

Federal Aviation Administration
Section 213 of the FAA Modernization and Reform Act of 2012 - P.L. 112-95
Report on Acceleration of NextGen Technologies

Section 213 of the FAA Modernization and Reform Act of 2012, entitled, “Acceleration of NextGen Technologies,” directs the FAA to publish a report about performance based operations and procedures at Operational Evolution Partnership (OEP) Airport and non-OEP Airports. Section 213(a)(1) calls for a report on the OEP Airports. The report will contain required navigation performance (RNP) and area navigation (RNAV) operations, including the procedures to be developed, certified and published, and air traffic operational changes, to maximize the fuel efficiency and airspace capacity of NextGen commercial operations at each of the 35 OEP airports and any medium or small hub airport located within the same metroplex area considered appropriate by the Administrator. Section 213(b)(1) calls for a report on non-OEP Airports. This report is similar to the one for the OEP airports, except that it comprises a list of RNP procedures at 35 non-OEP small, medium and large hub airports other than those covered by the first report. The reports have been combined here to streamline the presentation.

The following is to be taken into account in the reports:

1. Current and planned RNP/RNAV operations at OEP and RNP operations at FAA identified Non-OEP airports
2. Coordination and Implementation Activities
3. Implementation Plan, including (a) cost estimates for Performance Based Navigation (PBN) development, deployment, and maintenance, (b) baseline and performance metrics, (c) expedited environmental review procedures and processes, and (d) if applicable, mechanisms for coordination and communication with, and lifecycle management strategy for procedures to be developed by, third parties
4. Additional Procedures for identification, certification, and publication of instrument flight procedures in the future at Core and Non-Core Airports; and
5. Implementation Schedules

The reports are to be published after consultation with representatives of “appropriate Administration employee groups, airport operators, air carriers, general aviation representatives, aircraft and avionics manufacturers, and third parties that have received letters of qualification from the Administration to design and validate required navigation performance flights paths for public use.”

Before and since enactment of the FAA Modernization and Reform Act, the FAA has been actively collaborating with the parties listed in Section 213 about the acceleration of NextGen technologies. We consult with representatives of appropriate employee groups through dedicated representatives on airspace and PBN procedures. Each metroplex project team has a National Air Traffic Controllers Association (NATCA) co-lead and union officials in local facilities participate in non-metroplex teams during site work. Airport operators and general aviation industry groups are invited to industry meetings on each metroplex project during study and design phases and are invited to participate in design of PBN for areas outside of metroplexes. Metroplex project teams have at least

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two air carriers representing industry and non-metropolitan projects each have a lead carrier who represents air carriers on the workgroup.

On December 5, 2012, the FAA published Attachments A and B on its website: (http://www.faa.gov/air_traffic/flight_info/aeronav/procedures/application/). These documents are the implementation plans for performance-based navigation at OEP and non-OEP airports, respectively. Letters and/or emails were sent to stakeholders to inform them of the availability of this information on proposed procedures.

In addition, representatives of these stakeholders are an integral part of several working groups and initiatives designed to accelerate NextGen implementation. Airport industry groups, Airlines for America (A4A), and air carriers are members of the NextGen Advisory Committee (NAC) and the RTCA Airspace and Procedures Working Group. Aircraft and avionics manufacturers are also part of the NAC. Qualified third party vendors and the Aircraft Owners and Pilots Association (AOPA) and National Business Aviation Association (NBAA) belong to the RTCA Airspace and Procedures Working Group. Air carriers and aircraft and avionics manufacturers are part of the Performance-Based Operations Aviation Rulemaking Committee (PARC). As discussed in more detail below in the Background section, the FAA has made all PBN instrument flight procedures available on the Instrument Flight Procedures Information Gateway's public website. Existing and proposed procedures are identified and individuals can sign up for alerts about future procedures. On January 14, 2013, FAA sent letters to representatives of these groups summarizing the information included in this report.

After a brief overview and background, each type of information requested under section 213 is addressed, according to the order referenced in the provision, below.

Background- RNAV and RNP Operations in the National Airspace System (NAS)

The FAA classifies two types of PBN operations and procedures: RNAV and RNP. There are over 12,000 PBN routes and procedures in the NAS. PBN routes and procedures provide benefits for aircraft during all phases of flight. The PBN strategy is to transition the NAS to RNAV everywhere, and RNP where beneficial. RNAV routes and procedures provide benefits for the majority of users throughout the NAS to include the major air carriers, regional carriers, business aircraft, and general aviation aircraft. RNP provides benefits for high end air carrier aircraft at locations where the advanced capabilities of RNP are beneficial. For en route operations, the FAA is implementing high and low altitude RNAV routes. In the airport terminal and metropolitan areas, FAA is implementing RNAV Standard Instrument Departure (SID) and Standard Terminal Arrival (STAR) procedures. For approach to landing, RNP approach procedures include RNP Authorization Required (AR). Other RNAV approach procedures include Lateral Navigation (LNAV), Lateral Navigation with Vertical Navigation (LNAV/VNAV), Localizer Performance (LP), and Wide Area Augmentation System (WAAS) Localizer Performance with Vertical Guidance (LPV) approach procedures. The current FAA inventory includes: 319 RNAV routes, including 94 high altitude routes (Q-routes), 77

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low altitude routes (T-routes), and two helicopter routes; 568 RNAV SID/STAR; 347 RNP AR; 5,498 LNAV, 2,823 LNAV/VNAV, 344 LP, and 2,940 LPV procedures. To improve the flow of information about existing and planned PBN procedures to all affected and interested parties and individuals, the FAA has launched the new Internet based portal, Instrument Flight Procedures Information Gateway (Gateway) (http://www.faa.gov/air_traffic/flight_info/aeronav/procedures/application/).

This online tool provides public access to U.S. public Instrument Flight Procedures (IFP) Charts, Inventory, Production Schedule, IFP Coordination, Transmittal Letters, and Navigation Database Review at a single source. The Gateway permits users to also request notification of any and all updates such as planned new procedures and have those updates automatically e-mailed. The IFP Coordination provides customers and stakeholders with prior notification of planned IFPs, which allows for collaboration, review and comment in advance of the publication of procedures.

1. Current and planned RNAV/RNP operations at OEP airports and RNP operations at FAA identified Non-OEP airports

In March 2011, the FAA replaced the OEP with an initiative to incorporate NextGen technology into the NAS based on the Core Airports. The Core Airports are the 29 large hub airports and Memphis International Airport. The FAA interprets the phrase “35 OEP airports” in Section 213 to refer to the 30 Core Airports.

Attachment A to this report lists the 30 Core Airports, and the medium and small hub airports. The FAA is in the process of determining if there are additional medium or small hub airports within the same metroplex areas considered appropriate for inclusion under section 213(a)(1)(A). The list will be adjusted as considered appropriate by the Administrator. Airports that had been identified as OEP-35 but are not Core airports are listed on Attachment A for informational purposes.

Attachment B lists the 35 non-Core airports the FAA has identified for purposes of Section 213(b)(1)(A). These attachments describe the current and planned RNP AR operations, RNAV SID, RNAV STAR, and other types of RNAV approach procedures at the Core Airports, and RNAV/RNP approach procedures at the Non-Core airports. The new RNAV SIDs, RNAV STARs, and RNP ARs included in the implementation plans do not overlay existing procedures. These procedures, partially or completely, differ laterally and/or vertically from the existing vector patterns.

2. Coordination and Implementation Activities

A. Collaborative Development of PBN Procedures

All PBN projects in the NAS, regardless of scope, are user driven. Projects can be initiated by the FAA under national priorities or at the request of aviation community groups, such as lead airline operators, airport authorities, air traffic control facilities,

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employee groups, or other industry groups. Once a PBN project is initiated by a user, the FAA uses a five-phase collaborative implementation process to certify, publish, and implement the procedure. This includes: (1) project scoping and preliminary activities, (2) design and development, (3) operational readiness, (4) implementation, and (5) post-implementation monitoring. The PBN process involves negotiation and collaboration with representatives of the various FAA organizations, airport authorities, and aviation industry. In order to maximize benefits to all parties of interest, a procedures request evaluation process is being developed that will recommend procedure design selection that results in the best overall mix of procedures providing the greatest operational benefit at a specific airport.

B. PBN Development and Deployment Management within FAA

The design, development, testing, publication, execution at air traffic facilities (implementation), and maintenance of PBN by the FAA require a comprehensive and coordinated effort involving several organizations. The PBN Policy and Support Group (PBN Group) is responsible for PBN policies, R&D, strategy, and providing oversight for the design, development, and implementation of RNP AR and RNAV SID/STAR procedures. The PBN Group has eight FAA technical subject matter experts who manage the extensive collaborations and communications required between stakeholders. The PBN Group's contract support includes more than 30 specialists working closely with the FAA's HQ, Service Area, and Air Traffic facility PBN leads to facilitate safe and environmentally sustainable designs of RNP AR and RNAV SID/STAR procedures. Another office, the Optimization of Airspace and Procedures in the Metroplex (OAPM), was formed with the mission to expedite PBN implementation at specific metroplex areas. OAPM conducts studies of prospective airspace improvements in specified metroplexes, designs changes to airspace and procedures, as well as specifying new PBN routes, and then conducts implementation. The OAPM office has seven permanent employees and 55 contractors (contract support fluctuates with design process needs) assigned to execute their work plan. The specific number of RNAV routes and procedures is determined during the study and design phase for each metroplex area.

The PBN Group supports all OAPM projects and coordinates with Aeronautical Navigation Products, Flight Standards, Flight Inspection Services, Aeronautical Information Management, and the Service Areas for implementation; and life-cycle management of the PBN routes and procedures.

Aeronautical Navigation Products, or Aero Nav Products, is responsible for the development and maintenance of all PBN procedures in the NAS. AeroNav Products has approximately 400 employees working at three locations throughout the NAS. AeroNav Products develops all FAA ground-based and PBN procedures. It also provides all of the FAA's aeronautical charting services. Once AeroNav Products develops procedures, they are then flight inspected by the Flight Inspection Services organization. Other offices coordinate with AeroNav Products and Flight Inspection Services to develop, maintain, and flight inspect RNAV and RNP routes and procedures.

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The Navigation Services group coordinates with AeroNav Products and Flight Inspection Services to develop and flight inspect all of the LNAV, LNAV/VNAV, LP, and LPV procedures for all qualifying runways in the NAS as part of the transition from conventional navigation routes and procedures to PBN as part of an effort to right size the navigation infrastructure in the NAS. Navigation Services has one permanent employee and four contractors assigned to RNAV procedure development.

FAA has also established a Portfolio Management Team to facilitate more effective integration of PBN-associated activities across the agency, as discussed in more detail at the conclusion of this report.

3. Implementation Plan

A. Cost Estimates for PBN Development, Deployment, and Maintenance

Costs for RNP AR development at the 30 Core and 35 Non-Core airports

The FAA developed cost estimates for the development of new PBN RNP AR, RNAV SID and RNAV STAR procedures and has used these as a guide for estimating the annual costs of development and deployment of these procedures at the 30 Core and 35 Non-Core airports. [These estimates do not include WAAS or other RNAV approach procedures.] Current estimates to meet the deployment goals at the 30 Core airports are \$9.5 million in 2013 and \$7 million in 2014. Estimates for Non-Core costs, currently only available for 2013, are \$2.5 million. These costs include: (1) contract labor and travel for design work, (2) development and implementation costs for designed procedures, (3) flight check costs, and (4) aeronautical information management costs.

These estimates do not include the contracts awarded to the third parties for a research and development project in Seattle and ten RNP AR approaches at five non-Core airports.

i. Annual System-Wide PBN Maintenance Costs

However, while these are the costs of the initial development and publication of the PBN procedures, the FAA estimates that in addition to these initial costs the maintenance of its PBN inventory (SIDs/STARs/RNP ARs/RNAV (as mentioned in Section 1)) costs \$2.5 to \$3 million each year.

ii. Additional Costs

In addition to these costs, the FAA incurs other costs for the PBN development in the NAS. These costs include: research & development, criteria development, risk analysis, environmental studies, simulations, operations approvals, policy and guidance materials, and labor and travel time incurred by the FAA (and industry) during the design phase.

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There are also supporting costs for the maintenance of software and hardware used in support of these activities.

iii. Costs for Other RNAV Operations Development System-Wide

The Navigation Services Group provides resources to the Aeronautical Navigation Products Directorate and Flight Inspection Services Directorate for development of RNAV approach procedures as part of the plan to transition the NAS from conventional routes and procedures to PBN routes and procedures. The plan requires development of 500 new RNAV (GPS - WAAS) procedures per year through 2016 or until approximately 5,300 qualifying runways have an RNAV approach procedure. Development of RNAV procedures also requires an obstacle survey for each runway before the new RNAV procedure can be developed. The FAA estimates that the development of RNAV procedures will cost \$10 million each year while obstacle surveys will cost \$4 million each year.

B. Baseline and Performance Metrics

The need for metrics to monitor and manage the implementation of PBN, as well as metrics to monitor the use of PBN in operations is identified in P.L. 112-95. The FAA is addressing both of these issues. Metrics to monitor PBN development to assess and analyze the use of PBN in the NAS are an important part of the FAA's management strategy.

The PBN Dashboard, developed and maintained by MITRE, provides advanced reporting capabilities for the analysis and operational assessment of PBN. This analytical suite is being used to support the development of new PBN and integrated airspace design. The Dashboard also provides critical metrics on the actual use of PBN operations. This information includes use of PBN operations by aircraft categories, types, and carriers. The Dashboard tracks aircraft equipage levels as well as monitors fuel burn data and flow analysis. This information will be accessible via a website and will provide an extensive range of tools, graphs, charts, and diagrams for analysis. The PBN Dashboard data will help define the baseline metrics such as procedure utilization rate, fuel burn and carbon dioxide emissions, prior to implementation of new PBN procedures. Post implementation data monitoring will provide the performance metrics and usage information. It is expected that the performance metrics will aid in optimization of procedures as needed.

At present, the information above is maintained by MITRE for any airport and can be requested internally by the FAA. Since October 2012, the information is being accessed and analyzed using select FAA computers for beta testing and refinement prior to full deployment.

A new PBN Tracking Tool has been deployed to manage and track PBN projects' lifecycles including schedules and resources. This tool will: keep current and historical

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project information in a centralized repository; provide a knowledge repository for lessons learned; aid in standardizing the process for issue resolution; and ensure compliance with Safety Management System (SMS) process.

C. Expediting Environmental Reviews

Environmental reviews are conducted during phases 2 and 3 of the five-phase PBN implementation process. FAA's *NextGen National Environmental Policy Act Plan* lays out planned improvements in the way FAA implements NEPA, consistent with federal law and regulations issued by the President's Council on Environmental Quality (CEQ) and implementing guidance. The goal of improvements described in the plan is to ensure timely, effective, and efficient environmental reviews of proposed NextGen improvements. This plan includes a number of improvements to expedite environmental reviews of PBN procedures, in particular new analytical tools, guidance, and best practices.

The FAA has developed several new tools that help expedite the environmental review process. These include the Integrated Noise Modeling (INM)- Terminal Area Route Generation, Evaluation, and Traffic Simulation (TARGETS) plug-in tool to screen for noise consequences of new PBN procedures. Since May 2010, the noise screen reports have been used at more than 35 airports to expedite the environmental review and decision-making process. In addition, FAA developed an expanded TARGETS plug-in that incorporates the Aviation Environmental Design Tool (AEDT), and approved its use for environmental screening. This not only enhances the capabilities to compute noise consequences, but also includes the ability to compute fuel burn and emissions consequences to enhance the screening capability. This more robust capability will further enable environmental consequences to be considered early in the analysis and decision making process.

In March 2012, the FAA released AEDT version 2a to be used to determine the environmental consequences of air traffic airspace and procedure actions. AEDT was also identified as the tool to be used for NEPA analyses for such actions within FAA. AEDT is an environmental analysis tool that dynamically models aircraft performance in space and time to better analyze the consequence of proposed actions on fuel burn, emissions, and noise. When a more detailed analysis beyond screening is needed, AEDT can be used to evaluate PBN. Because this analysis of environmental consequences is performed early in the review process, it helps integrate environmental considerations into decision making at an early stage, and help environmental review timelines stay within the time required for the overall FAA decision making process. Finally, additional environmental screening tools based on AEDT methodologies are being developed to expedite data analysis.

In addition to these analytical tools, FAA provided guidance to clarify categorical exclusion determinations applicable to certain instrument flight procedures and encourage and facilitate use of concise environmental reviews. These guidance

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documents are available at:

http://www.faa.gov/about/office_org/headquarters_offices/apl/enviro_n_policy_guidance/guidance/. Additional guidance and processes to expedite review, specifically for PBN procedures are under development. The FAA also released guidance on the use of the categorical exclusion created by Section 213(c)(1).

Finally, FAA is using best practices to expedite environmental reviews of airspace and aircraft procedures projects that are part of the OAPM program. Best practices include: using environmentally-educated study and design teams to enable smart choices and improve the environmental management of the OAPM process; initiating the environmental review process concurrent with the aeronautical procedure design phase rather than sequentially; using focused and concise environmental assessments; and using focused outreach to target airports, communities, and other interested parties to facilitate efficient management of environmental concerns. Tightly integrating NEPA review into FAA's internal process is intended to expedite the review time for OAPM projects.

D. Third Party Development of PBN Procedures

The FAA has qualified two vendors, Naverus and Jeppesen, to perform public RNP instrument flight procedure development. Procedures are developed in accordance with FAA Advisory Circular 90-110, "Authorization Guidance for Development of Required Navigation Performance Procedures with Authorization Required by Third Party Instrument Flight Procedure Service Providers." The 2012 appropriation included a \$3 million earmark for third party procedure development and delivery of two public RNP AR procedures at five FAA-selected mid-size airports (10 total procedures). The vendor will design, deploy, and maintain public use RNP AR approaches where aircraft flying RNP arrivals would achieve measurable benefit. Additionally, the vendor must assist the FAA in complying with environmental requirements, including preparation of environmental documents such as environmental assessments.

The FAA solicited input from prospective proponents. However, to be considered, a nominated airport had to be a non-OAPM facility, mid-sized, have adequate runways, completed surveys, and no environmental issues that might hinder project development.

The selected airports were: the Ted Stevens Anchorage International Airport, Anchorage, Alaska; the James M. Cox Dayton International Airport, Dayton, Ohio; the Charles B. Wheeler Downtown Airport, Kansas City, Missouri; the General Mitchell International Airport, Milwaukee, Wisconsin; and the Syracuse Hancock International Airport, Syracuse, New York.

In May 2012, the FAA awarded a contract to the ITT Excelis and GE Aviation – Naverus team to demonstrate the third party procedure development. In October 2011, the FAA awarded an R&D contract to a Boeing-Jeppesen team under the Greener Skies Initiative. Higher precision RNP procedures will be evaluated under this contract.

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The NextGen Office provides project management for the Third Party Development initiative. The Air Traffic Organization's Mission Support Services PBN Policy and Support Group (the organization charged with managing PBN development system-wide) provides initial site coordination, integration expertise, and procedure publication support. Flight Standards ensures advisory circular compliance and oversight.

4. Additional Procedures for 30 Core and 35 non-Core Airports

Section 213(a)(1)(D) and 213(b)(1)(D) calls for a process for identifying and implementing new procedure requirements. Currently, besides the procedures included in the report, the FAA and industry have not determined additional procedures. For Core airports, additional procedures will largely fall into the OAPM scope. Some of the OAPM projects have already decided on the number of procedures that will be published and these procedures have been included in the plan. Other OAPM projects are either still in the process of determining the procedures or projects have not commenced yet. Collaborative OAPM teams will determine the types and number of procedures, which will then be captured in the PBN implementation plan. Any other PBN procedures at non-OAPM, Core airports, will also be determined collaboratively with the industry. For non-Core airports, RNP AR procedures have primarily been driven by industry requests. In future, in addition to the third party vendor agreements, procedure requests will be validated by the FAA and industry based on measurable benefits and overall NAS impacts.

The FAA will use the Instrument Flight Procedures Information Gateway to notify interested parties and individuals about proposed procedures identified in the future.

5. Implementation Schedules

Under Section 213, the following implementation targets were established:

Core Airports

30% by August 2013
60% by February 2015
100% by June 30, 2015.

Non-Core Airports

25% by August 2013
50% by February 2015
100% by June 30, 2016

For 30 Core airports, more than 60% of procedures have already been implemented. Out of all the RNAV procedures implemented, 16% are RNP ARs, 46% are RNAV SIDs/STARs and 38% are other RNAV procedures (WAAS LPs/LPVs, LNAV/VNAVs).

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For the 35 non-Core airports listed in Appendix B, 80% of RNP procedures were completed by the end of 2012. Out of all the RNP approach procedures published, 30% are RNP ARs and 70% are other RNAV approaches.

30 Core Airports	Total by CY12	CY13	CY14/15	Additional CY15
RNP AR RNAV SID RNAV STAR	372	168	125	TBD
Other RNAV approach procedures	211	3	4	TBD

35 Non-Core Airports	Total by CY12	CY13	CY14	CY15	CY16
RNP AR	54	37	10	TBD	TBD
Other RNAV approach procedures	113	4	TBD	TBD	TBD

Note 1: TBD values will be developed using the collaborative process described in paragraph 2A. Scope of TBD values is described in section 4.

Note 2: Other RNAV approach procedures include RNAV (GPS) with LNAV, LNAV/VNAV, and WAAS LPV/LP procedures.

As noted above, the procedures are separately identified and listed in Attachment A.

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Conclusion: PBN and the Future

A significant portion of NextGen benefits depends on transitioning the NAS to PBN. Development of new PBN routes and procedures is essential to realizing the full potential of NextGen. The FAA, by adopting PBN, has improved airspace and procedures design which has led to improvements in system capacity and efficiency. It has done this by leveraging existing and emerging cockpit capabilities and by working in close collaboration with key stakeholders.

As part of the NextGen program, a PBN portfolio has been established to facilitate more effective integration of PBN-related activities across the agency. The Portfolio Management Team (PfMT) includes members from multiple organizations from different lines of business (LOB) within FAA that contribute to the overall transition of the NAS to PBN. NextGen PBN Operational Improvements are planned and tracked by the PfMT to ensure activities are effectively coordinated. In addition, a PBN Capture Team has been established to provide a more focused forum to define all activities, work assignments, dependencies, and assumptions needed to complete the following objectives: (1) assess the means available for users to request new PBN procedures, (2) assess the processes used to select and prioritize procedures for implementation to ensure the right procedures are delivered where needed, (3) define measures for verifying benefits for PBN procedures, and (4) describe the NextGen operational service environment so that operational requirements and an implementation strategy can be developed.

Attachment A - Performance Based Navigation (PBN) Implementation Plan for the 35 Operational Evolution Partnership (OEP)/30 Core Airports

Attachment B - Performance Based Navigation (PBN) Implementation Plan for Required Navigation Performance (RNP) Authorization Required (AR) Procedures at 35 Non-Operational Evolution Partnership (OEP) Airports/35 Non-Core Airports

Attachment C – Acronyms and Definitions

PBN Implementation Plan for the 35 OEP/Core 30* Airports

OEP Airports	Core 30	Metroplex	Hub	Current Procedures				Planned New Procedures									
				Published as of Enactment (2012-02-08)		Change Since Enactment (2012-02-08 to 2012-09-20)		9/21/2012 to 2012-12-31			2013			2014/2015			Total Planned Through 2015
											RNAV SID or STAR	RNP AR	RNAV SID	RNAV STAR	RNP AR	RNAV SID	
ATL	Y	ATL	L	24	10							6		26	22		54
ORD	Y	ORD	L	5							5						5
DFW	Y	DFW	L	16	3												
DEN	Y		L						16	12	15						43
LAX	Y	LAX	L	6	7	4					1	1		2	1		5
CLT	Y	CLT	L	11	8							1		26	28		55
IAH	Y	HOU	L	13			2				12	13					25
PHL	Y		L	8	2												
PHX	Y	PHX	L	10	6						5						5
LAS	Y		L	10							9	12	6				27
DTW	Y	DTW	L														
JFK	Y		L	3	5												
MSP	Y		L	2	1	2					11	12	5				28
SFO	Y	SFO	L	1	2									1	2		3
EWB	Y		L	3	4									3			3
BOS	Y	BOS	L	12													
MIA	Y	MIA	L	11	5	4						1	3				4
IAD	Y	DCA	L	6	4	3						5		4	1		10
LGA	Y		L	4	2	1											
SEA	Y		L	4			3						8				8
MEM	Y	MEM	M	4	5	23					2						2
SLC	Y		L	12									3				3
MCO	Y	MIA	L	11	8												
DCA	Y	DCA	L	7	2	3						3		9			12
BWI	Y	DCA	L	2	4						2	4					6
MDW	Y	ORD	L	1	1						5	2	4				11
FLL	Y	MIA	L	10	3							1					1
PDX	N		M	4			6					3					3
CLE	N	DTW	M	1													
STL	N		M			13	6		4				2				6
SAN	Y	LAX	L	3									2				2
TPA	Y	MIA	L	9	1							4	3				7
CVG	N		M	14	8												
PIT	N		M	4	6						4						4
HNL	Y		L	5	3						2						2
				336		53	17	32			177			125			334
Total New Procedures: 334																	

**In March 2011, the FAA replaced the OEP with an initiative to incorporate NextGen technology into the National Airspace System (NAS) based on the Core Airports. The Core Airports are the 29 large hub airports and Memphis International Airport.*

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PBN Implementation Plan for RNP AR Procedures at 35 Non-OEP/Non-Core* Airports

Non-OEP Airport	In Metroplex	Hub	Airport Name	Current and Planned RNP AR Approach Procedures					
				Published as of Enactment (2012-02-08)	Change Since Enactment (2012-02-08 to 2012-06-28)	2012-07-26 to 2012-12-31	2013	2014	Total Planned By 2015
1V6			FREMONT COUNTY				2		2
ABQ		M	ALBUQUERQUE INTL SUNPORT		4		2		2
AFA		S	FAIRBANKS		2				
APF			NAPLES MUNICIPAL				2		2
AUS	HOU	M	AUSTIN-BERGSTROM						
BCT			BOCA RATON				1		1
BED			LAURENCE G HANSCOM FLD		2				
BHM	ATL	S	BIRMINGHAM-SHUTTLESWORTH	2					
BIL		S	BILLINGS LOGAN INTL				2		2
BLI			BELLINGHAM INTL		2				
CHS	CLT	S	CHARLESTON AFB/INTL		4				
CRW			YEAGER				2		2
DAL	DFW	M	DALLAS LOVE FIELD						
ECP			NORTHWEST FLORIDA BEACHES				2		2
ELP		S	EL PASO INTL		3				
HND			HENDERSON EXECUTIVE				1		1
HRL		S	VALLEY INTL		4				
HTO			EAST HAMPTON				1		1
IND		M	INDIANAPOLIS INTL	6					
ISP		S	LONG ISLAND MAC ARTHUR				4		4
IWA			PHOENIX-MESA GATEWAY		1		1		1
JAX	MIA	M	JACKSONVILLE INTL				4		4
MCI		M	KANSAS CITY INTL	6					
MHT		S	MANCHESTER	1			2		2
NCA			NEW RIVER						
OMA		M	EPPLEY AIRFIELD		6				
PUW			PULLMAN/MOSCOW RGNL				3		3
PVD		M	THEODORE FRANCIS GREEN		1				
RIC		S	RICHMOND INTL				4		4
SDF		M	LOUISVILLE INTL-STANDIFORD	1	3				
SMF	SFO	M	SACRAMENTO INTL			4			4
SMO	LAX		SANTA MONICA MUNI				2		2
TEX			TELLURIDE RGNL				1		1
TTN			TRENTON MERCER		1	1			1
VNY	LAX		VAN NUYS				1		1
				16	33	5	37	0	42
						Total New Procedures: 42			

**In March 2011, the FAA replaced the OEP with an initiative to incorporate NextGen technology into the National Airspace System (NAS) based on the Core Airports. The Core Airports are the 29 large hub airports and Memphis International Airport.*

October 11, 2012

PBN Implementation Plan for the 35 OEP/Core 30* Airports

OEP Airports	Core 30	Metroplex	Hub	Current Procedures				Planned New Procedures									
				Published as of Enactment (2012-02-08)		Change Since Enactment (2012-02-08 to 2012-09-20)		9/21/2012 to 2012-12-31			2013			2014/2015			Total Planned Through 2015
											RNAV SID or STAR	RNP AR	RNAV SID	RNAV STAR	RNP AR	RNAV SID	
ATL	Y	ATL	L	24	10							6		26	22		54
ORD	Y	ORD	L	5							5						5
DFW	Y	DFW	L	16	3												
DEN	Y		L						16	12	15						43
LAX	Y	LAX	L	6	7	4					1	1		2	1		5
CLT	Y	CLT	L	11	8							1		26	28		55
IAH	Y	HOU	L	13			2				12	13					25
PHL	Y		L	8	2												
PHX	Y	PHX	L	10	6						5						5
LAS	Y		L	10							9	12	6				27
DTW	Y	DTW	L														
JFK	Y		L	3	5												
MSP	Y		L	2	1	2					11	12	5				28
SFO	Y	SFO	L	1	2									1	2		3
EWB	Y		L	3	4									3			3
BOS	Y	BOS	L	12													
MIA	Y	MIA	L	11	5	4						1	3				4
IAD	Y	DCA	L	6	4	3						5		4	1		10
LGA	Y		L	4	2	1											
SEA	Y		L	4			3						8				8
MEM	Y	MEM	M	4	5	23					2						2
SLC	Y		L	12									3				3
MCO	Y	MIA	L	11	8												
DCA	Y	DCA	L	7	2	3						3		9			12
BWI	Y	DCA	L	2	4						2	4					6
MDW	Y	ORD	L	1	1						5	2	4				11
FLL	Y	MIA	L	10	3							1					1
PDX	N		M	4			6					3					3
CLE	N	DTW	M	1													
STL	N		M			13	6		4				2				6
SAN	Y	LAX	L	3									2				2
TPA	Y	MIA	L	9	1							4	3				7
CVG	N		M	14	8												
PIT	N		M	4	6						4						4
HNL	Y		L	5	3						2						2
				336		53	17	32			177			125			334
Total New Procedures: 334																	

**In March 2011, the FAA replaced the OEP with an initiative to incorporate NextGen technology into the National Airspace System (NAS) based on the Core Airports. The Core Airports are the 29 large hub airports and Memphis International Airport.*

October 11, 2012