Federal Aviation Administration

Destination 2025

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Executive Summary

The Destination 2025 vision captures the ideal future we strive toward – a transformation of the Nation's aviation system in which air traffic will move safely, swiftly, efficiently, and seamlessly around the globe. Flights will take off and land on time, every time, without delay and there will be no fatal accidents. Air travel will be routine and uneventful for everyone involved: passengers, crews, ground support, and communities. Costs will be contained for both operators and passengers, and there will be no negative impact to the environment. Manned and unmanned flights will each achieve safe flight, as will commercial launches to space. This is a vision that captures the future we will strive to achieve – to transform the Nation's aviation system by 2025.

The Federal Aviation Administration's mission is to provide the safest, most efficient aviation system in the world. What sets us apart is the size and complexity of our infrastructure, the diversity of our user groups, our commitment to safety and excellence, and our history of innovation and leadership in the world's aviation community. Now we are working to develop new systems and to enhance a culture that increases the safety, reliability, efficiency, capacity, and environmental performance of our aviation system. To meet our vision will require enhanced skills, clear communication, strong leadership, effective management, innovative technology, new equipment, advanced system oversight, and global integration.

Our primary focus in the past was increasing the safety of the aviation system and providing the necessary capacity. Working together with our industry counterparts, we have been very successful. Since the mid-1990s, the number of commercial air carrier fatal accidents has decreased nearly 80 percent. Since 2000, new runways have opened at 16 large and medium hub airports, providing these airports with the potential to accommodate more than 2 million annual operations. We have enhanced our own performance, putting in place internal acquisition, planning, and financial systems and processes that have helped us account for and save taxpayers' money. We have also helped shape the growth of the global aviation system and the access and opportunity afforded U.S. citizens. Yet, there is still more to be done.

The Federal Aviation Administration's mission is to provide the safest, most efficient aviation system in the world.

Building on this solid foundation, the FAA is heading into a time of unprecedented challenges as we work to adapt to a rapidly changing aviation system in the presence of changing economic, social, environmental, and energy needs of both our nation and our global partners. Like the rest of the federal government, the FAA faces significant budget pressures that will shape our ability to maintain today's system and respond to tomorrow's demands. The FAA must see the opportunities within these challenges that will enable aviation to be a transportation choice that provides the traveling public, U.S. business and our global partners with safe, secure, reliable, and environmentally sustainable air travel. Our vehicle for providing opportunities during this transformation is the Next Generation Air Transportation System (NextGen).

NextGen is a series of inter-linked programs, systems, and policies that implement advanced technologies and capabilities to dramatically change the way the current aviation system is operated. NextGen is satellite-based and relies on a network to share information and digital communications so all users of the system are aware of other users' precise locations. It will make U.S. aviation safer, reduce delays, and mitigate impacts on the environment. The system responds quickly as the types and performance of aircraft change and as weather and routes change and congestion occurs. Hazards are identified and their associated risk mitigated before they result in incidents or accidents. NextGen combines changes to the way aircraft are routed, with new, more fuel-efficient technology and improved fuels to reduce aviation's environmental "footprint." NextGen must also extend beyond our domestic airspace and be an integral part of the global aviation system. This will require partnership and collaboration within the FAA, across government, with industry, both domestic and international, and with the International Civil Aviation Organization (ICAO) and its contracting states.

The next 15 years promise to be a pivotal time in the history of air transportation, as the face of aviation is transformed around the world. This is occurring even as we face challenging budget pressures that will shape every aspect of FAA's operations, plans, and workforce. Key components of NextGen programs are already improving access to airports during inclement weather and are providing tangible improvements for passengers

and aviation stakeholders today. Setting metrics at 2018 provides us with a waypoint for measuring our progress towards achieving our goals. From flight decks to control towers, our system is already changing. The FAA is committed to ensuring America has the safest, most advanced and efficient, and sustainable aviation system in the world. We must also work to make air transportation safe and efficient wherever U.S. citizens travel.

Our aspirations:

Move to the Next Level of Safety

Safety is FAA's top priority. We will transform the way we assure safety by expanding our safety culture to enhance standards and oversight. We will take action to manage risk by proactively identifying hazards and risk based on continuous analysis of data.

Create Our Workplace of the Future

We can only create the future we envision through the people of the FAA. NextGen will require not only new technology and tools, but a skilled and dedicated workforce. Our continued success depends on creating a workplace of choice with integrity, fairness, diversity, and innovation as our professional hallmarks. We will train and enable our high performance workforce with the adaptive skills and abilities required to reach and sustain the NextGen levels of safety, efficiency, and sustainability.

Deliver Aviation Access through Innovation

We must serve the needs of the traveling public and the aviation industry to provide unencumbered access to the aviation system, whether the destination is domestic or international. We will enhance aviation's value to the public by improving travel throughout the National Airspace System, and beyond. This includes reducing costs and energy use, minimizing delays, preserving and securing needed infrastructure, and matching capacity to demand to increase the economic effectiveness of aviation.

Sustain Our Future

We will advance aviation in an environmentally responsible and energy efficient manner. We will minimize noise and emission impacts on communities, reduce aviation's carbon footprint, invest in new technology, foster sustainable alternative fuels research, and advance other innovations that promote environmentally friendly solutions.

Advance Global Collaboration

We will work with ICAO and other international partners to improve global aviation safety and environmental performance around the world. We will encourage innovation while we work with our international partners to deploy seamless and efficient global air navigation through interoperable standards, procedures, and technologies, and harmonization of certification and regulation.

Next level of Safety

Our Goal

By achieving the lowest possible accident rate and always improving safety, all users of our aviation system can arrive safely at their destinations. We will advance aviation safety worldwide.

Outcomes

1 No accident-related fatalities occur on commercial service aircraft in the U.S.

2 Aviation risk is reduced through all phases of flight (gate-to-gate).

3 There is a reduction in the general aviation fatal accident rate.

4 There are no fatal accidents on certificated airports.

5 There are no fatalities resulting from commercial space launches.

Challenges

A forward-looking approach is needed to analyze trends, data, and systems to manage risk before it leads to a future incident or accident. The FAA's current processes and systems have created a safe and efficient aviation system. To achieve the next level of safety, the FAA and the industry must augment the traditional methods of analyzing the causes of an accident or incident after the fact. The FAA and the aviation community will build on today's proactive accident prevention programs by adopting new tools and metrics to further anticipate potential sources of risk to identify and remove accident precursors and contributors, and strategically manage safety resources for maximum safety improvement in a cost effective manner.

A major challenge is integrating human factors with NextGen technology and procedures to ensure safety. Identifying the human factor aspects of risk and proactive solutions provides opportunity for moving forward for additional improvements in aviation safety. We must work with domestic and global stakeholders to stimulate cooperation for the open reporting of safety concerns and collaboration in collection and use of data. NextGen will increase situational awareness in the flight deck and on the ground, and must support access to the system.

We must work with domestic and international stakeholders to encourage cooperation for the open reporting of safety concerns.

Streamlining FAA's certification, operational approval, and procedure design processes will be essential for timely implementation. Sustaining a high level of involvement, clear communication and collaboration with stakeholders, including operators, will also be necessary to ensure progress.

We will take action to manage risk by proactively identifying hazards and risk based on continuous analysis of data.

As we move into the future, Safety Management Systems (SMS) are essential to manage risk in the aviation system. FAA must be a leader in the design and implementation of SMS. Technical challenges abound, including the ability to analyze massive amounts of data to provide useful information for oversight and assessment of risk, both in the air and at the nation's airports. The FAA must continue to promote public confidence in the aviation safety system through use of SMS and effective oversight of the development and introduction of new aviation products. Also, the FAA must meet the challenge of fostering commitment and best safety practices that sustain or improve the level of safety across the globe.

Strategies

- Use NextGen technologies to continually target key risk areas.

- Incorporate SMS principles into all FAA/industry operations to enhance the aviation safety culture.

- Promote and expand safety information sharing efforts and safety practices, including better use of safety data mining to focus and prioritize safety efforts through enhanced capabilities for identification, analysis, and mitigation development of incidents, accidents, and other safety related data, i.e., reports from users to address hazards before they lead to accidents.

- Strengthen and improve technology, infrastructure, training, procedures, evaluation, analysis, testing, and certification to reduce the risk of accidents from all causes in all phases of operation.

- Foster efforts to ensure no degradation of safety as new NextGen technologies or operations are introduced.

- Develop appropriate tools, metrics, and approaches to reduce and limit the serious losses of standard separation within the National Airspace System.

- Identify the top airport surface risks areas through data collection and analysis.

- Develop tools, guidance, and regulations for reducing the safety risks for commercial space launch and reentry operations, including those involving human space flight.

Performance Metrics (2018)

- Reduce the commercial air carrier fatalities per 100 million persons on board by 24 percent over 9-year period (2010-2018). No more than 6.2 in 2018.

- Reduce the general aviation fatal accident rate to no more than 1 fatal accident per 100,000 flight hours by 2018.

- Maintain the rate of serious runway incursions at or below 20 per 1000 events.

- Reduce risks in flight by limiting the rate of the most serious losses of standard separation to 20 or fewer for every thousand (.02) losses of standard separation within the National Airspace System.

- Implement 40 percent of mitigating strategies for the top 5 airport risk areas.

- Ensure no cyber security event significantly degrades or disables a mission-critical FAA system.

- No fatalities, serious injuries, or significant property damage to the uninvolved public during licensed or permitted space launch and reentry activities.

Workplace of Choice

Our Goal

We will create a workplace of choice marked by integrity, fairness, diversity, accountability, safety and innovation. Our workforce will have the skills, abilities, and support systems required to achieve and sustain NextGen.

Outcomes

1 FAA has the right people with the right skills in the right positions at the right time to achieve our goals.

2 FAA is widely recognized as a workplace of choice.

3 FAA workforce reflects the diversity of the nation.

4 FAA provides the safest and most secure facilities in which our employees and equipment operate.

Challenges

FAA must integrate and coordinate activities across multiple lines of business and develop plans and programs to implement NextGen capabilities. In line with the FAA value, "People are our strength," we must provide appropriate training, tools, and opportunities to our workforce, while positively transforming ourselves and the work environment of the future FAA. We will need to win the competition for talent by providing an attractive and challenging place to work.

We can only create the future we envision through the people of the FAA.

We are moving from a cognitive based aviation control system to a system with automated support for decisions, which will require a collaborative work environment. This has never been done before. We face the challenge of working in a more cross-organizational and cross-functional manner while meeting an aggressive NextGen implementation schedule. This challenge will be especially important as we hire, develop, retrain, and retain talented employees. As the complexity of systems and supplier networks increases, we must

continue our shift to systemic oversight of organizations' safety management systems, rather than focus on individual services and products. This will change the needs, roles, and skill sets of our workforce. We need to strengthen our pipeline of candidates to fill new positions, including diversity throughout all levels of leadership.

We must train our current employees in critical skills, and attract employees with the right skill sets, while supporting the transfer of knowledge as people retire or leave the FAA. We must promote employee development and reward innovation. We must foster clear and effective communication among our workforce and with our stakeholders. We must ensure that our workforce is supported by exceptional secure information services, financial management, contracting, procurement, human resource functions, and facilities.

It is important to recognize the reality of today's ever-tightening budget environment. Budget constraints will require the FAA to continue to manage its resources effectively, and be creative and innovative in managing resources to achieve our goals and support our people. Improving operational efficiencies and program management will become critical to supporting future budget requests.

Strategies

- Provide employees and managers with the tools needed to ensure collaborative leadership at all levels through training and development, mentoring/coaching, and opportunities to learn best practices from other organizations.

- Ensure the workforce has all the training, tools, secure systems, safe facilities, development opportunities, and financial accountability needed to meet NextGen transformation.

- Create effective recruitment and talent management strategies to attract, retain, and develop a highly skilled and diverse pool of employees and management.

- Leverage use of knowledge management processes and social networking tools to inform, engage, and solicit employee views and innovative solutions.

- Improve access to more environmentally-friendly transportation and workplace alternatives to the benefit of communities and future generations.

- Increase partnerships for Science, Technology, Engineering and Math (STEM) with institutions of higher education and high schools to enhance a diverse FAA applicant pool.

Performance Metrics (2018)

- The FAA is rated in the top 25 percent of places to work in the federal government by employees.

- Achieve a 90% success rate in the areas of financial management and human resources management:
  - Receive annual Unqualified Audits with no material weaknesses.
  - Maintain the competitive status of all FAA employees within the federal personnel system.
  - Improve the "effective leadership" index score on the OPM Employee Viewpoint Survey by 8 percent.
  - Improve the "talent management" index score on the OPM Employee Viewpoint Survey by 8 percent.

Delivering Aviation Access through Innovation

Our Goal

Enhance the flying experience of the traveling public and other users by improved access to and increased capacity of the nation's aviation system. Ensure airport and airspace capacity are more efficient, predictable, cost-effective and matched to public needs.

Outcomes

1	**2**	**3**	**4**	**5**	**6**
System capacity and user demands are matched to ensure reliable, predictable, and cost-effective air navigation and airport services.	System capacity, performance, and predictability are maintained during adverse weather.	Air navigation infrastructure and associated systems are flexible, reliable, cost effective, and secure.	NextGen capabilities are fully implemented and utilized based on U.S. aviation community system needs.	Safety, funding, airport infrastructure, and environmental issues are advanced and leveraged by full utilization of NextGen capabilities.	The general aviation airport system supports the full range of functions for remote populations and emergency response capabilities.

Challenges

One of our most complex challenges today is meeting the expectations for all system users for their operational needs, increasing capacity, efficiency, and predictability, while enhancing safety, mitigating environmental impacts, and operating in a seamless global environment. NextGen policies, technologies, and procedures are necessary to address flexibility for airspace uses, environmental and safety issues, and match demand and capacity to mitigate congestion. Balancing all these, sometimes conflicting, aims will be a challenge.

NextGen requires significant commitments within the government, as well as from aviation stakeholders. This includes commitments for operational changes, early investment in technology and training, environmental and safety performance, equipage of aircraft, and certification of crew at required performance levels. In some cases, airports will need to invest in new infrastructure while maintaining and preserving current infrastructure,

and protecting against development that limits airport operations and incompatible land use. Challenges include how to fund the necessary projects in a tight budgetary climate, change the culture of the system, have seamless operability with foreign nations, and manage transition of the system during a period with varying levels of equipage. We also face the challenge of integrating NextGen capabilities through an extremely diverse set of airspace users.

Changes in the operational environment will also include the introduction of new vehicles, such as unmanned aircraft systems and commercial space vehicles.

These aircraft pose significant new challenges which must be addressed by certification and development of operational procedures, along with supporting policies within the FAA and across the federal government.

We must serve the needs of the traveling public and the aviation industry to provide unencumbered access to the aviation system, whether the destination is domestic or international.

Strategies

- Use NextGen technologies and operational improvements to reduce the average time it actually takes to go from one core airport to another.

- Maximize delivery of early NextGen user benefits to generate support for an aggressive NextGen implementation schedule.

- Increase effective throughput in the National Airspace System by implementing NextGen and policies to facilitate balance between capacity and demand at core airports.

- Increase the flexibility of the National Airspace System to enable users to adapt according to their own needs by implementing NextGen.

- Implement automated NextGen architecture systems that provide secure, timely, and accurate information for all equipped system users.

- Ensure federal resources such as the Airport Improvement Program have sufficient programmatic flexibility to invest in NextGen capacity projects that benefit the airport and the National Airspace System.

- Identify and implement procedures and technology to improve current and predictive weather information and reduce weather delays.

- Ensure the long-term viability and availability of airports by helping airports of all sizes become more financially self-sufficient.

- Establish a strategic approach to target federal investments in support of the general aviation airport infrastructure.

Performance Metrics (2018)

- Optimize airspace and Performance Based Navigation (PBN) procedures to improve efficiency an average of 10 percent across core airports by 2018.

- Increase throughput at core airports by 12 percent to reduce delays by 27 percent using a 2009 operations baseline.

- Improve flight predictability by reducing variances in flying time between core airports based on a 2012 baseline.

- Improve throughput at core airports during adverse weather by 14 percent by 2018.

- Maintain 90 percent of major system investments within 10 percent variance of current baseline total budget at completion.

- Ensure Localizer Performance (LP) procedures are available at 5,218 runways in the NAS by 2018.

- Achieve a 5 percent reduction in average taxi-time at Core airports, identified by the Future Airport Capacity Task 3 (FACT 3) for surface traffic management.

Sustaining our Future

Our Goal

To develop and operate an aviation system that reduces aviation's environmental and energy impacts to a level that does not constrain growth and is a model for sustainability.

Outcomes

1 U.S. aviation sector is a model for sustainable growth.

2 Community noise concerns are not a significant constraint on growth.

3 Aviation emissions do not contribute to significant adverse health impacts.

4 Aviation's carbon footprint does not become a constraint to growth.

5 Aviation operations have no significant adverse effect on water and air quality.

6 Airports will be environmentally and economically sustainable.

Challenges

Aviation has made significant strides in the last few decades in reducing its environmental impacts. Despite this progress, a compelling need remains for management and reduction of environmental impacts. Aircraft noise can significantly impact people on or near airports and under flight paths. The impact of noise continues to be a challenge to aviation growth and operating flexibility. Without action, aircraft noise exposure is expected to increase as population and aviation demand continues to grow. A significant number of major U.S. airports are located in areas with substandard air quality. There is an increasing focus on climate change, and aviation's contribution to greenhouse gas emissions is projected to grow, spurring recommendations for national and international action. High fuel prices, energy supply, and security all contribute to rising energy issues. Finally, aviation activity adversely affects water quality with airport storm water, aircraft and pavement deicing, aircraft fueling and maintenance, and airport construction.

FAA's own facilities and infrastructure face significant challenges to meet goals in energy and environmental performance. Without the necessary investment and rationalization, it will prove difficult to achieve sustainability goals. In the general aviation world, the lack of a safe alternative to leaded aviation gas creates a significant long-term challenge to operations of a large segment of U.S. general aviation and impacts the industry's ability to meet broad environmental goals. In the commercial aviation world, solutions often involve trade-offs, as quieter and more fuel efficient airframes and engines may produce more air quality pollutants. Airport owners and operators have to find innovative ways to achieve cooperation among a broad range of stakeholders including airlines and other user groups, neighboring communities, contractors, concessionaires, and other state and local transportation agencies in order to reduce and minimize environmental impacts.

We will advance aviation in an environmentaly responsible and energy efficient manner.

Taking full advantage of NextGen capabilities will require airspace changes and environmental reviews that can be costly and controversial. Internationally, there is a wide diversity of views on the relative priority of and appropriate response to a number of environmental concerns that could make it difficult to reach a consensus on a path forward. Finally, creating solutions will require federal and private investment, both of which are far from certain given the budget pressures and economic uncertainties.

Strategies

- Improve scientific knowledge of environmental impacts and develop effective decision support tools.

- Accelerate NextGen technology and operational improvements to reduce noise, fuel burn, and emissions even with continued growth in system activity.

- Foster research and development to promote and accelerate advances in engine, airframe, and other appropriate technologies.

- Increase the development and use of sustainable alternative aviation fuels.

- Develop sustainable airport facilities, ground vehicles, and operational practices that reduce emissions, reduce energy consumption, eliminate water quality impacts, and achieve at least 50 percent reductions in un-recycled waste.

- Work with communities to eliminate or mitigate incompatible land use.

- Direct federal funds to mitigate the adverse impacts of aircraft noise in homes and schools near airports.

- Develop appropriate policy approaches and economic incentives to foster an integrated approach to planning, decision-making, regulatory compliance, and environmental cost-benefits of operating the NextGen system.

- Ensure aviation stakeholders address environmental sustainability in their planning and operations.

Performance Metrics (2018)

- The U.S. population exposed to significant aircraft noise around airports has been reduced to less than 300,000 persons.

- A replacement fuel for leaded aviation gasoline is available by 2018 that is usable by most general aviation aircraft.

- Improve NAS energy efficiency (fuel burned per miles flown) by at least 2 percent annually.

- Aviation emissions contribute 50 percent less to significant health impacts and are on a trajectory for carbon neutral growth using a 2005 baseline.

- One billion gallons of renewable jet fuel is used by aviation by 2018.

Improved Global Performance through Collaboration

Our Goal

Achieve enhanced safety, efficiency, and sustainability of aviation around the world. Provide leadership in collaborative standard setting and creation of a seamless global aviation system.

Outcomes

Reduce aviation accidents and fatalities worldwide. ①

Achieve seamless operations integrating advanced technologies and capabilities through harmonized air navigation approaches. ②

Reduce aviation's environmental footprint internationally. ③

Provide effective global air navigation capacity. ④

Challenges

Seamless global air transport across borders with consistent levels of safety, efficiency, and sustainability is the ultimate goal of international air transportation. However, each country and region has unique requirements and resource challenges that can often frustrate global airspace planning and development, safety collaboration, and sustainability efforts. To achieve global success, we will face significant challenges addressing competing priorities around the world.

In the short, medium, and long terms, the capacities of some States to address meaningfully safety, efficiency, and sustainability matters will vary based on competing domestic priorities. As a result, abilities to devote sufficient resources will vary, even

as air transport represents an important generator of economic activity. A central challenge, therefore, will be to identify means to assist international partners

We will work with ICAO and other international partners to improve global aviation safety and environmental performance around the world.

in meeting critical needs to build capabilities in order to participate in the seamless global system. In the long term, global demographic and economic developments point to increased air transport activity

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among several large emerging economies in Asia, the Middle East, and Latin America. While U.S. air transport activity will continue to grow, it will represent a smaller share of overall global activity due to growth in these regions.

Several countries in these regions will see their operations and manufacturing capabilities continue to develop in step with significant economic expansion, as well as their influence grow in regional and global venues, including ICAO. To maintain or heighten the role of the United States in the development of a high-performance global system over the long term, we must meet the challenge of investing in relationships with our emerging international partners now so as to have a strong foundation from which to act in the future.

Equally important will be the challenge of strengthening our bonds with well-established partners in Europe, North America, and the Pacific. Short-term competitive or policy differences – for example, over air traffic management harmonization or environmental measures – may sometimes distract from shared, long-range visions of a safe, efficient, and sustainable global aviation system. The challenge will be to reconcile those short-term differences and shared long-term visions while accommodating the increasing role of our fast-growing, emerging partners.

Strategies

- Enhance international cooperation and harmonization in legislation, regulatory requirements, policies, and procedures in civil aviation safety, air navigation, and environmental mitigation.

- Incorporate international considerations early in the FAA processes for the implementation of new technology and standards.

- Increase collaborative research, flight trials, and extended demonstrations that support improvements to safety, efficiency, and environmental performance.

- Secure sources of international funding to support regional aviation safety initiatives, aviation infrastructure upgrades, and development of sustainable alternative fuels.

- Continue to provide high-performance, effective safety regulation and air navigation services from which emerging aviation leaders from international partners around the world want to learn.

Performance Metrics (2018)

- World-wide fatal aviation accident rate declines 10 percent compared to 2010.

- 40 percent of all commercial aircraft from the top 25 aviation states are using fully interoperable NextGen technologies and capabilities by 2018.

- States representing 85 percent of international activity are taking actions to contribute to ICAO's 2 percent global annual fuel efficiency improvement goal by 2018.