



**STATEMENT OF  
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BEFORE THE SUBCOMMITTEE ON TRANSPORTATION, HOUSING AND URBAN  
DEVELOPMENT AND RELATED AGENCIES,  
COMMITTEE ON APPROPRIATIONS  
U. S. HOUSE OF REPRESENTATIVES  
WASHINGTON, D.C.**

**“MAINTAINING A SAFE & VIABLE AVIATION SYSTEM: PRIORITIES FROM  
AVIATION STAKEHOLDERS”**

Good afternoon, Chairman Olver, Ranking Member Latham, and Members of the Subcommittee. Thank you for inviting me to participate in today’s hearing on “Maintaining a Safe & Viable Aviation System: Priorities from Aviation Stakeholders” My name is Margaret Jenny and I am the President of RTCA, Inc.

## **RTCA BACKGROUND**

A few words about RTCA may be of value in setting the stage for my remarks. RTCA is a private, not-for-profit Corporation that is utilized by the Federal Aviation Administration (FAA) as a Federal Advisory Committee to provide a venue for the aviation community to forge consensus on aviation issues. Our deliberations are open to the public and our products are recommendations, developed by aviation community volunteers functioning in a collaborative, peer reviewed type of environment. RTCA provides two categories of recommendations: (1) policy and investment priorities to facilitate implementation of National Airspace System improvements and used as input to the FAA’s investment plans for air traffic management system modernization, and (2) performance standards, reports, and guidance documents used by the FAA as a partial basis for the certification of avionics.

## **INTRODUCTION**

You asked for my perspective on the challenges facing the aviation system and FAA and how best to move forward on NextGen. Mr. Chairman, early in 2009, Mr. Hank Krakowski, Chief Operating Officer of the FAA’s Air Traffic Organization and Peggy Gilligan, FAA Associate Administrator for Aviation Safety, had the foresight to ask RTCA to form a Task Force to answer that very question. The good news is that we now have a community-wide consensus on the priorities for NextGen implementation. The next step is to integrate those recommendations into plans and implement them.

Before I describe the Task Force Recommendations, I think it is important to address an issue that has been discussed among the many NextGen stakeholders for the past several months, namely, **“Should some of the budget for NextGen be allocated to subsidize aircraft equipage?”**



*It is imperative that if the resources are provided to help operators equip for NextGen capabilities that the FAA provides the requisite resources, not just infrastructure but also all the other things the FAA must do to be able to take advantage of that equipage, as outlined by the Task Force Report. Absent attention to the other details, it is likely that the government could spend millions of dollars and not lead to measurable improvement in the performance of the Air Transportation System.* I hope to show why this is true in my statement below.

Over 335 individuals from 141 different organizations participated in the NextGen Implementation Task Force. Members of the Task Force represented all segments of the aviation community, from large commercial air carriers to private pilots of single engine piston airplanes, as well as the pilots of business aviation aircraft and the organizations for which they fly. The Air Traffic Controllers union as well as a Pilot's union and dispatchers were part of the consensus as well. Airport operators, manufacturers of aircraft communication, navigation and surveillance avionics participated as did the major commercial airplane manufacturers. Participants brought technical, operational, and, for the first time on a Task Force, financial and strategic planning expertise. On September 9, 2009, RTCA delivered a consensus-based set of recommendations to the FAA on the NextGen operational capabilities to be implemented between now and 2018.

A year ago, many were asking "What is NextGen?" With the delivery of the Task Force recommendations, we are now asking "How soon can we deliver the benefits of NextGen?" The Task Force refers to this approach as "NowGen Next".

### **ESSENCE OF THE TASK FORCE RECOMMENDATIONS: "NowGen Next"**

First, the Task Force stressed the importance of implementing *operational capabilities* (e.g., the ability to reroute with minimal delay and excess distance around severe weather through the use of data comm) versus technologies (e.g., deployment of data communication network), and deriving benefits from *existing equipage*. This approach will help relieve congestion and delays in the near- and mid-term future. Success in this time period will also increase the community's confidence in the FAA's ability to fully implement NextGen.

Second, the Task Force focused on implementing solutions where the problems are most acute. This resulted in an *airport-centric approach* to NextGen, delivering capabilities at the key airports and large metropolitan areas, the bottlenecks where the problems are the most acute and most likely to ripple through the country causing unnecessary flight delays, misconnections and cancellations. Rather than deploying infrastructure throughout the entire system first and, only after that, implementing operational capabilities that deliver user benefits, the Task Force recommends implementing targeted operational capabilities at specific locations aimed at keeping the entire system healthy. It should be noted that capabilities recommended will require deploying an *integrated* suite of technologies. *This will require a new way of doing business*, upon which I will elaborate below.



Finally, while the Task Force did not explicitly address all the safety initiatives, some of the recommendations will contribute to a safer system (e.g., Area Navigation (RNAV)/Required Navigation Performance (RNP), surface systems for better surface operations, radar-like coverage for general aviation traffic in areas lacking radar.)

## OVERVIEW OF TASK FORCE RECOMMENDATIONS

The Task Force made recommendations in seven (7) areas:

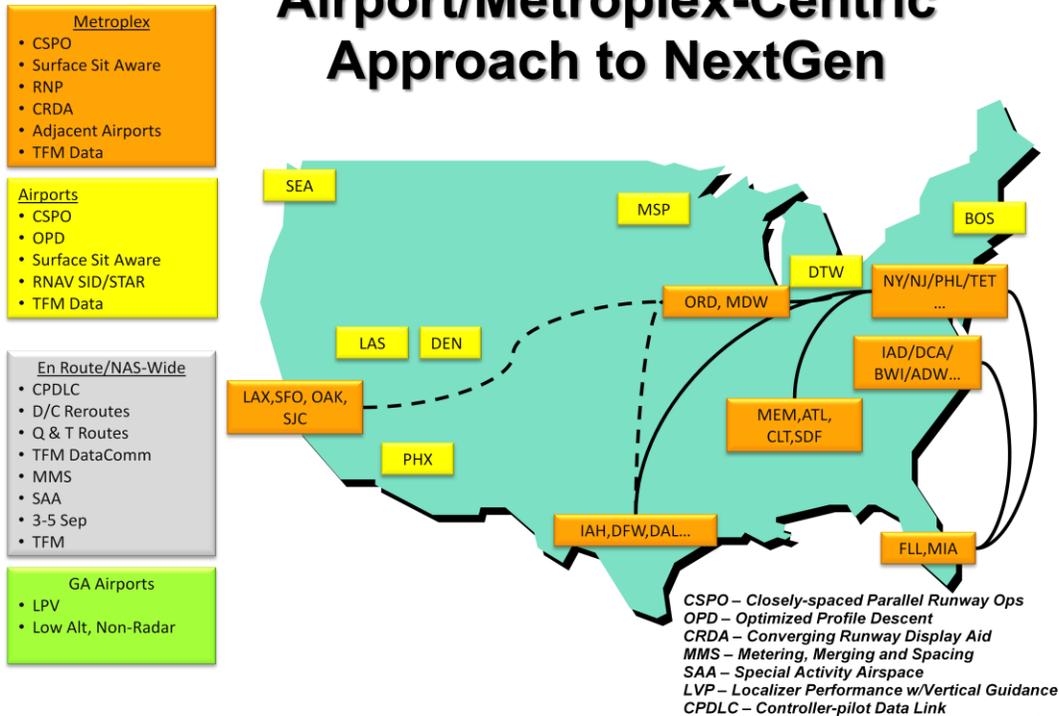
1. **SURFACE:** Improve airport surface traffic situational awareness and data sharing for enhanced safety and reduced delays. *Establish a single point of accountability within the FAA for implementing Airport Surface capabilities.*
  - Deploy ground infrastructure to capture surface activities and share data
  - Define consistent views of operational data for collaborative decision making
  - Define interoperability standards for sharing surface data among stakeholders
  - Implement surface traffic management decision support tools to already deployed surveillance capabilities such as Airport Surface Detection Equipment, Model-X (ASDE-X).
2. **RUNWAY:** Increase throughput at airports with closely-spaced parallel, converging and intersecting runways. This will reduce delays, noise and emissions.
  - Maximize use of converging or intersecting runways through use of existing technologies such as converging runway display aid (CRDA) and Precision Runway Monitor (PRM).
  - Allow use of RNP/Low Visibility Procedure (LPV)/(Ground-Based Augmentation System (GBAS) or Instrument Landing System (ILS) for all existing simultaneous independent and dependent approaches
  - Update 20-year blunder assumptions to enable operating simultaneous independent approaches to closer runways than currently allowed
  - Use high-update radar, multi-lateration (to accurately locate aircraft and other vehicles) for closely spaced parallel operations at appropriate locations
3. **METROPLEX:** Increase metroplex capacity and efficiency by de-conflicting traffic to and from all airports within large metropolitan areas. *Moving from traditional national deployments of new technologies to an airport/metroplex-centric approach that deploys only where needed will also require a change in the way the FAA manages its NextGen portfolio of programs.*
  - Optimize RNAV operations (using Tiger Teams to focus on quality procedures at each specific location)
  - Integrate procedures designed to deconflict traffic to and from multiple airports and expand use of terminal separation rules (i.e. 3 mi separation)



4. **CRUISE:** Increase cruise efficiency through enhanced use (increased availability of Special Activity Airspace (SAA), greater use of automation for aircraft metering, merging and spacing at bottlenecks, and use of flexible RNAV routing)
  - Institute more efficient use of SAA
  - Expand use of time-based metering
  - Develop area navigation-based en route system
5. **ACCESS:** Enhance access to low-altitude, non-radar airspace for general aviation traffic, and increase availability of GPS approaches to more general aviation airports
  - Extend radar-like services to low altitude airspace without radar surveillance
  - Implement LPV procedures for airports without precision approaches
6. **DATA COMM:** Deploy air-ground digital data communication applications to decrease gate departure delays and enhance efficiency and safety of airborne traffic, especially when re-routing multiple aircraft around severe weather
  - Implement Segment 1 of FAA's Data Comm program using existing standards; i.e. reroutes, revised pre-departure clearance, Controller-Pilot Data Link Communications (CPDLC)
7. **INTEGRATED AIR TRAFFIC FLOW MANAGEMENT:** Improve overall system efficiency through enhanced collaborative decision making between the FAA and users' flight operations centers.

**SUMMARY:** Mapped out, the recommendations deliver benefits at the major metropolitan areas and most congested airspace, as shown in the figure below. Each capability and location has at least one operator (in most cases multiple operators) committed to investing in the capability.

## Airport/Metroplex-Centric Approach to NextGen



For each capability recommended, the Task Force defined the following: **WHAT** operational capabilities to implement, including the intended performance benefit, **WHERE** to implement each, **WHO** from the user community is committed to making the requisite investments, and **WHEN** the capability should be implemented and delivering benefits.

### REQUIREMENTS FOR ACHIEVING FULL BENEFITS OF OPERATIONAL CAPABILITIES THAT IMPROVE SYSTEM PERFORMANCE

To deliver the benefits of any operational capability that improves system performance, the FAA must accomplish a host of related initiatives. New infrastructure, such as Automatic Dependent Surveillance-Broadcast (ADS-B) network, is one of those necessary components of new operational capabilities (e.g., reduced spacing between aircraft, enhanced efficiency of surface traffic), but is not sufficient to improve the performance of the air traffic management system. For any given NextGen capability, requisite changes must be understood and achieved, including:

- Training for changes in roles of pilot, controller, dispatcher
- New Technology or equipage fully deployed (e.g., ADS-B, , DataComm radios)
- Technology or equipage available today in the market place
- Decision support tools running on top of new technologies for controllers, pilots, dispatchers (e.g., aircraft rerouting tool for controller, aircraft equipage indicator for controllers)



- New policies (for example rules to enable those who equip to receive benefits, moving beyond first-come-first-served)
- Implementation bandwidth issues resolved
- Airspace changes completed
- New technical performance standards issued
- Operations approval process streamlined
- Certification process streamlined
- Effective training programs in place
- Environmental and noise issues resolved

If the FAA can meet these challenges and deliver benefits for existing equipage, then the business case for installing the next generation of NextGen technologies becomes much more attractive because the confidence of achieving the quick return on investment is substantially increased. Essentially, they will have already completed much of the work needed to deliver the benefits of technologies such as DataComm and ADS-B.

While the Task Force recognized that the FAA would continue to develop the baseline programs and technologies described in the NGIP, it assumed that as a result of incorporating these recommendations the FAA will most likely find it necessary to adjust some element of these programs and reprioritize its investment portfolio. Since the FAA received the recommendations, it has been working with the industry through the RTCA Air Traffic Management Advisory Committee (ATMAC) to analyze the full extent of the Task Force recommendations and reporting on how they are integrating them into their implementation plans. The industry is encouraged by the transparency of these interactions and is committed to continue working with the FAA until all of the recommendations have been addressed and the resulting version of the NGIP becomes the sole plan that documents the FAA's commitments. From that point, the industry has recommended that the FAA utilize joint government-industry implementation teams to ensure synchronized deployment of new capabilities and that the FAA utilize the RTCA ATMAC to track progress.

## **NEW WAY OF DOING BUSINESS**

As with any transformation, successful implementation of NextGen will require a new way of doing business, a departure from past practices. First, the FAA must agree on agency-wide priorities for NextGen. Next, the FAA must break down the barriers that exist among its business silos, and develop and act upon agency-wide priorities.

The industry, for its part, must speak with one voice in working with the FAA to establish the next set of priorities for NextGen implementation. Both the FAA and the industry must assign

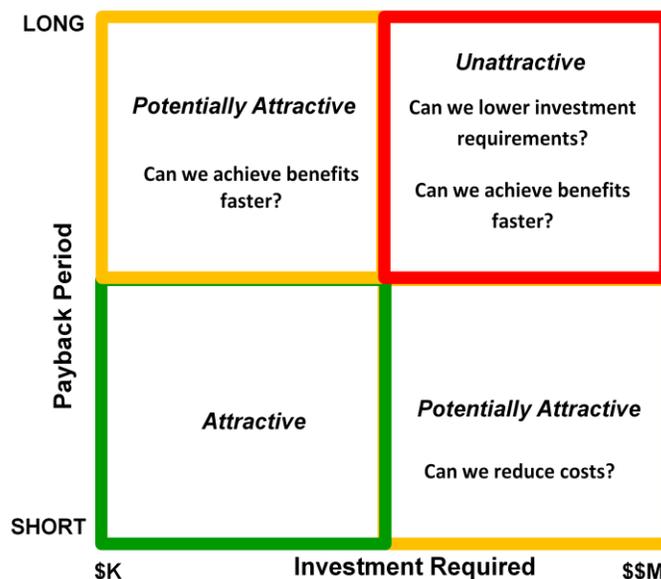


clear “Responsibility, Authority and Accountability” to ensure that all commitments are held to throughout the planning and implementation phases of each NextGen suite of capabilities.

Unlike previous FAA modernization initiatives, which relied solely on the FAA to deploy infrastructure and associated procedures, NextGen requires operators to invest in a new generation of equipage in the cockpit. Achieving the benefits of those investments is contingent upon many things outside of the operators’ control. Airspace must be redesigned and air traffic procedures and rules of the road must be adjusted to take advantage of new technologies. Air Traffic Controllers must be trained on the new procedures in addition to the use of the automation systems. Airlines that do elect to equip with state-of-the-art technologies required to make NextGen a reality must be assured of streamlined operations approval processes governed by the FAA.

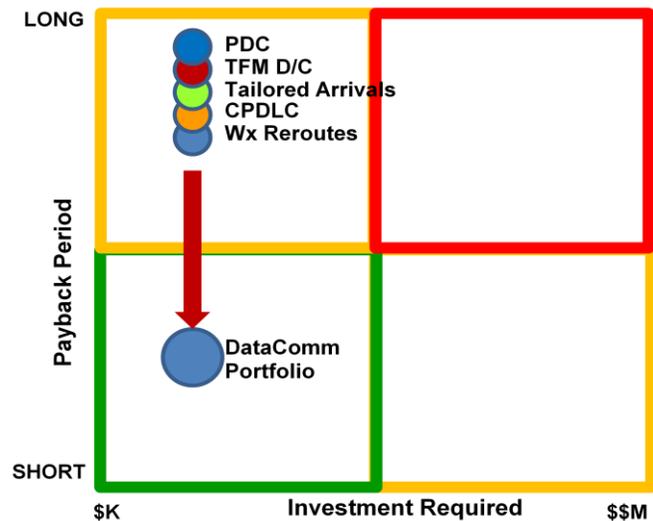
Deciding to invest in NextGen technologies requires a leap of faith that all the other critical stakeholders will hold up their end of the bargain and deliver full capabilities on dates certain. A business case cannot be built upon faith.

Closing the business case requires a reasonable payback period with a high degree of confidence that the payback will be achieved. Many of the long-term NextGen investments fall into the category of high cost, long payback period and low confidence of payback (partly because the payback is dependent upon outside forces such as the FAA.) The Business Case Subgroup of the Task Force laid out a framework for analyzing the business case as shown below.





The aim of the recommendations is to move the capabilities into the lower left quadrant. The Task Force cost/benefit analysis showed that while no individual DataComm capability had a positive business case, when five capabilities were bundled so that a single investment in technology delivered five new operational capabilities, the business case closed for the airlines.



*PDC* – Pre-departure Clearance  
*TFM D/C* – Traffic Flow Management Data Comm  
*CPDLC* – Controller-Pilot Data Link Communications  
*Wx Reroute* – Weather Reroutes

For the General Aviation community, the ground receivers in the Gulf are deployed and aiding the many helicopters and other aircraft. FAA's commitment to putting in the ground receivers will give those who elect to invest the opportunity to better understand the benefits.

For the more complex capabilities requiring airline equipage, it is important that the FAA commit to the locations and dates recommended by the Task Force, or risk losing the commitment of the airlines. As is true for airlines, a way to "drive" equipage within the General Aviation community is for the FAA to implement its ground infrastructure on schedule to provide LPV approaches and radar like services at locations that currently lack radar service. Add to that the provision of traffic and weather capability in the cockpit and we have a capability that enhances safety and the utility of GA.



## FAA PRIORITIES

So, what are the critical next steps for the FAA and what should be the related investment priorities? **The most important message from the Task Force is that the FAA must bundle technology, infrastructure, and procedures; streamline processes; and partner with the operators and other key stakeholders to deliver near-term NextGen capabilities at specific locations by dates certain in order to deliver benefits and maintain the industry commitment to NextGen. This is more complex than delivering individual infrastructure programs and will require a new way of doing business.**

What should be the FAA's investment priorities for the next few years?

1. **Commit to Locations and Dates:** Deploy operational capabilities at locations and by dates agreed to with industry, via the NextGen Task Force and post Task Force collaboration.

This will require plans and deployments that span programs. It will require a new way of rolling out NextGen that concentrates on delivering capabilities when and where they are needed, and not necessarily to all centers, Terminal Radar Approach Control (TRACONS) or towers. The business case for user NextGen investments is contingent upon these locations and dates.

2. **Drive Implementation from a Single FAA Plan:** Modify existing NextGen Implementation Plan (NGIP) and related detailed plans to ensure full coordination across current programs needed to deliver expected benefits

The industry will base its commitments to invest and implement capabilities on the commitments that the FAA documents in the NGIP. It is essential, therefore, that the NGIP is the sole driver for implementation of every aspect of NextGen and that it has the support of all relevant entities inside the FAA.

3. **Deliver capabilities that provide benefits from existing equipage:** Embrace the airport/metroplex-centric approach to NextGen, and implement capabilities using existing systems and technologies such as Multi-Lateration, initial Data Comm, RNP and RNAV routes, enhanced data sharing among air traffic control facilities, airports, and operators, etc. Nothing will do as much to instill confidence in the program and, therefore, commitment to making the requisite investments.
4. **Deploy Comprehensive Solutions:** Ensure that all aspects of each suite of capabilities are accounted for in plans and that all the necessary resources are available to achieve the desired outcome.



*Outcomes must be tied to the delivery of user benefits, not simply meeting programmatic milestones.* Successful outcomes will require a new level of interdependence across programs. The Task Force Report included details of all the elements of each capability that must be implemented to achieve full benefits, including training, airspace modifications, procedures, operations approval for airlines, and certification of new equipage. FAA must change its way of doing business, and require coordination across programs to ensure that all elements necessary to achieve full benefit are completed. For example, the

ADS-B Program and the DataComm will rely on the En Route Automation Modernization (ERAM) program to deploy its full set of applications, without which little benefit is achieved. Investments in system engineering and integration will be critical to the successful delivery of NextGen capabilities.

5. **Launch Joint Implementation Teams:** Establish and fully fund joint government-industry implementation teams for each bundle of capabilities at specific locations.

Once the FAA and industry have agreed on the roll out of capabilities, by location and date, the FAA should fund the establishment and execution of multiple implementation teams with single points of accountability for each.

6. **Streamline Processes:** The Task Force highlighted the need to streamline processes, most notably the process of establishing new RNAV and RNP procedures, as well as the process of obtaining operations approval to use new equipage. Streamline the certification process for new equipage. It is also important to note that the FAA should have a comprehensive plan for upgrades so that there is a positive business case each time the operators are asked to invest in an upgrade.
7. **Assign Accountability:** Assign leadership from the top of the agency to ensure a point of Responsibility, Authority and Accountability for implementing near and mid-term NextGen according to commitments made in the NGIP. No individual organizational unit can succeed with NextGen unless all of the FAA succeeds. It takes top down direction to usher in the necessary institutional and cultural changes that will be needed to drive to a successful outcome.
8. **Incentivize Equipage for NextGen:** The Task Force concluded that there is no one-size-fits all for providing best service for best capable; what the FAA refers to as Best-Equipped, Best-Served (BEBS). The ability to provide an operational benefit for equipage depends upon the capability and the location. For example, not all airports afford the FAA the opportunity to segregate ADS-B-equipped aircraft to provide expedited access since not all



airports have enough runways to run such an operation. In many locations with limited runway capacity, it is not possible to provide expedited services to equipped aircraft and therefore not possible to provide an operational benefit until 80% or more aircraft are equipped. In such cases, it might be necessary to provide financial incentives to encourage early equipage. For other capabilities, such as expediting reroutes of aircraft around unpredicted severe weather, those with DataComm can receive preferential treatment no matter what percentage are equipped so that true BEBS can be achieved early in the program.

*As described at the beginning of this statement, it is imperative that if the resources are provided to help operators equip for NextGen capabilities that the FAA provides requisite resources, not just infrastructure but also all the other things the FAA must do be able to take advantage of that equipage, as outlined by the Task Force Report. Absent attention to the other details, it is likely that the government could spend millions of dollars and not lead to measurable improvement in the performance of the Air Transportation System.*

## CONCLUSION

Some have asked whether the FAA can afford to implement the Task Force recommendations as well as the NextGen vision. The answer is that we cannot afford NOT to implement these recommendations.

First, we do not yet have a crisp enough definition of the vision to implement it. But more importantly, the Task Force recommendations solve very real and current problems while laying the necessary ground work for the longer-term NextGen. Successful implementation of the recommendations will instill the confidence necessary to ensure continued commitment on the part of the operators to make the necessary investments in NextGen. ***“Build a little, test a little”*** is not just a risk mitigation approach for the FAA’s programs, it is the only way to keep the partnership with industry that is critical to the ultimate success of NextGen.

**NowGen Next is, in effect, the risk mitigation program for NextGen.**

Thank you for the opportunity to testify on this important topic. I’d be pleased to address your questions.