of Inspector General

Subject: **ACTION:** Planning for High-Priority NextGen Capabilities Underway, But Much Work Remains for Full Realization of Benefits
Federal Aviation Administration
Report No. AV-2015-012

Date: November 20, 2014

From: Matthew E. Hampton
Assistant Inspector General
for Aviation Audits

Reply to Attn. of: JA-10

To: Federal Aviation Administrator

The Federal Aviation Administration's (FAA) Next Generation Air Transportation System (NextGen) is a multibillion-dollar transportation infrastructure project to modernize our Nation's aging air traffic system and provide safer and more efficient air traffic management. NextGen is a complex undertaking that requires developing and implementing new technologies and procedures and partnerships with multiple stakeholders. Since the effort began almost a decade ago, we have identified longstanding challenges with NextGen, such as FAA's inability to set realistic plans, budgets, and expectations, and clearly identify benefits for stakeholders.

In July 2013, FAA tasked the NextGen Advisory Committee (NAC)[1] to review the Agency's current plans and activities affecting NextGen implementation and recommend investment priorities, citing uncertainty around funding for NextGen projects. In September 2013, the NAC delivered its report—providing FAA with industry's highest priorities for NextGen primarily based on their benefits, technological maturity, and implementation readiness.[2]

Given the potential of the NAC's report to shape the future of NextGen, the Chairmen and Ranking Members of the House Committee on Transportation and Infrastructure and its Subcommittee on Aviation requested that we examine FAA's response to the report. In this interim report, we are identifying the steps FAA is

[1] The NAC is a Federal advisory committee established to develop recommendations for NextGen portfolios with an emphasis on the midterm (through 2020), and includes operators, manufacturers, air traffic management, aviation safety, airports, and environmental experts.
[2] NAC, *NextGen Prioritization: A Report of the NextGen Advisory Committee in Response to Tasking from the Federal Aviation Administration*, September 2013.

taking to address the NAC's recommended investment priorities. In addition, we identified FAA's initial challenges in achieving viable joint industry-Agency commitments. We plan to provide a separate report at a later time to evaluate FAA's plans for implementing the prioritized NextGen capabilities.

RESULTS IN BRIEF

After endorsing the NAC's recommendations in November 2013, FAA identified four high-priority areas and began working with industry to develop milestones for implementation. Since April 2014, four integrated work groups have focused on developing a master implementation plan for (1) advancing the use of performance-based navigation (PBN)—the NAC's top priority, (2) unlocking closely-spaced parallel runway operations, (3) enhancing airport surface operations through data sharing, and (4) developing data communications capabilities between the cockpit and air traffic control. In October 2014, FAA published the plan, which included commitments from FAA and industry for the next 3 years. The plan identified locations for delivery, timelines, metrics, and cost estimates for each of the four prioritized capabilities.

Several longstanding NextGen challenges could undermine FAA's efforts to execute the plan. Achieving firm joint Agency-industry commitments could be particularly problematic. Historically, FAA and industry have not agreed on NextGen priorities—industry focuses on implementing capabilities at specific locations to achieve near-term benefits, while FAA focuses on deploying a national infrastructure of programs with a much longer return on investment. Moreover, working across diverse Agency lines of business and resolving barriers to PBN use, such as the lengthy development and approval process for new procedures, have further complicated the ability for FAA and industry come to an agreement. Finally, FAA is continuing to work with stakeholders on responsibilities for tracking progress against commitments in its upcoming plan or for mitigating risks associated with adjusting the plan once implementation is underway. FAA has not always provided a clear understanding of how it will manage implementation. Developing a master plan with commitments from stakeholders will be key to the successful delivery of prioritized capabilities.

We are making recommendations to FAA to help establish accountability for implementing the prioritized NextGen capabilities.

BACKGROUND

NextGen's success depends in part on obtaining buy-in from key stakeholders—particularly airspace users who elect to purchase and install costly NextGen avionics in their aircraft to achieve NextGen capabilities. FAA engages with

stakeholders through various forums, such as the RTCA[3] and the NAC, as it works to establish near- and mid-term objectives for NextGen.

Despite these efforts, as we have noted in numerous reports and testimonies, FAA has not clearly defined the benefits of key NextGen initiatives for enhancing capacity, reducing delays, and reducing operating costs. As a result, airspace users have been skeptical about FAA's ability to deliver the technologies and related benefits and have been reluctant to equip with costly NextGen technologies.

The NAC's September 2013 report provided FAA with a prioritized list of 36 capabilities derived from FAA's 2013 NextGen planning documents, including the NextGen Implementation Plan (NGIP)—a key outreach vehicle for updating Congress and the aviation community on the vision for NextGen and the commitments in support of that vision. The NAC grouped the capabilities into two top tiers—with Tier 1 identifying 11 activities that should continue regardless of any FAA budget constraints, and Tier 2 identifying 8 activities that should continue when resources permit.[4] The NAC also listed another 17 capabilities that were ranked below the top two tiers.

In its report, the NAC assumed that budget pressures and possible sequestration impacts would continue for the foreseeable future. For each capability, the NAC identified and assessed the following information: (1) timeframe for implementation, (2) overall benefit, (3) overall cost (where possible), (4) readiness for deployment, and (5) overall risk.

FAA WORK WITH INDUSTRY NOW UNDERWAY TO SHAPE AN IMPLEMENTATION PLAN FOR THE HIGHEST NAC PRIORITIES

Although FAA recognized the importance of the NAC's recommended priorities, the Agency only recently began working with industry to plan their implementation. Specifically, in March 2014, FAA—in consultation with the NAC leadership—agreed to focus their initial planning efforts on four selected Tier 1 capabilities, deferring any planning on the lower prioritized capabilities until later based on funding availability.[5] These four capabilities are:

- **Performance-Based Navigation (PBN)—**The NAC confirmed that FAA should continue PBN[6] efforts regardless of any budget constraints. Introducing new PBN procedures, such as Area Navigation (RNAV) and Required

[3] Organized in 1935 as the Radio Technical Commission for Aeronautics, RTCA, Inc., is a private, not-for-profit corporation that develops consensus-based recommendations regarding communications, navigation, surveillance, and air traffic management system issues. It functions as a Federal Advisory Committee.
[4] The NAC further broke down Tier 1: 1A—high benefit and high readiness, and 1B—high benefit and low or medium readiness.
[5] For a full list of the 11 Tier 1 prioritized capabilities, see exhibit C.
[6] PBN is a blanket term for more precise GPS-based navigation methods that allow optimal routing in all phases of flight.

Navigation Performance (RNP),[7] will be critical to achieving near-term NextGen benefits, including more direct flight paths, improved on-time aircraft arrival rates, greater fuel savings, and reduced aircraft noise. The NAC listed PBN as its top-priority recommendation.

- **Surface Operations—**The NAC recommended focusing on improving the management of airport taxiways and parking areas by revamping systems for sharing information between FAA, airline operations centers, and airports.

- **Multiple Runway Operations (MRO)—**This recommended capability improves the use of converging or closely spaced runways during low visibility conditions to allow for increased capacity.

- **Data Communications (DataComm)—**Considered one of NextGen's transformational programs, the DataComm capability will provide direct digital communications between the cockpit and controllers.

These prioritized NextGen capabilities—which will require operators to make changes to their aircraft and flight operations centers, as well as provide additional pilot training—are consistent with our work as well as prior NAC recommendations and a Government-industry task force as early as 2009.[8]

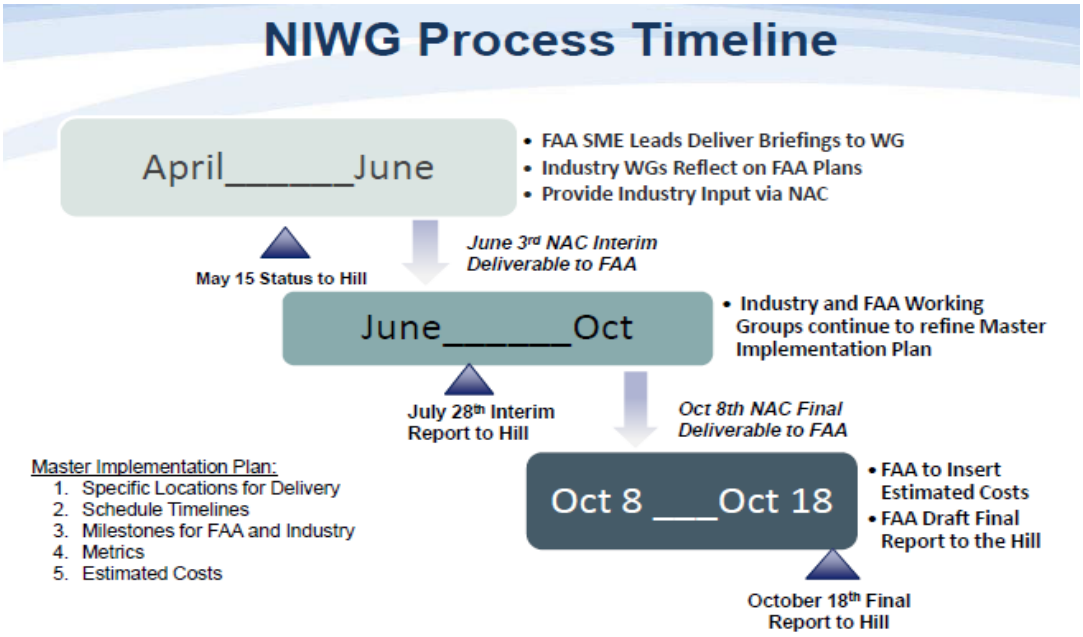
FAA is working jointly with industry to develop milestones and metrics for implementing the four selected capabilities—a much needed and long overdue step. FAA and the NAC established four NextGen integrated work groups (NIWG) to identify specific locations for delivery, timelines for implementation, metrics for measuring benefits, and cost estimates for each of the four capabilities. On May 13, 2014, FAA provided Congress[9] with a progress report that included the work groups' meeting schedule and deadlines for deliverables (e.g., milestones for the selected Tier 1 capabilities).

The work groups—comprised of FAA subject matter experts (SMEs), industry experts, and airspace users—have been meeting since April 2014 and issued an interim report in July 2014, followed by an implementation plan in October 2014. The implementation plan included commitments[10] from both FAA and industry

[7] RNAV is a method of navigation in which aircraft use avionics, such as Global Positioning Systems, to fly any desired flight path without the limitations imposed by ground-based navigation systems. RNP is a form of RNAV that adds on-board monitoring and alerting capabilities for pilots, thereby allowing aircraft to fly more precise flight paths.
[8] In May 2012, the NAC provided FAA with its recommended prioritization of NextGen capabilities that would deliver the highest benefits in the mid-term (2018), which included PBN. Similarly, in 2009, an FAA-commissioned RTCA task force made 32 recommendations to advance NextGen and stated that focusing on delivering near-term operational benefits, rather than major infrastructure programs, would help gain industry confidence in FAA's plans and encourage users to invest in NextGen.
[9] On March 13, 2014, the House Aviation Subcommittee requested FAA provide a progress report by May 15, 2014, to include the identity of the four capabilities to be addressed first, and a commitment to provide an interim report by July 28, 2014.
[10] Commitments refer to the necessary investments to fully implement the operational capability in the specific locations identified. This could include some or all of the following: equipage, training, testing/validation, or resources.

for the next 3 years, with the exception of DataComm, which the Agency plans to implement at its high-altitude radar centers[11] starting in 2019. (See figure 1 for FAA's process timeline.)

Figure 1. Work Group Process Timeline Leading up to October



Source: FAA

While FAA has endorsed the NAC's recommended priorities and has developed an integrated plan, the Agency did not adjust its 2014 NGIP based on the NAC's recommendations. However, FAA expects any changes resulting from its ongoing planning efforts will be incorporated as appropriate into the 2015 plan.

According to FAA, the Agency is also not adjusting funding for various programs because it believes the current capital funding level will accommodate these investment priorities without trade-offs among programs at this time. Specifically, at the 2014 funding levels, FAA stated that it believes there is no significant impact on meeting the NAC's Tier 1 priorities. In FAA's current budget, NextGen funding accounted for $901 million in fiscal year 2014. For fiscal year 2015, FAA has requested about $836 million for NextGen programs, projects, and activities. FAA has stated that the NAC's prioritization was not a budget exercise, but did provide high-level cost estimates for the NAC's priorities in its October 2014 implementation plan.

[11] FAA has 20 radar centers that are typically responsible for air traffic above 10,000 feet, where aircraft reach their cruising altitudes and fly as direct a route as possible between their departure and destination points.

LONGSTANDING CHALLENGES COULD UNDERMINE DEVELOPMENT AND EXECUTION OF THE IMPLEMENTATION PLAN

As FAA continues to shape its integrated plan and implement the NAC's prioritized capabilities, both FAA and industry will need to address and resolve a number of longstanding challenges. For example, they will need to identify, agree upon, and then commit to the necessary steps, timelines, and investments required to fully implement each capability. Implementing these prioritized capabilities will require carriers to make changes to their aircraft in some cases, and both carriers and FAA will also need to conduct testing and training on the new processes, among other things.

Reaching commitments on these and other key actions will require resolution to a number of longstanding NextGen challenges. These challenges include:

Reconciling FAA and Industry's Differing Approaches to NextGen. Industry officials believe the NAC's recommended priorities are structured to deliver near-term operational benefits by implementing capabilities at specific locations. Industry will continue to invest in updated aircraft/equipage based on a positive return on investment. However, FAA's delays in clearly defining NextGen benefits have deepened industry's reluctance to invest. FAA's focus is on deploying a national infrastructure of individual programs over the long-term. FAA officials have acknowledged that the scale of NextGen is difficult to convey, referring to NextGen as a "system-of-systems," involving multiple interrelated systems that must work together across the entire National Airspace System (NAS). This NAS-wide infrastructure does not yet in itself deliver significant benefits to industry, but is essential in providing the platform for implementing beneficial capabilities. Nevertheless, industry has in the past pointed out that FAA's culture of focusing on large infrastructure programs rather than a focused, integrated approach for specific locations was a factor impeding NextGen progress.

Working Across Diverse Lines of Business. In addition to determining the most effective way to deliver a capability and provide benefits, advancing the prioritized NextGen capabilities will require working across diverse Agency lines of business, which FAA has not effectively accomplished in the past. Moreover, the RTCA's 2009 Task Force Report and NAC's September 2013 report identified other key NextGen implementation challenges that FAA will need to overcome. (see table 1).

Table 1. Key Implementation Challenges

Challenge	Description
Change in Roles / Roles & Operational Complexity	Determining the changes in the role of pilots or controllers that must be made to enable the capability.
Technology/Equipment Required / Systems	Assessing whether aircraft and ground infrastructure, automation systems, and decision support tools are ready.
Need Policy Changes / Institutional	Identifying the extent to which the required institutional, cultural changes, or new policies or political considerations have been mitigated.
Need Airspace Changes / Community Perceived Noise and Emission Impact	Determining whether mitigations are in place to counter noise or emissions impacts [due to airspace changes].
Standards Required / Standards & Approvals	Identifying the extent to which standards, approvals, certifications, regulatory guidance as well as equipage is in place.
Training and Ops Approval Required / Policy / Ops	Assessing the extent to which training, valid Concept of Operations (ConOps), and procedures are in place.

Source: OIG analysis of 2009 RTCA Task Force Report and 2013 NAC report

Increasing Use of PBN Procedures and Updating Safety Assessments. FAA will also need to continue its efforts to address barriers to implementing key capabilities that have been identified by our office, FAA, and the NAC. For example, several obstacles have undermined FAA's efforts to increase use of PBN procedures, such as unclear procedure design objectives, outdated controller policies and procedures, and the lack of standard training for pilots and controllers.

Most recently, we reported[12] that efforts to introduce more advanced routes have been impeded by the lengthy development and approval process for new PBN procedures. For example, although FAA has introduced more than 100 RNP procedures at large airports, preliminary data[13] indicate that RNP use is low, particularly at busy airports, such as those in the New York City area. Notably, at the 14 large airports[14] where FAA has implemented advanced PBN procedures

[12] *FAA Faces Significant Obstacles in Advancing the Implementation and Use of Performance-Based Navigation Procedures* (OIG Report No. AV-2014-057), June 17, 2014. OIG reports are available on our Web site at http://www.oig.dot.gov/.

[13] FAA tasked MITRE to obtain and analyze data to measure the use of PBN procedures and quantify their benefits. MITRE Corporation manages a research and development center for FAA, the Center for Advanced Aviation System Development.

[14] The 14 large airports are Baltimore-Washington International, Chicago Midway, Denver International, Fort Lauderdale International, Hartsfield-Jackson Atlanta International, JFK International and LaGuardia in New York, Memphis, Minneapolis/St. Paul International, Newark Liberty, San Francisco, Seattle-Tacoma, and Dulles and Reagan National in Washington, DC.

with curved approaches to runways,[15] only about 2 percent of eligible airline flights[16] actually used them.

In addition, making better use of existing runways as the NAC has recommended depends on updated safety assessments for new, complex runway configurations—such as closely spaced parallel runways and conversing or intersecting runways. Until these are completed, FAA cannot (1) authorize changes in procedures, (2) determine air traffic controller training that will be required, or (3) determine any additional staffing and/or airspace changes that may be needed.

Establishing Accountability for Implementing the Plan. FAA has not always provided a clear understanding of how it will manage and execute implementation and what it will take to deliver these efforts. Breakdowns in past FAA efforts have also fueled airspace users' reluctance to invest in new technologies—especially if the technologies may later be discarded without any accountability to industry for their investments. For example, FAA abandoned a smaller but similar effort to implement a controller-pilot data link communications program that was expected to play an important role in enhancing air capacity and reducing flight delays. In 1998, FAA and industry jointly invested in the program and began using data linking on a limited basis. However, cost growth, schedule delays, reduction of benefits, and technical issues, along with slow equipage by airlines (only 30 of 100 planned aircraft equipped for the initial stage) prompted FAA to terminate the program in 2005. A key "lesson learned" from this outcome was that FAA needs to more clearly define criteria for collaborative agreements with the private sector when joint investments are needed from Government and airspace users.

At the time of our audit, FAA had not reached an agreement with industry on how to monitor progress against the commitments in its upcoming plan or developed a strategy for mitigating risks associated with adjusting the plan once implementation is underway. Establishing an agreement from both FAA and industry on their respective responsibilities is important for holding all parties accountable for the commitments reached. Although the NAC's work is only advisory in nature, FAA recognizes that industry involvement is important for tracking progress, adjusting commitments and plans as necessary and solidifying stakeholder support. At the time of our audit, FAA had indicated that it planned to sunset the integrated work groups once they publish an implementation plan in October. FAA has not yet determined how the Agency and industry will work together after that time to ensure the efforts are implemented as planned and any risks are managed.

[15] Curved approaches to runways improve the use of airspace by allowing aircraft to avoid critical areas of terrain or conflicting airspace.

[16] An eligible flight is one in which (1) the aircraft was authorized to fly the RNP procedure and (2) the flight was in a position to join the procedure.

CONCLUSION

The success of FAA's efforts to implement NextGen depends on the Agency's ability to set priorities, deliver benefits, and maintain stakeholder support. FAA's response to the NAC's recommended priorities is an important step to focus FAA's NextGen efforts. FAA's ongoing efforts to develop a reasonable and transparent action plan linked to the budget, and with firm commitments on milestones and metrics for measuring benefits, are essential for building stakeholder confidence and obtaining buy-in. However, maintaining momentum will be key to delivering NextGen capabilities and fully realizing the benefits. We will continue to monitor FAA's efforts to implement the NAC's prioritized NextGen capabilities.

RECOMMENDATIONS

To help hold all parties accountable for commitments as FAA shapes its implementation plan for the NextGen priorities, we recommend that FAA:

1. Establish clear lines of responsibility with stakeholders.

2. Develop a tool or system to monitor progress against milestones.

3. Develop a risk mitigation strategy for missed milestones or as commitments change.

AGENCY COMMENTS AND OFFICE OF INSPECTOR GENERAL RESPONSE

We provided FAA with a copy of our draft report on September 18, 2014, and received its response on October 31, 2014, which is included in its entirety as an appendix. In its response, FAA states that it has already complied with our recommendations, but did not provide specific information on its actions or completion dates as requested in our draft report. The Agency stated it will provide a detailed response to each recommendation within 30 days of the publication of this report. Therefore, we consider the recommendations open and unresolved until we receive FAA's detailed response.

FAA's response noted that the Agency delivered the industry joint implementation plan to Congress on October 17, 2014—subsequent to our draft report. We have updated our final report as appropriate to reflect publication of the plan. As we advised FAA during our audit, we plan to evaluate FAA's implementation of the plan in a later review.

FAA's response also offered "clarifications" to several implementation challenges we presented in the report. Specifically, we mention airspace users' general reluctance to equip with costly NextGen technologies. FAA states that the NAC's Tier 1A priorities, with the exception of DataComm, do not require user equipage.

However, we have noted in numerous reports and testimonies that airspace users have been skeptical about FAA's ability to deliver the technologies and related benefits, leading to their reluctance to equip. As we reported, this is due in part to FAA abandoning a smaller but similar effort to implement a controller-pilot data link communications program, after FAA and industry had jointly invested in the program. Given that DataComm is one of the transformational programs for NextGen, restoring industry confidence and encouraging user equipage will remain a key challenge for the Agency.

FAA's response also states that our report implies a delay in responding to the NAC's recommendations. As we reported, although FAA recognized the importance of the NAC's recommended priorities, the Agency did not formally agree to focus its initial planning efforts on four selected Tier 1 capabilities until March 2014—nearly 6 months after the NAC submitted its report in September 2013. However, to its credit, the Agency has met all its agreed-upon milestones since then.

ACTIONS REQUIRED

We are requesting that FAA provide specific actions taken or planned for each recommendation as detailed above. In accordance with DOT Order 8000.1C, please provide this information within 30 days of issuance of this report. Until we receive this information, we consider all recommendations open and unresolved.

We appreciate the courtesies and cooperation of FAA representatives during this audit. If you have any questions concerning this report, please call me at (202) 366-0500 or Barry DeWeese, Program Director, at (415) 744-0420.

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cc: DOT Audit Liaison, M-1
FAA Audit Liaison, AAE-100

EXHIBIT A. SCOPE AND METHODOLOGY

We conducted this performance audit from March 2014 through September 2014 in accordance with generally accepted Government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

Our audit was conducted at the request of the Chairmen of the House Committee on Transportation and Infrastructure and the House Subcommittee on Aviation. Specifically, our audit objective was to identify the steps FAA is taking to address the NAC's recommended investment priorities. In that regard, we obtained and reviewed the July 2013 FAA letter to the NAC requesting the Committee to identify relevant activities that have an impact on NextGen implementation and establish criteria for prioritizing into Tiers 1 and 2. We obtained and reviewed the NAC's September 2013 NextGen Prioritization report and supporting documents including the 2013 NextGen Implementation Plan and NAS Segment Implementation Plan (an internal FAA document). We also reviewed key FAA planning documents such as NAS Capital Investment Plan for FY 2014-2018; FAA's Aviation Safety Work Plan for NextGen 2013; and the Budget Estimates Fiscal Year 2015 to gain a better understanding of how FAA's fiscal priorities related to NextGen.

To gain an understanding of past work performed by the RTCA and NAC and how it compares to the September 2013 report, we obtained and reviewed the *NextGen Mid-Term Implementation Task Force Report* dated September 9, 2009 as prepared by the RTCA. We compared that report to the September 13, 2013 NAC report, *NextGen Prioritization: A Report of the NextGen Advisory Committee in Response to Tasking from the Federal Aviation Administration*, noting the similarities of the capabilities the NAC believes that FAA should focus upon.

To further identify the progress FAA is making in responding to the NAC's priorities, including the implementation challenges, we obtained and reviewed minutes of the NAC subcommittee meetings that took place in November and December of 2013 and observed monthly NAC subcommittee meetings between January and June 2014 in order to obtain an understanding of the early development of the FAA plan of action to address the NACs prioritization recommendations and progress with the NextGen Implementation Working Groups which arose from those early meetings. In addition, we observed the

February 20, 2014 meeting of the full NAC[17] in Phoenix, AZ, to hear the FAA's first public response to the NAC's September 2013 Prioritization Report and June 3, 2014 to obtain an update as to the steps the FAA is taking in addressing the report. Moreover, we interviewed FAA officials within the NextGen Office, Air Traffic Organization, Program Management Office, Office of Budget and Chief Scientist. In addition, we met with officials from the RTCA, Inc. and industry consultants from MITRE to gather their perspective on the NAC's prioritized capabilities and FAA's progress with responding as well as any implementation challenges.

[17] Meetings of the Federal advisory committee are open to the public.

EXHIBIT B. ORGANIZATIONS VISITED OR CONTACTED

Air Traffic Organization/Program Management Office (PMO):

- Office of the Vice President, PMO
- Mission Support Services

NextGen Organization:

- Office of the Chief Scientist
- Advanced Concepts & Technology Development
- NAS Lifecycle Integration
- NextGen Performance and Outreach

Finance and Management:

- Budget and Programs—Capital Budgets

Other Organizations:

- MITRE Corporation/CAASD
- RTCA

EXHIBIT C. THE NAC'S TIER 1 PRIORITIZED NEXTGEN CAPABILITIES

	Capability Priority	Description
1	Performance-Based Navigation	Implement PBN/RNAV, RNP and a large-scale airspace redesign.
2	Separation standards reduced (Closely Spaced Parallel Operations - CSPO)	Reduce lateral separation for runways to include employing satellite navigation for parallel runway ops.
3	Data Sharing	Share data about the movement of traffic on the airport surface.
4	Metering/Merging/Spacing (En-route and Terminal) (Ground-Based)	Establish ground automation-based time-based metering, merging, and spacing to increase airspace efficiency.
5	Wake Re-Categorization & Wake Separation	Improve throughput at capacity-constrained airports, maintaining or improving wake safety. Revise separation based on wake information.
6	Optimization of Airspace & Procedures in the Metroplex (OAPM)[18]	Expedite OAPM to improve airspace efficiency using PBN in major metroplex areas.
7	Flight Planning Feedback	Implement ability for operators to get feedback on NAS constraints during flight planning process. Establish collaborative Trajectory/Flight Planning.
8	Collaborative Decision Making (CDM)	Establish collaborative Arrival, Departure, and En-route Planning.
9	Reduced separation (ADS-B Out)	Expand use of 3-nautical mile separation standards. Reduce aircraft separation standards and increase access to low-altitude, non-radar airspace.
10	Controller Pilot Data Link Communications (CPDLC), Weather Reroute (Data Communications)	Develop basic CPDLC and reroutes around weather for DataComm-equipped aircraft.
11	En-route PBN	Use automation systems to safely reduce separation for aircraft with RNAV/RNP.

Note: Capabilities shaded in blue are the selected four capabilities that will be included in FAA and industry's upcoming plan, (with capabilities 1 and 6 combined into one PBN area).

Source: OIG analysis of 2013 NAC report

[18] The aviation community has been actively involved and supportive of OAPM as indicated by the overall rating. In consideration of the importance of this initiative, it was placed in the Tier 1A list even though it was determined to be a Tier 2 capability.

EXHIBIT D. MAJOR CONTRIBUTORS TO THIS REPORT

Name	Title
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Audre Azuolas	Writer/Editor

Federal Aviation Administration

Memorandum

Date: October 31, 2014

To: Matthew E. Hampton, Assistant Inspector General for Aviation Audits

From: H. Clayton Foushee, Director, Office of Audit and Evaluation, AAE-1

Subject: Federal Aviation Administration's (FAA) Response to Office of Inspector General (OIG) Draft Report: NextGen Advisory Committee's (NAC) Recommendations on NextGen Priorities

The FAA has established comprehensive collaborative processes with industry to implement the Next Generation Air Transportation System (NextGen) Advisory Committee (NAC) Tier 1A priorities[1]. The FAA and industry joint implementation plan was delivered to Congress on October 17, 2014. Since the NAC Tier 1A recommendations were only recently accepted by the FAA in February 2014, with the implementation plan just now published, the Agency believes that this audit was premature, but in response to the four challenges presented in the report, the FAA offers the following clarifications:

- The OIG's report references a general reluctance of industry to equip throughout the document, but Tier 1A priorities, with the exception of Data Communications, do not require new avionics or equipage.
- The FAA has aligned its priorities with the NAC Tier 1A priorities and the Agency and industry are working closely together to establish firm commitments for near-term implementations at specific sites in the 1-3 year time frame.
- The FAA began working closely with industry immediately upon the original issuance of the NAC recommendations in September 2013, which led to their final acceptance in February 2014. The draft audit report implies that there was some delay, which is not the case. The Agency participates in all of the tri-annual NAC meetings, monthly NAC Subcommittee meetings, as well as weekly meetings with NAC working groups.
- The FAA conducts weekly NextGen Integration Working Group meetings, chaired jointly by the NextGen, Air Traffic, and Aviation Safety Organizations, along with the frequent NAC working group meetings in each of the four focus areas to develop the plan.

[1] The NAC grouped the capabilities into two top tiers with Tier 1 identifying 11 activities that should continue regardless of any FAA budget constraints. The NAC further broke down Tier 1: 1A (high benefit and high readiness) and 1B (high benefit and low or medium readiness).

- The safety assessments of the Multiple Runway Operations priority do not pose a "challenge" as stated in the OIG draft report. The FAA cannot authorize any procedural or technological changes until these assessments are complete because the agency has an obligation to ensure the safety of the public before proceeding with implementation. These assessments must be comprehensive, and they are proceeding on schedule. The FAA and NAC are working closely together to develop the process for tracking progress and maintaining commitments following release of the implementation plan in October 2014.
- The milestones documented in the implementation plan will be reported publicly in the NextGen Performance Snapshots and updated quarterly if needed.

The FAA's position is that it is already fully compliant with the OIG recommendations in the draft report which are very general. We must also stress that collaborating closely with industry while achieving general consensus on implementation priorities will always be an evolving process. Please contact H. Clayton Foushee at (202) 267-9000 if you require additional information regarding this response. The FAA will provide a detailed response to the OIG recommendations within 30 days after the publication of the final report.