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CAPACITY & EFFICIENCY

# NAM/CAR Regional Performance-based Air Navigation Implementation Plan (RPBANIP)

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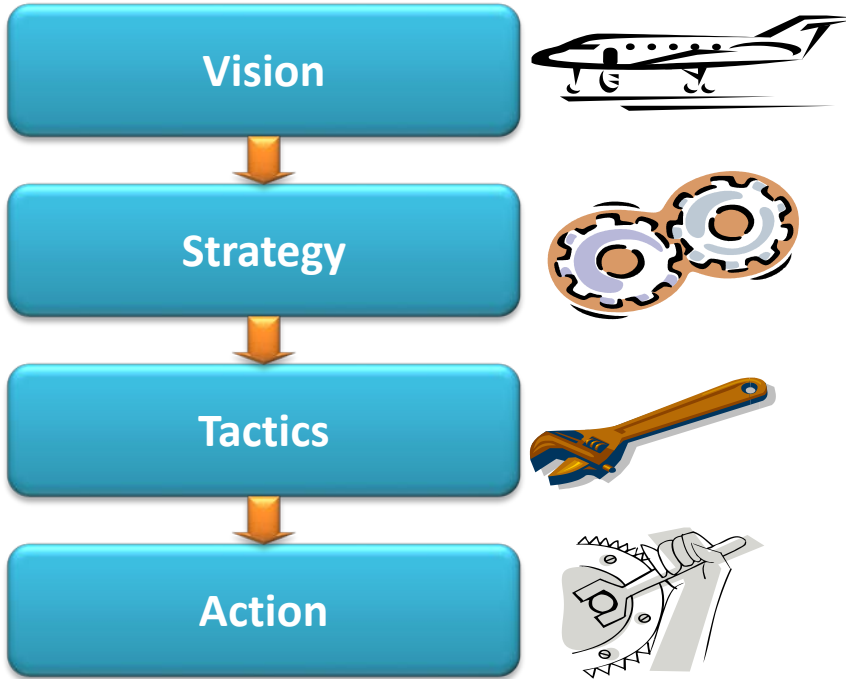
# Outline

- ✈ NAM/CAR Regional Performance-based Air Navigation Implementation Plan (RPBANIP)
- ✈ Regional Performance Objectives- Our Air Navigation priorities
- ✈ ASBU adopted modules
- ✈ Follow-up to mandatory requirements and operational improvements



# **NAM/CAR Regional Performance-based Air Navigation Implementation Plan (RPBANIP)?**





The concepts to implement the safety and capacity/efficiency strategic objectives (Global ATM Operational Concept)

Global Air Navigation Plan

Global Aviation Safety Plan

Global Performance ASBU approach

Global Safety Initiatives (GSI)

Global and regional work plans (eANP) and action plans (States)

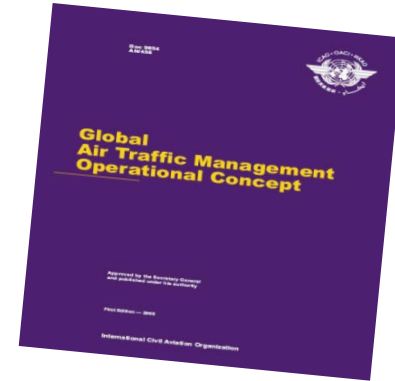
RPBANIP



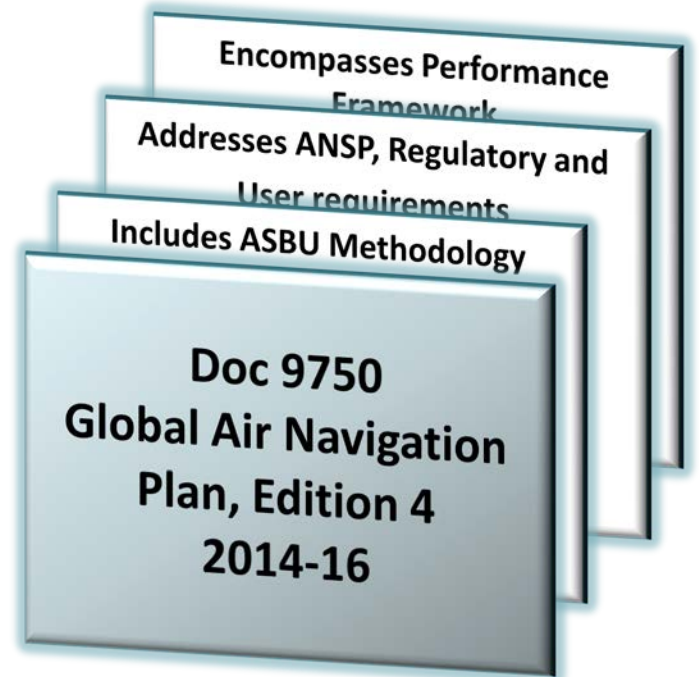
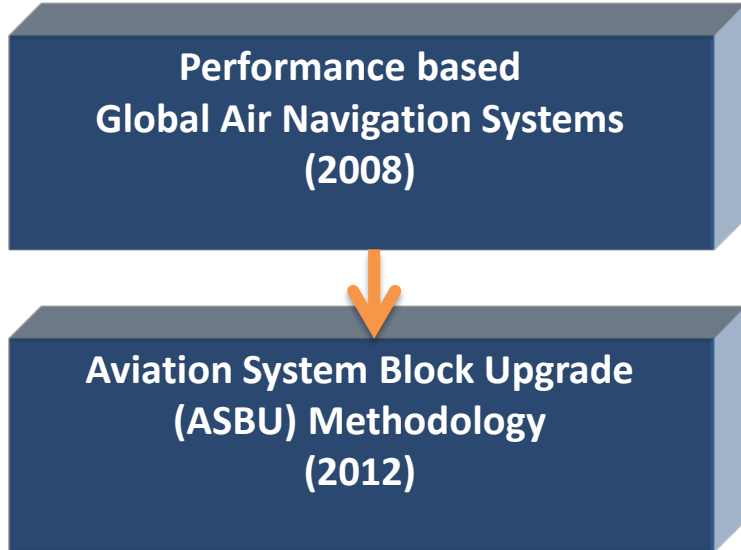
## Air Navigation Implementation Overview

### Global ATM Operational Concept

- ✈ The Global Air Traffic Management System Operational Concept; Doc 9854
  - ✈ describes how an integrated global air navigation system should operate
  - ✈ describes what is envisaged on the basis of services
  - ✈ describes how the services form an integrated system
  - ✈ utilizes an information rich environment, that solves most problems strategically, through a collaborative process
  - ✈ provides States and industry with clearer objectives for the design and implementation of ATM and supporting CNS systems
- ✈ ATM user expectations are drivers for change, requiring:
  - ✈ Safety case
  - ✈ Business case



**Technical Enablers**  
**Operational Enablers procedures**  
**Socio-economic Enablers**





## **NAM/CAR Regional Performance-based Air Navigation Implementation Plan (RPBANIP)?**

- Performance-based Plan and ASBU oriented plan
- Official Plan that contains all Air Navigation Areas of implementation: AIM, AGA, ATM, CNS, MET, SAR
- Encompasses our mandatory and optional Air Navigation requirements
- High Level Regional (NAM/CAR) Action Plan for implementing Air Navigation matters
- Live document – to be reviewed and updated every 3 years



## **NAM/CAR Regional Performance-based Air Navigation Implementation Plan (RPBANIP)?**

- Approved by the North America, Central America and Caribbean Directors of Civil Aviation (NACC/DCAs)
- Guidance and reference for implementation: NACC/WG, ANI/WG, ANSPs and other regional implementation groups and States (National Plans)
- First edition in 2008: Performance Approach
- Second edition in 2011: RPO updates
- Third edition in 2014: ASBU methodology compliant
- Main source for new Volume III CAR/SAM eANP



**NAM/CAR Regional  
Performance-Based Air  
Navigation  
Implementation Plan  
(RPBANIP)**

v3.1 — April 2014  
International Civil Aviation Organization



**Table of Contents**

<b>Contents</b>		<b>Page</b>
<b>Foreword</b>	.....	v
<b>Chapter 1</b>	Growth and Distribution of Air Traffic in the NAM/CAR Regions.....	1-1
<b>Chapter 2</b>	Regional Performance Objectives (RPOs) .....	2-1
<b>Chapter 3</b>	Aviation System Block Upgrade (ASBU) Air Navigation Reporting Forms (ANRFs) .....	3-1
<b>Appendix A</b>	Aviation System Block Upgrades.....	A-1
<b>Appendix B</b>	Categorization of ASBU Block 0 Modules for the NAM/CAR Regions .....	B-1
<b>Appendix C</b>	Terms and Definitions .....	C-1



# Regional Performance Objectives (RPO) Our Air Navigation priorities



**NAM/CAR Regional  
Performance-Based Air  
Navigation  
Implementation Plan  
(RPBANIP)**

RPBANIP © v3.1 — 2014



the NAM/CAR regional priorities /  
Regional Performance Objectives  
(RPO)

2013 to 2018.

Collaborative Decision-  
Making (CDM)  
processes



RPO should address requirements on  
the basis of assessments and studies



## Regional Performance Objectives (RPO) Our Air Navigation priorities

high-level tasks, establishing the expected operational benefits and the metrics for progress measurements, benefits and achievements

Further detailed actions plans for the RPOs shall be developed by the regional implementation groups as needed group of common benefits for all stakeholders that can be achieved through the implementation strategies.





# Regional Performance Objectives- Our Air Navigation priorities

## Regional Performance Objectives (RPO) Our Air Navigation priorities

1. IMPLEMENTATION OF PERFORMANCE BASED NAVIGATION (PBN)				
Benefits				
Environment	• Reductions in fuel consumption			
Efficiency	• Ability of aircraft to conduct flight more closely to preferred trajectories • Increase in airspace capacity • Facilitate the utilization of advanced technologies (e.g., FMS based arrivals) and ATC decision support tools (e.g., metering and sequencing)			
Strategy				
ATM Component	TASK DESCRIPTION	START-END	RESPONSIBLE	STATUS
AOM	a) Implement Collaborative Decision-Making (CDM) process in coordination with stakeholders	2013-2016	States, Territories, Int. Orgs	Valid
	b) Implement PBN airspace concept for oceanic, continental and terminal areas in accordance with the ICAO PBN Manual	2013-2016	States, Territories, Int. Orgs	Valid
	c) Update Letters of Agreement between ATC units	2013-2016	States, Territories, Int. Orgs	Valid
	d) Publish regulations and procedures for PBN operational approval	2013-2016	States, Territories, Int. Orgs	Valid
	e) Evaluate and implement PBN requirements for ATC automated systems, as required	2013-2016	States, Territories, Int. Org	Valid
	f) Analyze and enhance air communication, navigation (ground nav aids GNSS) and surveillance infrastructure in accordance with PBN requirements	2013-2018	States, Territories, Int. Orgs	Valid
	g) Develop and implement PBN training programme for pilots, ATCOs, operators and regulators, as well as implementation of GNSS technologies	2013-2018	States, Territories, Int. Orgs	Valid
	h) Optimize the ATS route structure through implementation of RNAV routes between major city pairs with navigation specification RNAV-5 /2 for en-route operations	2013-2016	States, Territories, Int. Orgs	Valid
	i) Implement CDOs/CCOs for SIDs/STARs in terminal areas based on RNAV 1-2 and RNP 1-2 navigation specification, as required	2013-2016	States, Territories, Int. Org	Valid
	j) Design and implement PBN APV in accordance with Assembly Resolution A37-11	2013-2016	States, Territories, Int. Orgs	Valid
	k) Conduct PBN safety assessment based ATC simulations (fast time and/or real time), live trials, etc., as required	2013-2016	States, Territories, Int. Orgs	Valid
	l) Develop performance measurement programme	2013-2016	States, Territories, Int. Orgs	Valid
	m) Develop post-implementation PBN Safety Assessment Programme	2013-2016	States, Territories, Int. Orgs	Valid
	n) Monitor implementation progress	2013-2018	States, Territories, Int. Orgs	Valid
GPIs	GPI/5: Performance-Based Navigation; GPI/7: Dynamic And Flexible ATS Route Management; GPI/8: Collaborative Airspace Design And Management; GPI/10: Terminal Area Design and Management; GPI/11: RNP and RNAV SIDs and STARs; and GPI/12: FMS-Based Arrival Procedures			

1. IMPLEMENTATION OF PERFORMANCE BASED NAVIGATION (PBN)

2. IMPLEMENTATION OF FLEXIBLE USE AIRSPACE (FUA)

3. IMPROVE DEMAND AND CAPACITY BALANCING (DCB)

4. IMPROVE SITUATIONAL AWARENESS

5. ENHANCE CAPACITY AND EFFICIENCY OF AERODROME OPERATIONS IN THE CAR REGION



## Regional Performance Objectives (RPO) Our Air Navigation priorities

6. OPTIMIZATION AND MODERNIZATION OF **COMMUNICATION** INFRASTRUCTURE

7. IMPLEMENTATION OF AERONAUTICAL INFORMATION MANAGEMENT (**AIM**)

8. IMPROVE AVAILABILITY OF **METEOROLOGICAL** INFORMATION

9. IMPROVE SEARCH AND RESCUE (**SAR**) SERVICES

9. IMPROVE SEARCH AND RESCUE (SAR) SERVICES				
Benefits				
Efficiency		<ul style="list-style-type: none"> <li>Enhanced traffic surveillance</li> <li>Enhanced collaboration among stakeholders</li> </ul>		
Safety		<ul style="list-style-type: none"> <li>Improved operational efficiency</li> <li>Improved safety management</li> </ul>		
Strategy				
ATM Component	TASK DESCRIPTION	START-END	RESPONSIBLE	STATUS
SDM	a) Conduct comprehensive analysis of State SAR requirements based on risk assessment and quality assurance principles	2013- 2016	States, Territories, Int. Orgs, ICAO	Valid
	b) Foster the harmonization of policies, regulations, practices, and procedures of the aeronautical/maritime SAR services in accordance with ICAO and IMO provisions	2013- 2016	States, Territories, Int. Orgs, ICAO	Valid
	c) Develop and update SAR agreements between Rescue Coordination Centres (RCCs) of adjacent States and SAR service international agencies, as required	2013- 2016	States, Territories, Int. Orgs	Valid
	d) Foster the establishment of joint aeronautical/maritime SAR Committees, including the integration of voluntary SAR organizations as well as the development of agreements between all stakeholders of the national SAR service	2013- 2016	States, Territories, Int. Orgs, ICAO	Valid
	e) Develop human resource and training planning strategy in line with ICAO SAR provisions	2013- 2016	States, Territories, Int. Orgs, ICAO	Valid
	f) Monitor implementation progress	2013- 2016	ICAO, States/ Territories	Valid
GPIs	GPI/6: Air Traffic Flow Management; GPI/9: Situational Awareness			



the NAM/CAR Regions adopted, in principle, the 18 Block 0 (B0) modules

15 of the modules are detailed in RPBANIP

RPOs contain the basic elements to be implemented for the different ASBU B0 Modules



ASEP, OFPL and WAKE - shall be included in future reviews of the RPBANIP, if required





## SAMPLE of TARGETS : RPBANIP

ASBU B0 Module	Element	Targets
B0-10/FRTO: Improved Operations through Enhanced En-Route Trajectories	1. Airspace Planning	100% of States to have completed a PBN plan by Dec. 2018
	2. Flexible Use Airspace	50% of selected segregated airspaces available for civil operations by Dec. 2016
B0-15/RSEQ: Improve Traffic Flow Through Runway Sequencing (AMAN/DMAN)	3. AMAN And Time-Based Metering	10% of selected aerodromes with AMAN and time based metering by Dec. 2016
	4. Departure Management (DMAN)	10% of selected aerodromes with DMAN by Dec. 2016
	5. Movement Area Capacity Optimization	20% of selected aerodromes with Airport-capacity calculated by Dec. 2016
B0-40/TBO: Improved Safety and Efficiency through the initial application of En-Route Data Link	6. ADS-C Over Oceanic and Remote Areas	80% of selected FIRs with ADS-C implemented by December 2016
	7. CPDLC	80% of selected FIRs with CPDLC implemented by June 2018
B0-65/APTA: Optimization of Approach Procedures Including Vertical Guidance	8. APV with <u>Baro</u> VNAV	80% of instrument runways to have APV with <u>Baro</u> VNAV implemented by December 2016 – Service Providers and users
	9. APV with SBAS (WAAS)	20% of instrument runways to have APV with SBAS/WAAS implemented by December 2018– Service Providers and users
	10. APV with GBAS	20% of instrument runways to have APV with GBAS by December 2018 – Initial implementation at some States (services providers)
	11. LNAV	60% of instrument runways to have LNAV procedure implemented by December 2016 – Service Providers and users as per Assembly Resolution A37-11
B0-75/SURF Safety and Efficiency of	12. Surveillance System for Ground Surface Movement (PSR, SSR, ADS B or Multilateration)	30% of selected aerodromes with SMR/ SSR Mode S/ ADS-B/ Multilateration for ground surface movement by June 2018



## **AN-CONF/12 Recommendation 6/1 – Regional performance framework – planning methodologies and tools**

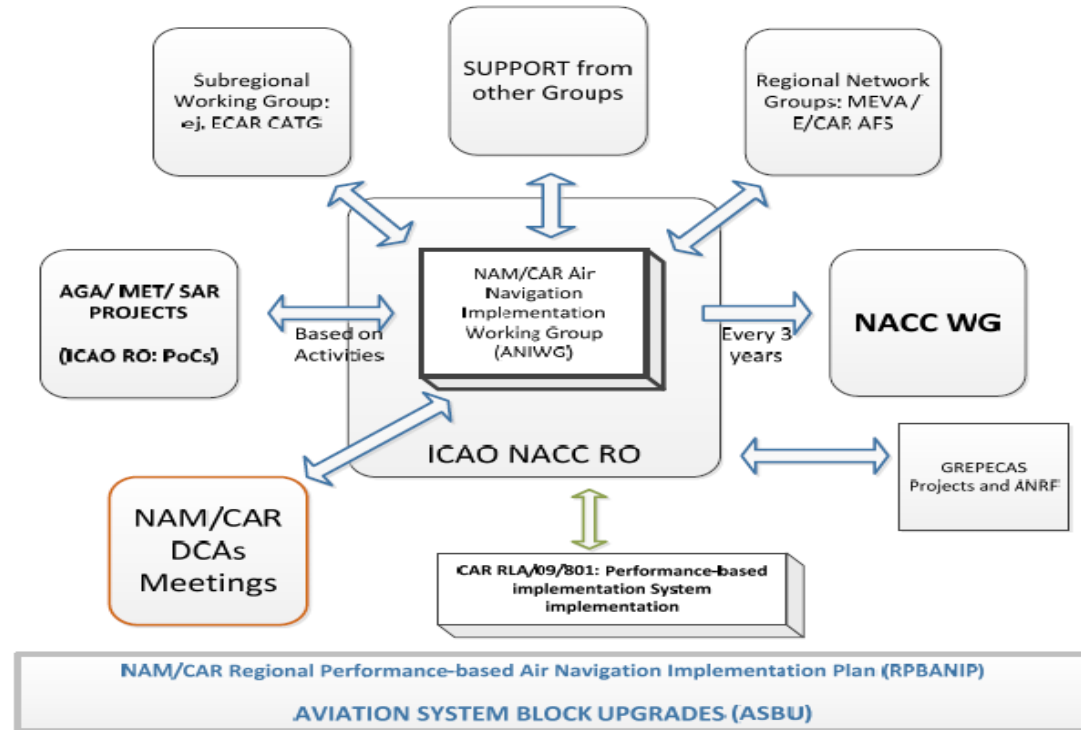
That States and PIRGs:

- a) finalize the alignment of regional air navigation plans with the Fourth Edition of the *Global Air Navigation Plan* (Doc 9750, GANP) by May 2014;
- b) focus on implementing aviation system block upgrade Block 0 Modules according to their operational needs, recognizing that these modules are ready for deployment;
- c) use the eANPs as the primary tool to assist in the implementation of the agreed regional planning framework for air navigation services and facilities;
- d) involve **regulatory and industry personnel** during all stages of planning and implementation of aviation system block upgrade modules;
- e) develop action plans to address the identified impediments to air traffic management modernization as part of aviation system block upgrade planning and implementation activities;



## NAM/CAR SUPPORT AND IMPLEMENTATION WORKING GROUP

<http://www.icao.int/NACC/Pages/nacc-regionalgroups-aniwg.aspx>





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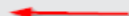

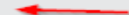

[Meetings](#)

[Global Aviation Dialogues \(GLADs\)](#)

[NAM/CAR Regional Performance-Based Air Navigation Implementation Plan - RPBANIP](#)

ICAO > North American, Central American and Caribbean Regional Office (NACC) Office > Regional Groups

## Regional Groups

Links to Regional Groups	
<a href="#">CAR/SAM Regional Planning and Implementation Group (GREPECAS)</a>	
<a href="#">Regional Aviation Safety Group – Pan America (RASG-PA)</a>	
<a href="#">Collaborative Arrangement for the Prevention and Management of Public Health Events in Civil Aviation (CAPSCA)</a>	
<a href="#">NAM/CAR Air Navigation Implementation Working Group (ANI/WG)</a>	
<a href="#">Haiti Civil Aviation Steering Committee (Haiti CASC)</a>	
<a href="#">Eastern Caribbean Civil Aviation Technical Group (E/CAR/CATG)</a>	
<a href="#">Eastern Caribbean Network Technical Group (E/CAR/INTG)</a>	
<a href="#">MEVA III Operational Site (MEVA III)</a>	
<a href="#">NAM/CAR Civil Aviation Training Centres Working Group (NAM/CAR/CATC/WG)</a>	

<http://www.icao.int/NACC/Pages/regional-groups.aspx>



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