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North American, Central American and Caribbean Office

WORKING PAPER

ANI/WG/5 — WP/09REV  
21/05/19

**Fifth NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/5)**  
Mexico City, Mexico, 27 to 31 May, 2019

- Agenda Item 2: Review and Follow-up to Valid Conclusions/Decisions of the ANI/WG/04, NACC/WG/05 and GREPECAS/18 Meetings**
- 2.1 Follow-up and performance and monitoring assessment of the NAM/CAR Regional Performance-Based Air Navigation Implementation Plan (RPBANIP)**
- 2.1.1 Progress reports of the Task Forces of the ANI/WG. States' implementation status**

**PROGRESS REPORT OF THE ANI/WG PBN TASK FORCE**

(Presented by the ANI/WG PBN Task Force Rapporteur)

**EXECUTIVE SUMMARY**

This Working Paper presents the progress achieved by the Performance-Based Navigation (PBN) Task Force since its previous progress report presented to the Fourth NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/4) held in Miami, United States, from 21 to 24 August 2018. This paper includes the results for previously identified deliverables and recommendations for improving the Task Force work programme. In addition, some challenges for implementation remain relevant; the PBN Task Force adjusted its work programme to address them.

<b>Action:</b>	The suggested actions are presented in Section 4
<i>Strategic Objectives:</i>	<ul style="list-style-type: none"><li>• Safety</li><li>• Air Navigation Capacity and Efficiency</li><li>• Environmental Protection</li></ul>
<i>References:</i>	<ul style="list-style-type: none"><li>• Final Report of the Fourth NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/4) held in Miami, United States, 21 - 24 August 2018</li><li>• Final Report of the NAM/CAR Air Navigation Implementation Working Group (ANI/WG) Performance-Based Navigation (PBN) Implementation Task Force Meeting(ANI/WG/PBN/TF) Mexico City, Mexico, 22 – 25 April 2019</li></ul>

## **1. Introduction**

1.1 The report of the Fourth NAM/CAR Air Navigation Implementation Working Group Meeting ANI/WG/4 (Miami, United States, 21 to 24 August 2018), indicated that while the NAM Region has made substantive progress in their PBN implementation projects, there appears to be several roadblocks within the CAR Region. There may also be a disconnection between reported implementation and effective implementation. Some States are yet to produce a comprehensive PBN implementation plan and, in some cases, those that have submitted a plan have found difficulty in meeting the objectives of the plan. In general, the CAR Region as a whole was still not meeting the PBN Regional Performance Objectives (RPOs) outlined in the NAM/CAR Regional Performance-Based Air Navigation Implementation Plan (RPBANIP).

1.2 The NAM/CAR Regions are very diverse and complex, not only in terms of the traffic patterns and airspace classifications, but also in terms of the resource capabilities, technological advancement and policies within each State/Territory/International Organization. This creates a challenge for a harmonized approach to PBN implementation within the region. However, based on global objectives for improving safety and efficiency while reducing the negative impact of aviation on the environment, it is vital for the State/Territories/International Organizations within the NAM/CAR Regions to agree on harmonized approaches to PBN implementation.

## **2. PBN Task Force (PBN TF) Progress and results**

2.1 Apart from the previously reported roadblocks, such as lack of available training, lack of subject matter expertise, lack of financial and human resources, a major impediment to harmonization is the lack of coordination of PBN initiatives amongst adjacent Flight Information Regions (FIRs)/Terminal Control Areas (TMAs). Within the CAR Region especially, there are many adjoining FIRs which not only share boundaries with CAR States, but also with States from the NAM and SAM Regions. In 2017, the TF divided the CAR airspace into four (4) subsections, (E/CAR, C/CAR (East), C/CAR (West) and Central America and elected “Champions” to lead the coordination efforts. This was done with the hope that each subsection would find it easier to coordinate amongst themselves and alleviate the inherent issues that present themselves in a larger group. Discussions held during the NAM/CAR Air Navigation Implementation Working Group (ANI/WG) Performance-Based Navigation (PBN) Implementation Task Force Meeting (ANI/WG/PBN/TF) in Mexico City, Mexico, from 22 to 25 April 2019, revealed that while the system appears to be working well within the E/CAR and Central American subsections, there are still some coordination issues amongst some FIRs within the Central Caribbean. Additionally, coordination with adjacent SAM FIRs has also been problematic for some CAR FIRs.

2.2 The PBN TF Rapporteur requested updates from all members regarding the PBN implementation status from all States/International Organizations within.

2.3 The following States reported Area Navigation (RNAV) 5 route implementation as of 31 January 2019:

- The Habana FIR (Cuba) implemented sixteen (16) new RNAV 5 routes.
- The Central America FIR implemented five (5) new RNAV5 routes.
- The Kingston FIR (Jamaica) implemented nine (9) new RNAV 5 routes.
- The Piarco FIR (Trinidad and Tobago) implemented three (3) new RNAV 5 routes
- The San Juan FIR (Puerto Rico) implemented three (3) new RNAV 5 routes
- The Santo Domingo FIR (Dominican Republic) implemented four (4) new RNAV 5 routes.

2.4 The Florida Metroplex route system (Q and Y routes) was implemented on 8 November 2018. The Jacksonville Centre (ZJX), Miami Centre (ZMA) and San Juan Centre (ZSU) utilize this new route structure.

2.5 Based on the approvals gained at the Twelfth Meeting of the Coordination Committee of the Regional Project RLA/06/901 (RCC/12) for the year 2019, the SAM ICAO Regional Office requested that an Air Traffic Management (ATM) expert from the CAR Region should join as part of the ATM team to develop the SAM Route Optimization (RO) version 5. COCESNA agreed to support this project, providing an ATM Expert, to support the initial coordination of the proposal of the CAR/SAM interface routes. The activities involved face to face work in the ICAO SAM Regional Office in Lima, Peru. The SAM Team (2 specialists from Peru and 1 specialist from Venezuela) met from 11 February to 1 March 2019. COCESNA joined the meeting from 25 February to 1 March 2019.

2.6 The SAM ATS RO version 5 contains 51 route proposals of which 32 correspond to the CAR/SAM interface. The main benefits of the route proposals are as follows:

- elimination of 37 conventional regional routes
- elimination of 2 RNAV regional routes for optimization and harmonization
- creation of 27 new RNAV routes
- modification of 15 RNAV routes (realigning, extend or cut)
- potential for reduction of 178 NM if all proposals were approved

2.7 During the ANI/WG/PBN/TF Meeting, 22 – 25 April 2019, the PBN Taskforce discussed the proposals and representatives were asked to provide their responses. The responses are presented in **Appendix A** to this working paper.

2.8 The ANI/WG PBF/TF Meeting draft report was sent for approval of the States through letter Ref: *NACC78079REV*, dated 3 May 2019. Since no comments to the conclusions were received, these are considered approved through the fast-track procedure and are presented in the **Appendix B** to this working paper.

2.9 The States/Territories/International Organizations within the CAR Region recognize and support the opportunity of being able to coordinate with the SAM Region in the implementation of the route interfaces between both regions; however, representatives pointed out that these proposals, which significantly affect the CAR Region, were initially received on 28 March 2019, providing little time for a proper analysis. Having known in advance the extent of the proposals, a greater participation of the States of the CAR Region in this coordination project would have been suggested.

2.10 It was considered that prior to agreeing to these proposals, each affected State must complete a thorough analysis to determine whether the changes are actually desired by and will benefit the airlines, whether the changes adversely affect safety, which Instrument Flight Procedures (IFPs) need to be amended, which significant points need to be established and/or modified, which Letters of Agreement (LOAs) need to be amended and the extent of the resulting automation changes and required charting modifications. Additionally, some of the States in the CAR Region have upper airspace that overlies TMAs managed by different Air Navigation Service Providers (ANSPs). For those States, additional coordination is required. All of these activities need to be planned, budgeted for and integrated into existing plans. Therefore, a longer timeframe before agreeing to the implementation of such significant changes is required. Once agreed to, a longer timeframe prior to implementation is also desired. The PBN TF decided to develop a full process for agreement and implementation of airspace optimization. This process is attached as **Appendix C** to this working paper. The TF also agreed that the next target date for regional route implementation would be 25 February 2021.

2.11 The PBN TF were briefed by the ICAO NACC ATM/SAR Regional Officer on the current challenges faced to ensure the compliance with ICAO Standards and Recommended Practices (SARPs) and the maintenance of the ICAO International Codes and Routes Designators (ICARD) database for routes and Five-letter name codes (5LNCs). The situation related to the 5LNCs and Air Traffic Services (ATS) routes designators requires a significant amount of work and should be included in the PBN TF regional priorities. During the TF meeting, it was decided that the ICAO NACC Regional Office will send a request to States, Territories and ATS service providers in the CAR Region to submit a list of all their published regional ATS routes and 5LNCs to the ICAO NACC Regional Office by 31 July 2019, using the template that will be sent by the ICAO NACC Regional Office.

2.12 From 8 to 11 May 2018 a team of PBN Subject Matter Experts met in the ICAO NACC Regional Office, Mexico City, Mexico, to develop a model structure for airspace and TMAs that allows continuous flow in the upper and lower airspace of contiguous FIRs and TMAs, proposing a possible solution to the complex structure of the existing FIRs in the CAR Region. **Phase 1** of the project, Concept Development, was completed in 2018 and in order to gather the information required to continue with the following phases (**Phase 2** - Data Collection and Analysis and **Phase 3** - Assessment and Development of Individual Plans), a letter was sent to States and Territories providing ATS in the CAR Region including a survey to assess their PBN implementation status. Only 6 States/Territories and 1 International Organization responded the survey, which caused a delay in the completion of the Sub-Project. The participants agreed that one of the causes that could have affected the response to the survey is that communications reach the high level of the State/Territory, who does not understand the implications of it. Sometimes, when not knowing what to do with the letter, it is filed without referring it to ATS personnel, who have control over the information required to give an appropriate response. As a result, the TF agreed that the ICAO NACC Regional Office should resend the States/Territories PBN Implementation Status Form to the PBN Task Force Members and Points of Contact in order to obtain their official response by 31 August 2019.

2.13 During the ANI/WG/4 Meeting, the PBN TF noted that there were elements within the work programme that might need to be amended. The TF also recognized the need to re-evaluate the RPOs within the RPBANIP. It was agreed that amendments to the RPOs would drive the PBN Task Force work programme. During the PBN TF meeting April 2019, the PBN TF produced a proposal to update the PBN RPOs within the RPBANIP and consequentially amended its work programme. The proposed RPOs are presented as **Appendix D** and the amended work programme is presented as **Appendix E** to this working paper.

2.14 The work and nature of the task force demands a significant work load from its members. The TF has focused on the development of deliverables that, subsequently, support the harmonized implementation of the main regional objectives. In this sense, it is necessary that the civil aviation authorities that have designated members in the TF provide sufficient support to comply with agreed activities.

### 3. PBN TF Recommendations

- States/Territories/International Organizations should participate in the ICAO CAR Region PBN Survey and provide accurate, up to date information which would then allow the PBN TF to provide a proper analysis on their PBN implementation status.
- States/Territories/International Organizations should ensure the follow-up activities required for the implementation of PBN initiatives they have agreed to.
- States/Territories/International Organizations should continue to participate in the regional project to harmonize both the upper and lower level airspace routings within the NAM/CAR/SAM Regions.
- States, Territories and International Organizations represented in the PBN TF should provide sufficient support to their personnel to comply with agreed activities.

**4. Suggested Actions**

4.1 The Meeting is invited to:

- a) evaluate the progress of the PBN TF;
- b) review and support the PBN TF recommendations indicated in Section 3 of this working paper;
- c) review and endorse the proposal to update the implementation of PBN RPO as part of the RPBANIP; and
- d) propose any other actions as deemed necessary.

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**RESPONSES BY CAR STATES/TERRITORIES TO SAM ATS RO VERSION 5.0**

Proposal	States/FIRs Involved	Agreement	Comments
CS 5-01	Trinidad and Tobago /Antigua and Barbuda/Barbados/Martinique/Guadeloupe	More analysis and coordination required	
CS 5-02	Trinidad and Tobago /Barbados	More analysis and coordination required	
CS 5-03	Trinidad and Tobago /Barbados	More analysis and coordination required	
CS 5-04	Trinidad and Tobago /Antigua and Barbuda/Martinique/Guadeloupe	More analysis and coordination required	
CS 5-05	Trinidad and Tobago /San Juan	San Juan will also eliminate G449, from ANADA to DDP NDB, within its airspace, effective 05 DEC 2019. The current CS 5-05 proposal does not extend North beyond ANADA.	
CS 5-06	Trinidad and Tobago /Martinique/Grenada/St.Vincent/St. Lucia	More analysis and coordination required	
CS 5-07	Trinidad and Tobago	More analysis and coordination required	
CS 5-08	Trinidad and Tobago /Barbados/Grenada	More analysis and coordination required	
CS 5-09	Trinidad and Tobago /Martinique	More analysis and coordination required	
CS 5-10	Trinidad and Tobago /San Juan/ Guadeloupe	(Trinidad and Tobago) More analysis and coordination required (San Juan) this proposal will not be feasible for ZSU, because it touches a current TCP of 2 current airways	
CS 5-11	Jamaica / Curaçao /Trinidad and Tobago/Barbados/St. Vincent	More analysis and coordination required	
CS 5-12	Jamaica / Curaçao /Trinidad and Tobago	More analysis and coordination required	
CS 5-13	Curaçao / San Juan	(Curaçao, USA) Analyzed the proposal, Curaçao prefers to maintain the conventional route within their lower airspace; proposes Q3 2020 for implementation. USA (San Juan) will implement the portion of this proposal within their airspace. Additionally, San Juan and New York will replace the conventional segment of A516 between OBIKE and RKDIA with the new RNAV route. RKDIA is in New York's airspace.	
CS 5-14	Dominican Republic / Curaçao	(Curaçao) Analyzed the proposal, prefer to maintain the conventional route in the lower airspace; proposes Q3 2020 for implementation	
CS 5-15	Curaçao /Trinidad and Tobago	(For Trinidad and Tobago) the proposal is being considered but to be determined at a later time (For Curaçao) the proposal cannot be agreed	(Curaçao) cannot delete the route between Curaçao and BONAX

Proposal	States/FIRs Involved	Agreement	Comments
CS 5-16	Dominican Republic / Curaçao	(Curaçao) the proposal cannot be agreed	(Dominican Republic) see no reason for the change since it affects previous publications resulting from the Pfa1 and Pfa2 that were recently implemented, on the other hand creates another TCP between the TNCF FIR and the MDCS different from the existing one, thus increasing the risk in the LHDs, we understand that the proposed PBN route should be superimposed on the current trajectory of UA315 and in that way could be accepted
CS 5-17	Curaçao/San Juan	(Curaçao, USA) Analyzed the proposal, Curaçao prefers to maintain the conventional route within their lower airspace; proposes Q3 2020 for implementation. USA (San Juan) will eliminate G431 from SCAPA to ELMUC and replace it with a new RNAV route from SCAPA to JOSHE effective 05 DEC 2019. The current CS 5-17 proposal does not extend North beyond SCAPA.	
CS 5-18	Cuba/Jamaica/Curaçao	(Curaçao, Jamaica) the proposal can not be agreed	
CS 5-19	Jamaica	Analyzed the request: no objection	
CS 5-20	Curaçao	(Curaçao) the proposal cannot be agreed	
CS 5-21	Jamaica	Analyzed the request: no objection	This new RNAV route should be northbound only from KILER to EPSIM; related to a counterproposal to Barranquilla from GERNA to PUTUL (southbound only)
CS 5-22	Jamaica	Analyzed the request: made a counterproposal	
CS 5-23	COCESNA	Analyzed the request: no objection	
CS 5-24	<del>Jamaica</del> /COCESNA	(COCESNA) Analyzed the request: no objection	does not affect Kingston
CS 5-25	Honduras/Nicaragua	(COCESNA, Honduras, Nicaragua) Analyzed the request: no objection	
CS 5-26	Nicaragua	(COCESNA, Nicaragua) Analyzed the request: no objection	
CS 5-27	Costa Rica	(COCESNA, Costa Rica) Analyzed the request: no objection	
CS 5-28	COCESNA	(COCESNA) Analyzed the request: Cannot be agreed (not feasible)	Interferes with descending traffic to MROC
CS 5-29	Costa Rica	(COCESNA, Costa Rica) Analyzed the request: request a minor change to be coordinated with Panamá	
CS 5-30	COCESNA	(COCESNA) Analyzed the request: cannot be agreed (not feasible)	unable to remove UA502 in CENAMER FIR
CS 5-31	COCESNA	(COCESNA, El Salvador) Analyzed the request: no objection	
CS 5-32	COCESNA	(COCESNA) Analyzed the request: no objection /Pending response from Mexico for an additional change	



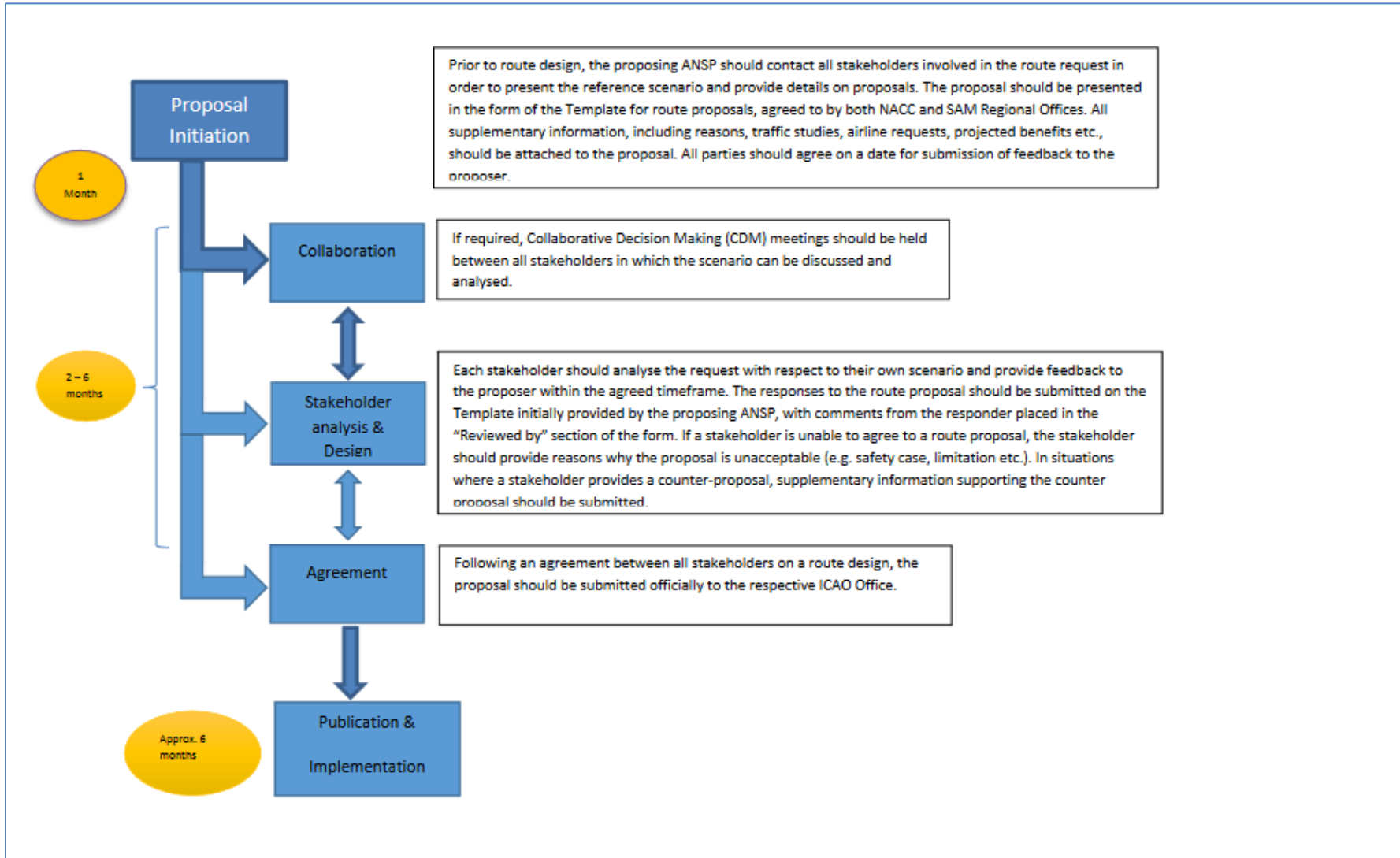
**APPENDIX B  
EXECUTIVE LIST OF CONCLUSIONS/DECISIONS**

Number	Conclusion/Decision	Responsible for action	Deadline
1/1	<b>FOLLOW UP ON THE SUB-PROJECT TO DEVELOP AND IMPLEMENT A PBN AIRSPACE CONCEPT DOCUMENT FOR THE CAR REGION</b>		
	That, in order to complete the Sub-Project to develop and implement a Performance-Based Navigation (PBN) Airspace Concept Document for the CAR Region and take advantage of the assistance possibilities that result from it:		
	a) the ICAO NACC Regional Office resend the survey on the States/Territories PBN Implementation Status Form to the PBN Task Force Members and Points of Contact in order to obtain their official response by <b>31 August 2019</b> ;	States/Territories and ICAO NACC Regional Office	31 August 2019
	b) the ICAO NACC Regional Office, with the support of the Sub-Project Team of Subject Matter Experts, revise/adjust the timelines of the Sub-Project to complete the next phases as necessary by <b>31 August 2019</b> ; and	ICAO NACC Regional Office and Sub-Project Team	31 August 2019
	c) the PBN Task Force update the PBN Task Force Points of Contact list, to include all CAR States, Territories and International Organizations by <b>31 August 2019</b> .	PBN Task Force	31 August 2019

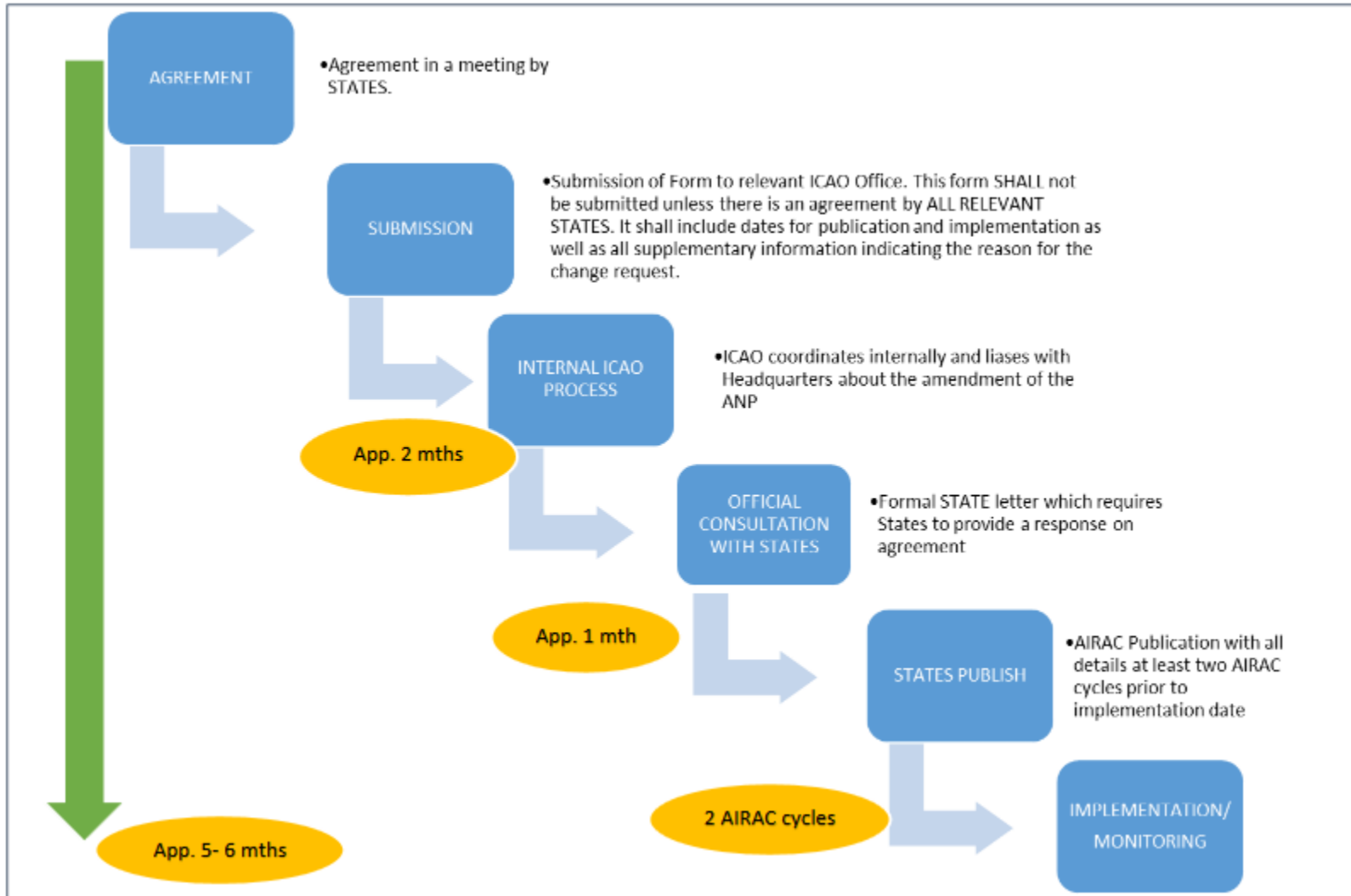
Number	Conclusion/Decision	Responsible for action	Deadline
1/2	<b>UPDATE OF THE ICAO DATABASE OF ATS ROUTES AND SIGNIFICANT POINTS</b>		
	That, with the purpose of collaborating with the updating of the ICAO International Codes and Route Designators (ICARD) system, supporting the initiatives to remove duplicates and the compliance with related ICAO SARPs:		
	a) the ICAO NACC Regional Office send a request to States, Territories and ATS providers in the CAR Region to submit a list of all their published regional ATS routes and Five-letter name codes (5LNCs) to the ICAO NACC Regional Office by <b>31 July 2019</b> , using the template that will be sent by the ICAO NACC Regional Office; and	States/Territories, ATS providers in the CAR Region and ICAO NACC Regional Office	31 July 2019
	b) States, Territories and ATS providers in the CAR Region cooperate to address discrepancies and duplicates ATS routes and 5LNCs.	States/Territories and ATS providers in the CAR Region	
1/3	<b>PRESENTATION OF ATS ROUTE REVIEW BY CAR STATES</b>		
	That, following the results of the analysis of the proposal for the SAM ATS RO version 5, the ICAO NACC Regional Office will present the summary of the comments from the CAR Region (Appendix C) in the upcoming Tenth South American Meeting on ATS Routes Network Optimization (SAM ATSRO/10) to be held from 17 to 21 June 2019 in Bogotá, Colombia, along with details from the process for proposals of optimization of the CAR region airspace, for coordination purposes.	ICAO NACC Regional Office	June 2019

Number	Conclusion/Decision	Responsible for action	Deadline
1/4	<b>APPROVAL AND IMPLEMENTATION PROCESS FOR PROPOSALS OF OPTIMIZATION OF THE CAR REGION AIRSPACE</b>		
	That, taking into consideration the recurrent need to implement changes in the ATS route system of the CAR Region, in order to achieve operational improvements for both operators and ATS providers, the PBN Task Force develop a process for approval and implementation of proposals of optimization of the CAR Region airspace. This process should take into account the required coordination timeframe for approval of the proposals and for a loose implementation, including adequate coordination with users and neighbouring regions by <b>31 May 2019</b> .	PBN Task Force	31 May 2019

## AIRSPACE OPTIMIZATION PROCESS FOR THE CAR REGION PHASE 1



## AIRSPACE OPTIMIZATION PROCESS FOR THE CAR REGION PHASE 2



## APPENDIX D

## PROPOSED NAM/CAR REGIONAL PERFORMANCE OBJECTIVES

1. IMPLEMENTATION OF PERFORMANCE BASED NAVIGATION (PBN)				
Benefits				
<b>Environment</b>	<ul style="list-style-type: none"> <li>• Reductions in fuel consumption</li> </ul>			
<b>Efficiency</b>	<ul style="list-style-type: none"> <li>• Ability of aircraft to conduct flight more closely to preferred trajectories</li> <li>• Increase in airspace capacity</li> <li>• Facilitate the utilization of advanced technologies (e.g., FMS based arrivals) and ATC decision support tools (e.g., metering and sequencing)</li> </ul>			
Strategy				
ATM Component	TASK DESCRIPTION	START-END	RESPONSIBLE	STATUS
AOM	a) Implement Collaborative Decision-Making (CDM) process in coordination with stakeholders	2020-2023	States, Territories, Int. Orgs	Valid
	b) Conduct assessment on PBN implementation status of each State, Territory, Int. Organization within the Region	2020-2023	ICAO NACC Office	Valid
	c) Implement PBN airspace concept in accordance with the ICAO PBN Manual	2020-2023	States, Territories, Int. Orgs	Valid
	d) Publish regulations and procedures for PBN operational approval	2020-2023	States, Territories, Int. Orgs	Valid
	e) Evaluate and implement PBN requirements for ATC automated systems, as required	2020-2023	States, Territories, Int. Org	Valid
	f) Analyze and enhance communication, navigation and surveillance infrastructure in accordance with PBN requirements	2020-2023	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	2020-2023	States, Territories, Int. Orgs	Valid
	h) Optimize the Regional airspace by implementing the appropriate PBN route structure (as outlined in the ICAO PBN Manual Doc 9613 and Doc 9992) and removing those conventional ATS routes that have been analyzed and considered redundant.	2020-2023	States, Territories, Int. Orgs	Valid
	i) Implement CDOs/CCOs for SIDs/STARS in terminal areas based on RNAV 1 or2 and RNP 1-or 2 navigation specification, as required	2020-2023	States, Territories, Int. Org	Valid
	j) Optimize and adjust TMAs structure according to the new SIDs/STARS implemented	2020-2023	States, Territories, Int. Orgs	Valid
	k) Design and implement PBN APV in accordance with Assembly Resolution A37-11	2020-2023	States, Territories, Int. Orgs	Valid
	l) Conduct PBN safety assessment based ATC simulations (fast time and/or real time), live trials, etc., as required	2020-2023	States, Territories, Int. Orgs	Valid
	m) Coordinate-Integrate-Improve ATM system to the new PBN concept	2020-2023	States, Territories, Int. Orgs	Valid

<b>Strategy</b>				
<b>ATM Component</b>	<b>TASK DESCRIPTION</b>	<b>START-END</b>	<b>RESPONSIBLE</b>	<b>STATUS</b>
<b>AOM (cont.)</b>	n) Develop performance measurement programme	2020-2023	States, Territories, Int. Orgs	Valid
	o) Develop post-implementation PBN Safety Assessment Programme	2020-2023	States, Territories, Int. Orgs	Valid
	p) Monitor implementation progress	2020-2023	States, Territories, Int. Orgs	Valid
<b>GPIs</b>	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			

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**ANI/WG PBN TASK FORCE WORK PROGRAMME 2019-2023 REVISION APRIL/ABRIL 2019**

<b>Task Name/ Tarea</b>	<b>Start/ Inicio</b>	<b>Finish / Final</b>	<b>Deliverables/ Resultados</b>	<b>Follow-up/ Seguimiento</b>	<b>Responsible/ Responsables</b>	<b>Observations/ Comments- Observaciones/ Comentarios</b>
a) Assist States/Territories with the Implementation of PBN Airspace concept for oceanic, continental and terminal areas in of NAM/CAR Regions in accordance with the ICAO PBN Manual Doc 9613 and Doc 9992	APR 2019	DEC 2023	i) Update the regional PBN <b>Upper Airspace</b> concept with implementation activities for the period 2019-2023	ICAO Regional Office and ANI/WG PBN Task Force	PBN Taskforce, ICAO, States, Territories, International Organizations,	Reference Sub-Project to Develop and Implement a Performance-Based Navigation (PBN) Airspace Concept Document for the CAR Region. <b>Requirements:</b> Commitment from executive decision makers, Funding for the project, Human Resources (Airspace Designers, ATCOs, Airline Operators, ANSP Decision makers)
	APR 2019	DEC 2023	ii) Update the regional PBN <b>Lower Airspace</b> concept with implementation activities for the period 2019-2023	ICAO Regional Office and ANI/WG PBN Task Force	PBN Taskforce, ICAO, States, Territories, International Organizations	Reference Sub-Project to Develop and Implement a Performance-Based Navigation (PBN) Airspace Concept Document for the CAR Region. <b>Requirements:</b> Commitment from executive decision makers, Funding for the project, Human Resources (Airspace Designers, ATCOs, Airline Operators, ANSP Decision makers)
b) Assist States/Territories and International Organizations with PBN training	APR 2019	DEC 2023	PBN training materials and subject matter expertise	ICAO Regional Office and ANI/WG PBN Task Force	States, Territories, Int. orgs, ANSPs and NAM/CAR Civil Aviation Training Centres Group (CATCG)	PBN TF to engage with Civil Aviation Training Centers Group to promote the development of PBN training programmes for pilots and controllers



Task Name/ Tarea	Start/ Inicio	Finish / Final	Deliverables/ Resultados	Follow-up/ Seguimiento	Responsible/ Responsables	Observations/ Comments- Observaciones/ Comentarios
c) Assist States/Territories and International Organizations with the Implementation of CDOs/CCOs for SIDs/STARS in terminal areas based on RNAV 1 or 2 and RNP1 or2 navigation specification, as required	APR 2019	DEC 2023	Implementation of CDOs/CCOs in TMAs	States continue implementation of CDOs and CCOs	States, Territories, Int. Org and ANSPs in conjunction with the ANI/WG PBN Task Force	
d) Identify the discrepancies between the ATS routes structure implemented in the CAR region and the CAR/SAM AIR NAVIGATION PLAN VOLUME II (Table ATM II-CARSAM-1- CAR/SAM Regions ATS Routes) propose actions to attend the differences found	APR 2019	DEC 2023	Identified discrepancies and action plan to attend the differences	ICAO Regional Office and ANI/WG PBN Task Force	PBN Taskforce, ICAO	
e) Develop and implement a regional process to approve and implement routes optimization initiatives for the CAR Region.	APR 2019	JULY 2019	A clear process for regional approval and implementation of routes optimization initiatives for the CAR Region	ICAO Regional Office and ANI/WG PBN Task Force	States, Territories, Int. Org and ANSPs in conjunction with the ANI/WG PBN Task Force	Coordinate with the SAM Region Route Optimization Process

Task Name/ Tarea	Start/ Inicio	Finish / Final	Deliverables/ Resultados	Follow-up/ Seguimiento	Responsible/ Responsables	Observations/ Comments- Observaciones/ Comentarios
f) Assist with the standardization of the application of longitudinal separation across the NAM/CAR/SAM regions.	APR 2019	DEC 2023	Analysis of applicable separation minima for transfer traffic between FIRs	ANSPs of States, Territories, Int. Orgs to update existing Letters of Agreement (LOAs) between ATC units	ANSPs of States, Territories, Int. Orgs	PBN TF to support ANSPs in the standardization of the applicable longitudinal separation based on the analysis performed.
g) Monitor implementation progress	APR 2019	DEC 2023	Annual review of PBN implementation	On-going activity conducted by ICAO	ICAO, States, Territories, Int. Organisations	On going

— END —