| | PLAN | AIR NAVIGATION PLAN<br>FIR/UIR CENAMER |
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**CORPORACIÓN CENTROAMERICANA DE
SERVICIOS DE NAVEGACIÓN AÉREA**

**Organismo Internacional de Integración Centroamericana**



**Agencia Centroamérica de Servicios de Navegación Aérea (ACNA)**

## Manual

## AIR NAVIGATION PLAN
## FIR/UIR CENAMER

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| **Fecha Edición Original** | |
| **Fecha Edición Vigente** | |
| **Versión** | |
| **Ubicación** | |
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| **CONTROL DE FIRMAS** | | |

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## CONTROL DE CAMBIOS

| Edición | Secciones Modificadas | Descripción General de la Modificación |
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| Unidad | Edición | No. de Copia |
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| Gerencia de Evaluación y Desarrollo | 1 / A | Original |
| Todas las Unidades de COCESNA | 1 / A | Versión digital Base de Datos SharePoint |
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## 1. INTRODUCTION.

The Central American Corporation of Air Navigation Services (COCESNA) is an International Organization for Central American Integration, non-profit and public service, with legal status and financial autonomy; providing services in the areas of Air Navigation, Aeronautical Training, Aeronautical Safety and other related to them as emanated by its Articles of Agreement and Bylaws.

The State Members of COCESNA are Honduras, Guatemala, El Salvador, Nicaragua and Costa Rica, which signed the Constitutive Agreement on February 26, 1960. Subsequently, in the year of 1996, the State of Belize joined COCESNA.

## 1.1. BACKGROUND

The ICAO Global Air Navigation Plan (Doc 9750, GANP) provides ICAO's vision to achieve sustainable growth of the global civil aviation system. It also presents all States with a comprehensive planning tool supporting a harmonized global air navigation system. The GANP is an overarching framework that includes key civil aviation policy principles to assist ICAO Regions and States with the preparation of their Regional and State Air Navigation Plans (ANPs).
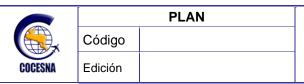
Planning and Implementation Regional Groups (PIRGs) are expected to develop the regional ANPs reflecting the regional requirements. GANP obligates COCESNA and States Members to map their individual or regional programmes against the harmonized GANP, but provides them with far greater certainty of investment. GANP requires active collaboration among States through the PIRGs in order to coordinate initiatives within applicable regional ANPs.

The GANP introduces the Aviation System Block Upgrades (ASBU) methodology. The ASBU methodology and its description of future aviation capabilities define programmatic and flexible global systems engineering approaches allowing all States to advance their air navigation capacities based on their specific operational requirements.

To this extent, the North American, Central American and Caribbean (NACC) Regional Office (RO), has published the NAM/CAR Regional Performance-Based Air Navigation Implementation Plan (RPBANIP, v3.1 in April 2014) aligning the activities and strategies with the ICAO ASBU methodology.

This document is the ANP for COCESNA aligning activities and strategies to the GANP and RPBANIP. The information contained is related mainly to:

- Planning: objectives set, priorities and targets planned at the state level
- Implementation monitoring and reporting: monitoring the progress of implementation towards targets planned. This information should be used for reporting purposes (i.e.: global and regional air navigation reports and performance dashboards); and/or
- Guidance: provide COCESNA and its State Members guidance material for the implementation of specific system/procedures in a harmonized manner.

The COCESNA's ANP would be used as a tool for planning, monitoring, and reporting the status of implementation of the aviation capabilities that are COCESNA's responsibility.

## 1.2. ENVIROMENT

### Authority of COCESNA

The Central American Corporation of Air Navigation Services (COCESNA) is a, non-profit and public service, International Organism of Central American Integration with legal status and financial autonomy.

### Airspace

Delimitation of the Air Space

The air space responsibility of COCESNA consists of the upper airspace of the Flight Information (UIR) of Central America and Oceanic Airspace (as specified in the Honduran AIP ENR 2.1) and in the AIP of Central America, in relation to the Flight Information Region (FIR) of Central America. Refer to Figure 1

Classification of ATS Airspace

The airspace of the Central American FIR / UIR, for ATS purposes, is classified as follows:
a) Class "A" Airspace: From FL195 and above;
b) Class "D" Airspace: From 9,000 feet to 19,000 feet; and
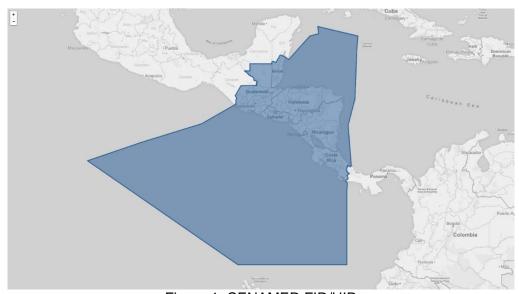c) Class "F" Airspace: From 3,000 feet up to 8,500 feet



Figure 1. CENAMER FIR/UIR

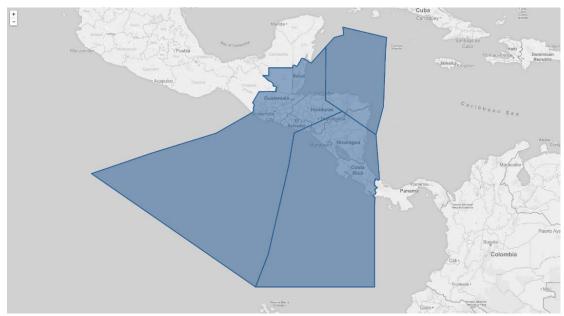COCESNA          Sistema de Gestión de la Seguridad Operacional

Figure 2. Standard Sector Configuration



Figure 3. Dynamic Sector Configuration

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**Traffic Forecast**

Based on the 2011-2031 Caribbean / South America Regional Transit Forecast developed by the Ninth Meeting of the CAR / SAM Transit Forecast Group (CAR / SAM TFG), the total passenger traffic flow to, from, and within the region is projected to grow at an average annual rate of 6.1%.

The total number of aircraft movements forecast to increase from approximately 1.2 million in 2011 to slightly over 3.7 million in 2031, which reflects an average annual rate of 5.9%. The growth rates for the route groups will be in the range of 4.5% (between North American and CAR / SAM routes) to 8% (between South America and Central America / Caribbean).

The records of the number of operations in the FIR / UIR CENAMER from 2011 to 2017 reflect an annual increase of 4.82% in the number of movements. Table 1 shows the number of monthly operations for the years 2011-2017.

| Month | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|
| JAN | 12,904 | 13,708 | 15,040 | 15,837 | 16,574 | 18,148 | 18,404 |
| FEB | 11,387 | 12,852 | 13,363 | 14,090 | 14,331 | 18,779 | 16,355 |
| MAR | 12,822 | 13,980 | 14,981 | 16,202 | 16,104 | 19,070 | 18,609 |
| APR | 12,264 | 14,164 | 13,863 | 14,804 | 14,977 | 16,540 | 17,431 |
| MAY | 12,073 | 13,173 | 13,495 | 14,534 | 14,717 | 16,506 | 16,602 |
| JUN | 11,990 | 13,632 | 13,795 | 14,869 | 15,153 | 16,517 | 16,943 |
| JUL | 13,187 | 14,635 | 14,659 | 15,700 | 16,622 | 17,352 | 17,978 |
| AUG | 12,771 | 13,956 | 14,220 | 16,138 | 16,246 | 16,453 | 16,906 |
| SEP | 11,031 | 11,087 | 12,116 | 13,037 | 13,775 | 14,386 | 16,509 |
| OCT | 11,370 | 12,656 | 12,676 | 13,646 | 15,711 | 15,164 | 16,363 |
| NOV | 11,850 | 12,814 | 13,600 | 14,266 | 15,387 | 15,492 | 16,750 |
| DEC | 13,786 | 14,570 | 15,521 | 16,583 | 17,755 | 17,672 | 18,920 |
| ANNUAL | 147,435 | 161,227 | 167,329 | 179,706 | 187,352 | 202,079 | 207,770 |

Table 1. FIR/UIR CENAMER monthly operations 2011 - 2017

Considering an annual growth rate of 4.82%, the number of operations forecasted for years 2018-2031 is detailed below:

| YEAR | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 2017 | 18,404 | 16,355 | 18,609 | 17,431 | 16,602 | 16,943 | 17,978 | 16,906 | 16,509 | 16,363 | 16,750 | 18,920 |
| 2018 | 19,287 | 17,140 | 19,502 | 18,268 | 17,399 | 17,756 | 18,841 | 17,717 | 17,301 | 17,148 | 17,554 | 19,828 |
| 2019 | 20,213 | 17,963 | 20,438 | 19,145 | 18,234 | 18,609 | 19,745 | 18,568 | 18,132 | 17,972 | 18,397 | 20,780 |
| 2020 | 21,183 | 18,825 | 21,419 | 20,063 | 19,109 | 19,502 | 20,693 | 19,459 | 19,002 | 18,834 | 19,280 | 21,777 |
| 2021 | 22,200 | 19,729 | 22,448 | 21,027 | 20,027 | 20,438 | 21,686 | 20,393 | 19,914 | 19,738 | 20,205 | 22,823 |
| 2022 | 23,266 | 20,676 | 23,525 | 22,036 | 20,988 | 21,419 | 22,727 | 21,372 | 20,870 | 20,686 | 21,175 | 23,918 |
| 2023 | 24,383 | 21,668 | 24,654 | 23,094 | 21,995 | 22,447 | 23,818 | 22,398 | 21,872 | 21,679 | 22,191 | 25,066 |
| 2024 | 25,553 | 22,708 | 25,838 | 24,202 | 23,051 | 23,524 | 24,961 | 23,473 | 22,922 | 22,719 | 23,256 | 26,269 |
| 2025 | 26,780 | 23,798 | 27,078 | 25,364 | 24,157 | 24,654 | 26,160 | 24,600 | 24,022 | 23,810 | 24,373 | 27,530 |
| 2026 | 28,065 | 24,940 | 28,378 | 26,581 | 25,317 | 25,837 | 27,415 | 25,781 | 25,175 | 24,953 | 25,543 | 28,852 |
| 2027 | 29,412 | 26,137 | 29,740 | 27,857 | 26,532 | 27,077 | 28,731 | 27,018 | 26,384 | 26,150 | 26,769 | 30,237 |
| 2028 | 30,824 | 27,392 | 31,167 | 29,194 | 27,806 | 28,377 | 30,110 | 28,315 | 27,650 | 27,405 | 28,054 | 31,688 |
| 2029 | 32,303 | 28,707 | 32,663 | 30,596 | 29,140 | 29,739 | 31,556 | 29,674 | 28,977 | 28,721 | 29,400 | 33,209 |
| 2030 | 33,854 | 30,085 | 34,231 | 32,064 | 30,539 | 31,166 | 33,070 | 31,098 | 30,368 | 30,100 | 30,811 | 34,803 |
| 2031 | 35,479 | 31,528 | 35,874 | 33,603 | 32,005 | 32,662 | 34,657 | 32,591 | 31,825 | 31,544 | 32,290 | 36,473 |

Table 2.- FIR/UIR CENAMER Monthly Forecast Operations 2018 – 2031

| Year | Operations |
|------|------------|
| 2018 | 217,743 |
| 2019 | 228,195 |
| 2020 | 239,148 |
| 2021 | 250,627 |
| 2022 | 262,657 |
| 2023 | 275,265 |
| 2024 | 288,477 |
| 2025 | 302,324 |
| 2026 | 316,836 |
| 2027 | 332,044 |
| 2028 | 347,982 |
| 2029 | 364,685 |
| 2030 | 382,190 |
| 2031 | 400,535 |

Table 3.- FIR/UIR CENAMER Yearly Forecast Operations 2018 - 2031

## 1.3. PLANNING METHODOLOGY

Guided by the GANP and RPBANIP, the planning process starts by identifying COCESNA´s responsible ATM areas, major traffic flows and international aerodromes. An analysis of this data leads to the identification of opportunities for performance improvement. Available technologies and ASBU Elements are evaluated to identify which Elements best provide the needed operational improvements. Depending on the complexity of the selected technology or Elements, additional planning steps may be necessary including financing and training needs. Finally, the Air Navigation plan is developed for the deployment of improvements and supporting requirements. This planning methodology requires full involvement of COCESNA, Member States, airspace users and other stakeholders, thus ensuring commitment by all for implementation.

Considering that some of the ASBU Modules contained in the GANP are specialized packages of implementable capabilities, called Elements, that may be applied where specific operational requirements or corresponding benefits exist, COCESNA in coordination with Central American States, will decide how each ASBU Element would fit into national and regional plans.

In establishing and updating the implementation priorities detailed in the COCESNA´s ANP, due consideration should be given to the safety priorities set out in the Global Aviation Safety Plan (GASP) and the NAM/CAR regional safety strategy. COCESNA will establish its own air navigation objectives, priorities and targets to meet its individual needs and circumstances in line with the global and regional air navigation objectives, priorities, and targets.

## 1.4. AIR NAVIGATION PLANNING PROCESS

The air navigation planning process prescribes evaluation, implementation, reviewing, reporting, and monitoring activities. It is recommended to conduct the process on a cyclical, annual basis. An Air Navigation Reporting Form (ANRF) is a tool to monitor and report the implementation status of capabilities. The COCESNA's ANRF is a customized tool for the application of setting planning targets, monitoring implementation, and identifying challenges, measuring implementation/performance and reporting. The ANRF reflects selected key performance areas as defined in the Manual on Global Performance of the Air Navigation System (ICAO Doc 9883).

Many of the future capabilities are described in terms of ASBU Elements. Some capabilities are specific to the need of the Central American Region and/or the State needs. These specific needs are described as Regional Aviation System Improvements (RASI) and State Aviation System Improvements (SASI). Both Analysis and Work Flow and ANRF are useful to manage the implementation status of ASBU, RASI, and SASI capabilities.

**Analysis and work flow process**

Figure 2 depicts the workflow for analyzing and implementing ASBU Elements. This flow process should be applied to each of the ASBU Elements. If the Element is applicable to an airport, each airport needs to be evaluated through this flow process. This same flow process is applicable to RASI and SASI.

The significance of each step in the workflow as it pertains to regional planning is as follows:

- **Analysis Not Started** – The requirement to implement this ASBU Element has not yet been assessed
- **Analysis In Progress** – A Need Analysis as to whether or not this ASBU Element is required, is in progress
- **N/A** – The ASBU Element is not required
- **Need** - The Need Analysis concluded that the ASBU Element is required, but planning for the implementation has not yet begun
- **Planning** – Implementation of this ASBU Element is planned, but not yet started
- **Developing** – Implementation of this ASBU Element is in the development phase, but not yet operational
- **Partially Implemented** – Implementation of this ASBU Element is partially completed and/or operational but all planned implementations are not yet complete
- **Implemented** - Implementation of this ASBU Element has been completed and/or is fully operational everywhere the need was identified
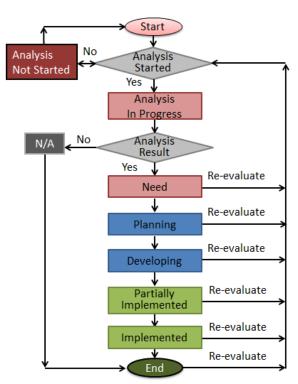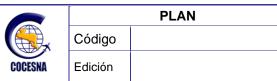


Figure 2:  Analysis and Work Flow

The Need Analysis of ASBU Elements will identify which ASBU Elements are required.  In this context, "required" means that the benefits estimated from the implementation would justify the associated implementation costs, or, the potential safety benefits are deemed to justify the

implementation costs. The implementation status of ASBU Elements which are not required should be indicated as "N/A", meaning "not applicable".

The analysis and implementation status determined in accordance with the above is reflected in the applicable ANRFs and in the ASBU Implementation Status Tables.

**Monitoring and Reporting Results**

Monitoring and reporting results will be analyzed by the Regions, States and the ICAO Secretariat to steer the air navigation improvements, take corrective actions and review the allocated objectives, priorities and targets if needed. The results will also be used by ICAO and aviation partner stakeholders to develop the annual Global Air Navigation Report. The report results will provide an opportunity for the international civil aviation community to compare progress across different ICAO regions in the establishment of air navigation infrastructure and performance-based procedures. The reports will also provide the ICAO Council with detailed annual results on the basis of which tactical adjustments will be made to the performance framework work programme, as well as triennial policy adjustments.

The information provided in the Your State/Organization ANRFs should be periodically reviewed and updated if subsequent analysis results in a change to the applicability of any ASBU Elements, whether or not they were selected. The explanation of ANRF is provided in Appendix A. The customized Your State/Organization ASBU Air Navigation Reporting Form Template is provided in Appendix B. The Your State/Organization RASI and SASI Air Navigation Reporting Form Templates are provided in Appendix C.

### 1.5. Challenge Identification

To provide and promote safe and efficient air navigation services to the users, it is important to resolve ongoing challenges that hindering the mission. It is also important to anticipate and address the potential challenges in the future.

**Existing Challenges**

The ATC demands for the central American FIR expected to increase in the future. The current infrastructure at the Cetral American airports, notwithstanding upgrades and expansions over the years, does not adequately meet peak capacity demand. The solution requires a huge investment in airport infrastructure. This includes airport terminal development, runway and turning bay reconstruction and rehabilitation, total drainage redevelopment, new control tower and technical block, and continuous modernization of communication, navigation, and surveillance equipment (e.g. Performance Based Navigation procedures (PBN). The formal implementation of Standard Instrument Departure procedures (SIDs) would improve on the safety, efficiency and management of airspace capacity.

In addition, airport operations need to be improved by introducing capabilities such as Airport Collaborative Decision Making (ACDM). To support airport operations, having accurate and timely weather and aeronautical information is essential. Information such as aerodrome warnings and wind shear warnings/alerts will increase safety of operations. Securing quality data should also be accomplished by introducing the Quality Management System (QMS) to both weather and aeronautical data.

A fundamental component which is critical concern, is the availability of human resource to meet the wide-ranging needs of airport operations. The provision of relevant training for that human resource is paramount.

**Future Challenges**

Anticipating heavier demand at the TWOW and TBTF airports, the introduction of a Ground Based Argumentation System (GBAS) landing system procedure would be effective.

The human resource issues, if not addressed in tandem with the infrastructure and procedure development, could result in deficient service provision and delivery. Human resource acquisition and development must coincide with the infrastructure and procedure development.

## 2. COCESNA's Aviation System Block Upgrade (ASBU) Implementation Status

The status of ASBU implementation is provided in this section.  Though there are Block 0 to Block 3 (B0, B1, B2, and B3), only B0 capacities are ready to be implemented with supporting documents such as standards, procedures, specifications, and training materials.  ICAO will provide supporting documents for B1 in 2019, B2 in 2025, and B3 in 2031.

### 2.1. ASBU Block 0 Implementation Metrics, Targets, and Status

ASBU B0 Implementation Targets and Status are presented in this section.  COCESNA considers only nine mean international airports of the next sixteen listed by each Members States, for airport oriented Elements:

1. BELIZE

    **MZBZ**        BELIZE/Philip S.W. Goldson Intl

2. COSTA RICA

    **MROC**        ALAJUELA/Juan Santamaría Intl.
    **MRLB**        LIBERIA/Daniel Oduber Quirós Intl.
    MRLM        LIMON/Limón Intl
    MRPV        PAVAS/Tobias Bolaños Intl.

3. EL SALVADOR

    **MSLP**        SAN SALVADOR/ El Salvador Intl
    **MSSS**        SAN SALVADOR/ Ilopango Intl

4. GUATEMALA

    **MGGT**        GUATEMALA/La Aurora Intl
    MGPB        PUERTO BARRIOS/ Puerto Barrios
    MGSJ        SAN JOSE/Puerto de San Jose
    MGMM        SANTA HELENA/Mundo Maya Intl.

5. HONDURAS

    MHLC        LA CEIBA/Goloson Intl
    MHRO        ROATAN/Juan Manuel Gálvez Intl.
    **MHLM**        SAN PEDRO SULA/Ramón Villeda Morales Intl.
    MHTG        TEGUCIGALPA/Toncontín Intl

6. NICARAGUA

    **MNMG**        MANAGUA/Augusto César Sandino Intl

## ASBU B0 Implementation Metrics and Targets

| Block 0 Modules | Elements | Metrics | Targets | Status & Remarks |
|---|---|---|---|---|
| **Performance Improvement Area 1: Airport Operations** | | | |
| ACDM | **1.** Interconnection between aircraft operator & ANSP systems to share surface operations information | Number of aerodromes to be considered: 9 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1 to 9* **c.** How many aerodromes implemented the capability? *None* | **B0-ACDM-1 Target 1:** Assessed in Aug 2018 **a.** Yes **b.** N/A **B0-ACDM-1 Target 2:** **c.** N/A | Status – N/A We receive the data information from each airport operator. |
| | **2.** Interconnection between aircraft operator & airport operator systems to share surface opera-tions information | Number of aerodromes to be considered: **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1 to 9* **c.** How many aerodromes implemented the capability? *None, 1 to 9* | **B0-ACDM-2 Target 1:** N/A **a.** Yes **b.** N/A **B0-ACDM-2 Target 2:** N/A **c.** None | Status – N/A |
| | **3.** Interconnection between airport operator & ANSP systems to share surface operations information | Number of aerodromes to be considered: 9 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, to 9* **c.** How many aerodromes implemented the capability? *None, 1, to 9* | **B0-ACDM-3 Target 1:** Assessed in Aug 2018 **a.** Yes **b.** 8 **B0-ACDM-3 Target 2:** N/A **c.** 8 | Status –Information requested FPL,CPL,DEP,ARR( Information received via radar data sharing with each Central American state and via AMHS messag-ing and oral comm.) Implemented with, MHLM,MGMM, MGGT, MSLP, MSSS, MNMG, MROC, MRLB |
| | **4.** Interconnection between airport operator, aircraft operator & ANSP systems to share surface operations information | Number of aerodromes to be considered: **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1 to 9* **c.** How many aerodromes implemented the capability? *None, 1 to 9* | **B0-ACDM-4 Target 1:** N/A **a.** Yes **b.** N/A **B0-ACDM-4 Target 2:** N/A **c.** None | Status – N/A |
| | **5.** Collaborative departure queue management | Number of aerodromes to be considered: **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1 to 9* **c.** How many aerodromes implemented the capability? *None, 1 to 9* | **B0-ACDM-5 Target 1:** N/A **a.** Yes **b.** N/A **B0-ACDM-5 Target 2:** N/A **c.** None | Status – N/A |
| APTA | **1.** PBN approach procedures with vertical guidance to LNAV/VNAV minima | Number of aerodromes to be considered: **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1 to 9* **c.** How many aerodromes implemented the capability? *None, 1 to 9* | **B0-APTA-1 Target 1:** 2018-2019 **a.** Yes **b.** N/A **B0-APTA-1 Target 2:** 2018-2019 **c.** None | Status – N/A |

| Block 0 Modules | Elements | Metrics | Targets | Status & Remarks |
|---|---|---|---|---|
| | **2.** PBN approach procedures with vertical guidance to LPV minima | Number of aerodromes to be considered: **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1 to 9* **c.** How many aerodromes implemented the capability? *None, 1 to 9* | **B0-APTA-2 Target 1:** 2018-2019 **a.** Yes **b.** N/A **B0-APTA-2 Target 2:** 2018-2019 **c.** None | Status – N/A |
| | **3.** PBN Approach Procedures without vertical guidance (LP, LNAV minima; using SBAS) | Number of aerodromes to be considered: **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1 to 9* **c.** How many aerodromes implemented the capability? *None, 1 to 9* | **B0-APTA-3 Target 1:** 2018-2019 **a.** Yes **b.** N/A **B0-APTA-3 Target 2:** 2018-2019 **c.** None | Status – N/A |
| | **4.** GBAS Landing System (GLS) Approach procedures | Number of aerodromes to be considered: **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1 to 9* **c.** How many aerodromes implemented the capability? *None, 1 to 9* | **B0-APTA-4 Target 1:** N/A **a.** Yes **b.** N/A **B0-APTA-4 Target 2:** N/A **c.** None | Status – N/A |
| **RSEQ** | **1.** AMAN via controlled time of arrival to a reference fix | Number of aerodromes to be considered: **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1 to 9* **c.** How many aerodromes implemented the capability? *None, 1 to 9* | **B0-RSEQ-1. Target 1:** N/A **a.** Yes **b.** None **B0- RSEQ-1 Target 2:** **c.** None | Status – N/A |
| | **2.** Departure management | Number of aerodromes to be considered: **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1 to 9* **c.** How many aerodromes implemented the capability? *None, 1 to 9* | **B0-RSEQ-2. Target 1:** Assessed in Aug 2018 **a.** Yes **b.** None **B0-RSEQ-2. Target 2:** **c.** N/A | Status – N/A |
| | **3.** Departure flow management | Number of aerodromes to be considered: **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1 to 9* **c.** How many aerodromes implemented the capability? *None, 1 to 9* | **B0-RSEQ-3. Target 1:** Assessed in Aug 2018 **a.** Yes **b.** None **B0-RSEQ-3. Target 2:** **c.** N/A | Status – N/A |
| | **4.** Point merge | Number of aerodromes to be considered: **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1 to 9* **c.** How many aerodromes implemented the capability? *None, 1 to 9* | **B0-RSEQ-4. Target 1:** Assessed in Aug 2018 **a.** Yes **b.** None **B0-RSEQ-4. Target 2:** **c.** N/A | Status – N/A |

| Block 0 Modules | Elements | Metrics | Targets | Status & Remarks |
|---|---|---|---|---|
| **SURF** | **1.** A-SMGCS with at least one cooperative surface surveillance system | Number of aerodromes to be considered:<br>**a.** Have we assessed the need?<br>*Yes or No*<br>**b.** How many aerodromes need this capability?<br>*None, 1 to 9*<br>**c.** How many aerodromes implemented the capability?<br>*None, 1 to 9* | **B0-SURF-1. Target 1:** N/A<br>**a.** Yes<br>**b.** N/A<br>**B0-SURF-1. Target 2:**<br>**c.** N/A | Status – N/A |
| | **2.** Including ADS-B APT as an element of A-SMGCS | Number of aerodromes to be considered:<br>**a.** Have we assessed the need?<br>*Yes or No*<br>**b.** How many aerodromes need this capability?<br>*None, 1 to 9*<br>**c.** How many aerodromes implemented the capability?<br>*None, 1 to 9* | **B0-SURF-2. Target 1:** N/A<br>**a.** Yes<br>**b.** N/A<br>**B0-SURF-2. Target 2:**<br>**c.** None | Status – N/A |
| | **3.** A-SMGCS alerting with flight identification information | Number of aerodromes to be considered:<br>**a.** Have we assessed the need?<br>*Yes or No*<br>**b.** How many aerodromes need this capability?<br>*None, 1 to 9*<br>**c.** How many aerodromes implemented the capability?<br>*None, 1 to 9* | **B0-SURF-3. Target 1:** N/A<br>**a.** Yes<br>**b.** N/A<br>**B0-SURF-3. Target 2:**<br>**c.** None | Status – N/A |
| | **4.** EVS for taxi operations | Number of aerodromes to be considered:<br>**a.** Have we assessed the need?<br>*Yes or No*<br>**b.** How many aerodromes need this capability?<br>*None, 1 to 9*<br>**c.** How many aerodromes implemented the capability?<br>*None, 1 to 9* | **B0-SURF-4. Target 1:** N/A<br>**a.** Yes<br>**b.** N/A<br>**B0-SURF-4. Target 2:**<br>**c.** None | Status – N/A |
| | **5.** Airport vehicles equipped with transponders | Number of aerodromes to be considered:<br>**a.** Have we assessed the need?<br>*Yes or No*<br>**b.** How many aerodromes need this capability?<br>*None, 1 to 9*<br>**c.** How many aerodromes implemented the capability?<br>*None, 1 to 9* | **B0-SURF-5. Target 1:** N/A<br>**a.** Yes<br>**b.** N/A<br>**B0-SURF-5. Target 2:**<br>**c.** None | Status – N/A |
| **WAKE** | **1.** New PANS-ATM wake turbulence categories and separation minima | *ICAO has not developed new minima.* | N/A | Status – N/A |
| | **2.** Dependent diagonal paired approach procedures for parallel runways with centrelines spaced less than 760 meters (2,500 feet) apart | Number of aerodromes to be considered:<br>**a.** Have we assessed the need?<br>*Yes or No*<br>**b.** How many aerodromes need this capability?<br>*None, 1 to 9*<br>**c.** How many aerodromes implemented the capability?<br>*None, 1 to 9* | **B0-WAKE-2. Target 1:** Assessed in Dec 2016<br>**a.** No<br>**b.** None<br>**B0-WAKE-2. Target 2:**<br>**c.** None | Status – N/A |
| | **3.** Wake independent departure and arrival procedures for parallel runways with centrelines spaced less than 760 meters (2,500 feet) apart | Number of aerodromes to be considered:<br>**a.** Have we assessed the need?<br>*Yes or No*<br>**b.** How many aerodromes need this capability?<br>*None, 1 to 9*<br>**c.** How many aerodromes implemented the capability?<br>*None, 1 to 9* | **B0-WAKE-3. Target 1:** Assessed in Dec 2016<br>**a.** No<br>**b.** None<br>**B0-WAKE-3. Target 2:**<br>**c.** None | Status – N/A |

| Block 0 Modules | Elements | Metrics | Targets | Status & Remarks |
|---|---|---|---|---|
| | **4.** Wake turbulence mitigation for departures procedures for parallel runways with centrelines spaced less than 760 meters (2,500 feet) apart | Number of aerodromes to be considered: **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1 to 9* **c.** How many aerodromes implemented the capability? *None, 1 to 9* | **B0-WAKE-4. Target 1:** Assessed in Dec 2016 **a.** No **b.** None **B0-WAKE-4. Target 2:** **c.** N/A | Status – N/A |
| | **5.** 6 wake turbulence categories and separation minima | Number of aerodromes to be considered: **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1 to 9* **c.** How many aerodromes implemented the capability? *None, 1 to 9* | **B0-WAKE-5. Target 1:** Assessed in Dec 2016 **a.** No **b.** None **B0-WAKE-5. Target 2:** **c.** N/A | Status – N/A |
| **Performance Improvement Area 2: Globally Interoperable Systems and Data** | | | |
| **AMET** | **1.** WAFS | **a.** Have we assessed the need? *Yes or No* **b.** Do we need this capability? *Yes or No* **c.** Have we implemented the capability? *Yes or No* | **B0-AMET-1.Target 1:** **a.** Yes **b.** Yes **B0-AMET-1.Target 2:** **c.** Yes | Status – Implemented |
| | **2.** IAVW | **a.** Have we assessed the need? *Yes or No* **b.** Do we need this capability? *Yes or No* **c.** Have we implemented the capability? *Yes or No* | **B0-AMET-2. Target 1:** **a.** Yes **b.** Yes **B0-AMET-2. Target 2:** **c.** Yes | Status – Implemented |
| | **3.** TCAC forecasts | **a.** Have we assessed the need? *Yes or No* **b.** Do we need this capability? *Yes or No* **c.** Have we implemented the capability? *Yes or No* | **B0-AMET-3. Target 1:** **a.** Yes **b.** Yes **B0-AMET-3.Target 2:** **c.** Yes | Status – Implemented |
| | **4.** Aerodrome warnings | Number of aerodromes to be considered: 9 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1 to 9* **c.** How many aerodromes implemented the capability? *None, 1 to 9* | **B0-AMET-4. Target 1:** **a.** Yes **b.** No **B0-AMET-4.Target 2:** **c.** None | Status – N/A |
| | **5.** Wind shear warnings and alerts | Number of aerodromes to be considered: 9 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1 to 9* **c.** How many aerodromes implemented the capability? *None, 1 to 9* | **B0-AMET-5. Target 1:** **a.** No **b.** None **B0-AMET-5.Target 2:** **c.** None | Status – N/A |
| | **6.** SIGMET | **a.** Have we assessed the need? *Yes or No* **b.** Do we need this capability? *Yes or No* **c.** Have we implemented the capability? *Yes or No* | **B0-AMET-6. Target 1:** **a.** Yes **b.** Yes **B0-AMET-6. Target 2:** **c.** Yes | Status – Implemented |

| Block 0 Modules | Elements | Metrics | Targets | Status & Remarks |
|---|---|---|---|---|
| | **7.** Other OPMET information (METAR, SPECI and/or TAF) | Number of aerodromes to be considered: 9<br>**a.** Have we assessed the need?<br>*Yes or No*<br>**b.** How many aerodromes need this capability?<br>*None, 1 to 9*<br>**c.** How many aerodromes implemented the capability?<br>*None, 1 to 9* | **B0-AMET-7. Target 1:**<br>**a.** Yes<br>**b.** Yes<br>**B0-AMET-7.Target 2:**<br>**c.** Yes | Status – Implemented |
| | **8.** QMS for MET | **a.** Have we assessed the need?<br>*Yes or No*<br>**b.** Do we need this capability?<br>*Yes or No*<br>**c.** Have we implemented the capability?<br>*Yes or No* | **B0-AMET-8. Target 1:**<br>**a.** No<br>**b.** No<br>**B0-AMET-8.Target 2:**<br>**c.** No | Status - N/A |
| **DATM** | **1.** Aeronautical Information Exchange Model (AIXM) | **a.** Have we assessed the need?<br>*Yes or No*<br>**b.** Do we need this capability?<br>*Yes or No*<br>**c.** Have we implemented the capability?<br>*Yes or No* | **B0-DATM-1. Target 1:**<br>**a.** Yes<br>**b.** Yes<br>**B0-DATM-1. Target 2:**<br>**c.** yes | Status –Implemented<br><br>AIXM capability has been installed in each Central American States. |
| | **2.** eAIP | **a.** Have we assessed the need?<br>*Yes or No*<br>**b.** Do we need this capability?<br>*Yes or No*<br>**c.** Have we implemented the capability?<br>*Yes or No* | **B0-DATM-2. Target 1:**<br>**a.** Yes<br>**b.** Yes<br>**B0-DATM-2. Target 2:**<br>**c.** yes | Status –Implemented<br><br>eAIP capability has been installed in each Central American States. |
| | **3.** Digital NOTAM | **a.** Have we assessed the need?<br>*Yes or No*<br>**b.** Do we need this capability?<br>*Yes or No*<br>**c.** Have we implemented the capability?<br>*Yes or No* | **B0-DATM-3. Target 1:**<br>TBD<br>**a.** No<br>**b.** TBD<br>**B0-DATM-3. Target 2:**<br>Implement by TBD<br>**c.** No | Status - Analysis in progress<br><br>We have the capability to develop Digital Notam, however, we need the State Members approval. We will review this element in 2020. |
| | **4.** eTOD | Number of aerodromes to be considered: 9<br>**a.** Have we assessed the need?<br>*Yes or No*<br>**b.** How many aerodromes need this capability?<br>*None, 1 to 9*<br>**c.** How many aerodromes implemented the capability?<br>*None, 1 to 9* | **B0-DATM-4. Target 1:**<br>N/A<br>**a.** yes<br>**b.** N/A<br>**B0-DATM-4. Target 2:**<br>**c.** None | Status – N/A |
| | **5.** WGS-84 | **a.** Have we assessed the need?<br>*Yes or No*<br>**b.** Do we need this capability?<br>*Yes or No*<br>**c.** Have we implemented the capability?<br>*Yes or No* | **B0-DATM-5. Target 1:**<br>**a.** No<br>**b.** No<br>**B0-DATM-5. Target 2:**<br>**c.** No | Status – Implemented<br><br>All aeronautical Cartography is based in WGS-84 |
| | **6.** QMS for AIM | **a.** Have we assessed the need?<br>*Yes or No*<br>**b.** Do we need this capability?<br>*Yes or No*<br>**c.** Have we implemented the capability?<br>*Yes or No* | **B0-DATM-6. Target 1:**<br>**a.** Yes<br>**b.** Yes<br>**B0-DATM-6. Target 2:**<br>**a.** Yes | Status – Implemented<br>ISO 9001-2015 |

| Block 0 Modules | Elements | Metrics | Targets | Status & Remarks |
|---|---|---|---|---|
| FICE | 1. AIDC to provide initial flight data to adjacent ATSUs | a. Have we assessed the need? *Yes or No* b. Do we need this capability? *Yes or No* c. Have we implemented the capability? *Yes or No* | **B0-FICE-1. Target 1:** a. Yes b. Yes **B0-FICE-1. Target 2: 2019** c. No | Status – PAC Partially Implemented(Guatemala, El Salvador, Nicaragua, Panama, Bogota and Guayaquil). NAM Partially Implemented (Havana and Merida) |
| | 2. AIDC to update previously coordinated flight data | a. Have we assessed the need? *Yes or No* b. Do we need this capability? *Yes or No* c. Have we implemented the capability? *Yes or No* | **B0-FICE-2. Target 1:** a. Yes b. Yes **B0-FICE-2. Target 2: 2019** c. No | Status – PAC Partially Implemented(Guatemala, El Salvador, Nicaragua, Panama, Bogota and Guayaquil). NAM Partially Implemented (Havana and Merida) |
| | 3. AIDC for control transfer | a. Have we assessed the need? *Yes or No* b. Do we need this capability? *Yes or No* c. Have we implemented the capability? *Yes or No* | **B0-FICE-1. Target 1: 2018** a. Yes b. Yes **B0-FICE-1. Target 2: 2019** c. No | Status – PAC Partially Implemented NAM- Developing |
| | 4. AIDC to transfer CPDLC logon information to the Next Data Authority | a. Have we assessed the need? *Yes or No* b. Do we need this capability? *Yes or No* c. Have we implemented the capability? *Yes or No* | **B0-FICE-1. Target 1:** N/A a. No b. No **B0-FICE-1. Target 2:** c. No | Status – N/A |
| **Performance Improvement Area 3: Optimum Capacity and Flexible Flights** | | | | |
| ACAS | 1. ACAS II (TCAS version 7.1) | a. Have we assessed the need? *Yes or No* b. Do we need this capability? *Yes or No* c. Have we implemented the capability? *Yes or No* | **B0-ACAS-1. Target 1:** N/A a. No b. No **B0-ACAS-1. Target 2:** N/A c. No | Status – Implemented Mode S Radar available |
| | 2. Auto Pilot/Flight Director (AP/FD) TCAS | a. Have we assessed the need? *Yes or No* b. Do we need this capability? *Yes or No* c. Have we implemented the capability? *Yes or No* | **B0-ACAS-2 Target 1:** N/A a. No b. No **B0-ACAS-2. Target 2:** N/A c. No | Status – N/A |
| | 3. TCAS Alert Prevention (TCAP) | a. Have we assessed the need? *Yes or No* b. Do we need this capability? *Yes or No* c. Have we implemented the capability? *Yes or No* | **B0-ACAS-3. Target 1:** N/A a. No b. No **B0-ACAS-3. Target 2:** N/A c. No | Status – N/A |

| Block 0 Modules | Elements | Metrics | Targets | Status & Remarks |
|---|---|---|---|---|
| **ASEP** | **1.** ATSA-AIRB | **a.** Have we assessed the need? *Yes or No* **b.** Do we need this capability? *Yes or No* **c.** Have we implemented the capability? *Yes or No* | **B0-ASEP-1. Target 1:** **a.** No **b.** No **B0-ASEP-1. Target 2:** N/A **c.** No | Status – Analysis not started |
| | **2.** ATSA-VSA | **a.** Have we assessed the need? *Yes or No* **b.** Do we need this capability? *Yes or No* **c.** Have we implemented the capability? *Yes or No* | **B0-ASEP-2. Target 1:** N/A **a.** No **b.** No **B0-ASEP-2. Target 2:** N/A **c.** No | Status – Analysis not started |
| **ASUR** | **1.** ADS-B | **a.** Have we assessed the need? *Yes or No* **b.** Do we need this capability? *Yes or No* **c.** Have we implemented the capability? *Yes or No* | **B0-ASUR-1. Target 1:** **a.** Yes **b.** Yes **B0-ASUR-1. Target 2:** 2018 **c.** No | Status – Partially Implemented |
| | **2.** Multilateration (MLAT) | Number of aerodromes to be considered: 9 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1 to 9* **c.** How many aerodromes implemented the capability? *None, 1 to 9* | **B0-ASUR-2. Target 1** **a.** No **b.** No **B0-ASUR-2. Target 2:** **c.** N/A | Status - N/A |
| **FRTO** | **1.** CDM incorporated into airspace planning | **a.** Have we assessed the need? *Yes or No* **b.** Do we need this capability? *Yes or No* **c.** Have we implemented the capability? *Yes or No* | **B0-FRTO-1. Target 1:** Assessed in 2018 **a.** Yes **b.** Yes **B0-FRTO-1. Target 2:** **c.** Yes | Status – Implemented (COCESNA forms part of CADENA which does a weekly CDM telcon, and has developed an OIS where all ANSP and aircraft operators may see any TMI that will be applied.) |
| | **2.** Flexible Use of Airspace (FUA) | **a.** Have we assessed the need? *Yes or No* **b.** Do we need this capability? *Yes or No* **c.** Have we implemented the capability? *Yes or No* | **B0-FRTO-2. Target 1:** Assessed in 2018 **a.** Yes **b.** Yes **B0-FRTO-2. Target 2:** **c.** Yes | Status – Implemented (COCESNA has LOA with each Central American State that obliges the members to send NOTAMs when any Military area will be activated. Also any dangerous, restricted areas have to be declared in the AIP |
| | **3.** Flexible route systems | **a.** Have we assessed the need? *Yes or No* **b.** Do we need this capability? *Yes or No* **c.** Have we implemented the capability? *Yes or No* | **B0-FRTO-3. Target 1** N/A **a.** Yes **b.** No **B0-FRTO-3. Target 2:** **c.** No | Status – Capability not needed |
| | **4.** CPDLC used to request and receive re-route clearances | **a.** Have we assessed the need? *Yes or No* **b.** Do we need this capability? *Yes or No* **c.** Have we implemented the capability? *Yes or No* | **B0-FRTO-2. Target 1:** Assessed in April 2017 **a.** Yes **b.** Yes **B0-FRTO-2. Target 2:** **c.** Yes | Status - Implemented |

| Block 0 Modules | Elements | Metrics | Targets | Status & Remarks |
|---|---|---|---|---|
| NOPS | 1. Sharing prediction of traffic load for next day | a. Have we assessed the need? *Yes or No* <br> b. Do we need this capability? *Yes or No* <br> c. Have we implemented the capability? *Yes or No* | **B0-NOPS-1. Target 1:** <br> a. Yes <br> b. Yes <br> **B0-NOPS-1. Target 2:** <br> Dec 2019 <br> c. No | Status – Partially Implemented (COCESNA has developed a system that predicts traffic one week prior the day of operation, only COCESNA and the Central American States have access to this information.) A CDM process will be created in the app to allow all the airspace users to see the traffic load. |
| | 2. Proposing alternative routings to avoid or minimize ATFM delays | a. Have we assessed the need? *Yes or No* <br> b. Do we need this capability? *Yes or No* <br> c. Have we implemented the capability? *Yes or No* | **B0-NOPS-2. Target 1:** <br> a. No <br> b. No <br> **B0-NOPS-2. Target 2:** <br> c. No | Status – Analysis not started |
| OFTL | 1. ITP using ADS-B | a. Have we assessed the need? *Yes or No* <br> b. Do we need this capability? *Yes or No* <br> c. Have we implemented the capability? *Yes or No* | **B0-OFTL-1. Target 1:** <br> N/A <br> a. No <br> b. No <br> **B0-OFTL-1. Target 2:** <br> c. No | Status – Analysis not started |
| SNET | 1. Short Term Conflict Alert (STCA) | a. Have we assessed the need? *Yes or No* <br> b. Do we need this capability? *Yes or No* <br> c. Have we implemented the capability? *Yes or No* | **B0-SNET-1. Target 1:** <br> 2015 <br> a. Yes <br> b. Yes <br> **B0-SNET-1. Target 2:** <br> c. Yes | Status - Implemented |
| | 2. Area Proximity Warning (APW) | a. Have we assessed the need? *Yes or No* <br> b. Do we need this capability? *Yes or No* <br> c. Have we implemented the capability? *Yes or No* | **B0-SNET-2. Target 1:** <br> 2015 <br> a. Yes <br> b. Yes <br> **B0-SNET-2. Target 2:** <br> c. Yes | Status - Implemented |
| | 3. Minimum Safe Altitude Warning (MSAW) | a. Have we assessed the need? *Yes or No* <br> b. Do we need this capability? *Yes or No* <br> c. Have we implemented the capability? *Yes or No* | **B0-SNET-3. Target 1:** <br> 2015 <br> a. Yes <br> b. Yes <br> **B0-SNET-3. Target 2:** <br> c. Yes | Status - Implemented |
| | 4. Medium Term Conflict Alert (MTCA) | a. Have we assessed the need? *Yes or No* <br> b. Do we need this capability? *Yes or No* <br> c. Have we implemented the capability? *Yes or No* | **B0-SNET-4. Target 1:** <br> 2015 <br> a. Yes <br> b. Yes <br> **B0-SNET-4. Target 2:** <br> c. Yes | Status - Implemented |
| **Performance Improvement Area 4: Efficient Flight Paths** | | | | |
| CCO | 1. Procedure changes to facilitate CCO | Number of aerodromes to be considered: <br> a. Have we assessed the need? *Yes or No* <br> b. How many aerodromes need this capability? *None, 1 to 9* <br> c. How many aerodromes implemented the capability? *None, 1 to 9* | **B0-CCO-1. Target 1:** <br> a. No <br> b. None <br> **B0-CCO-1. Target 2:** <br> c. None | Status – Analysis in progress |

| Block 0 Modules | Elements | Metrics | Targets | Status & Remarks |
|---|---|---|---|---|
| | **2.** Route changes to facilitate CCO | Number of aerodromes to be considered: 9<br>**a.** Have we assessed the need?<br>*Yes or No*<br>**b.** How many aerodromes need this capability?<br>*None, 1 to 9*<br>**c.** How many aerodromes implemented the capability?<br>*None, 1 to 9* | **B0-CCO-2. Target 1:**<br>**a.** No<br>**b.** None<br>**B0-CCO-2. Target 2:**<br>**c.** None | Status – Analysis in progress |
| | **3.** PBN SIDs | Number of aerodromes to be considered: 9<br>**a.** Have we assessed the need?<br>*Yes or No*<br>**b.** How many aerodromes need this capability?<br>*None, 1 to 9*<br>**c.** How many aerodromes implemented the capability?<br>*None, 1 to 9* | **B0-CCO-3. Target 1:**<br>**a.** No<br>**b.** None<br>**B0-CCO-3. Target 2:**<br>**c.** None | Status – Analysis in progress |
| **CDO** | **1.** Procedure changes to facilitate CDO | Number of aerodromes to be considered: 9<br>**a.** Have we assessed the need?<br>*Yes or No*<br>**b.** How many aerodromes need this capability?<br>*None, 1 to 9*<br>**c.** How many aerodromes implemented the capability?<br>*None, 1 to 9* | **B0-CDO-1. Target 1:**<br>**a.** No<br>**b.** None<br>**B0-CCO-1. Target 2:**<br>**c.** None | Status- Analysis in progress |
| | **2.** Route changes to facilitate CDO | Number of aerodromes to be considered: 9<br>**a.** Have we assessed the need?<br>*Yes or No*<br>**b.** How many aerodromes need this capability?<br>*None, 1 to 9*<br>**c.** How many aerodromes implemented the capability?<br>*None, 1 to 9* | **B0-CDO-2. Target 1:**<br>**a.** No<br>**b.** None<br>**B0-CCO-2. Target 2:**<br>**c.** None | Status – Analysis in progress |
| | **3.** PBN STARs | Number of aerodromes to be considered: 9<br>**a.** Have we assessed the need?<br>*Yes or No*<br>**b.** How many aerodromes need this capability?<br>*None, 1 to 9*<br>**c.** How many aerodromes implemented the capability?<br>*None, 1 to 9* | **B0-CDO-3. Target 1:**<br>**a.** No<br>**b.** None<br>**B0-CCO-3. Target 2:**<br>**c.** None | Status – Analysis in progress |
| **TBO** | **1.** ADS-C over oceanic and remote areas | **a.** Have we assessed the need?<br>*Yes or No*<br>**b.** How many aerodromes need this capability?<br>*Yes or No*<br>**c.** Have we implemented the capability?<br>*Yes or No* | **B0-TBO-1. Target 1:**<br>2017<br>**a.** Yes<br>**b.** yes<br>**B0-TBO-1. Target 2:**<br>**c.** Yes | Status - Implemented |
| | **2.** CPDLC over continental areas | **a.** Have we assessed the need?<br>*Yes or No*<br>**b.** How many aerodromes need this capability?<br>*Yes or No*<br>**c.** Have we implemented the capability?<br>*Yes or No* | **B0-TBO-2. Target 1:**<br>2017<br>**a.** Yes<br>**b.** yes<br>**B0-TBO-2. Target 2:**<br>**c.** Yes | Status - Implemented |
| | **3.** CPDLC over oceanic and remote areas | **a.** Have we assessed the need?<br>*Yes or No*<br>**b.** How many aerodromes need this capability?<br>*Yes or No*<br>**c.** Have we implemented the capability?<br>*Yes or No* | **B0-TBO-3. Target 1:**<br>2017<br>**a.** Yes<br>**b.** yes<br>**B0-TBO-3. Target 2:**<br>**c.** Yes | Status - Implemented |

## ASBU B0 Implementation Status Summary

The summary of ASBU B0 implementation status is provided in the table below.  The details of ASBU B0 implementation status is recorded using ANRFs and provided in Appendix D.

| Module | Elements | Need Analysis | | | | Implementation Status (if Element is needed) | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Not Started | In Progress | Need | N/A | Planning | Developing | Partially Implemented | Implemented |
| **Performance Improvement Area 1: Airport Operations** | | | | | | | | | |
| **ACDM** | 1. Interconnection between aircraft operator & ANSP systems to share surface operations information | | | | √ | | | | |
| | 2. Interconnection between aircraft operator & airport operator systems to share surface operations information | | | | √ | | | | |
| | 3. Interconnection between airport operator & ANSP systems to share surface operations information | | √ | | | | | | |
| | 4. Interconnection between airport operator, aircraft operator & ANSP systems to share surface operations information | | | | √ | | | | |
| | 5. Collaborative departure queue management | | | | √ | | | | |
| **APTA** | 1. PBN approach procedures with vertical guidance to LNAV/VNAV minima | | | | √ | | | | |
| | 2. PBN approach procedures with vertical guidance to LPV minima | | | | √ | | | | |
| | 3. PBN approach procedures without vertical guidance to LNAV minima | | | | √ | | | | |
| | 4. GBAS Landing System (GLS) procedures to CAT I minima | | | | √ | | | | |
| **RSEQ** | 1. AMAN via controlled time of arrival to a reference fix | | | | √ | | | | |
| | 2. Departure management | | | | √ | | | | |
| | 3. Departure flow management | | | | √ | | | | |
| | 4. Point merge | | | | √ | | | | |
| **SURF** | 1. A-SMGCS with at least one cooperative surface surveillance system | | | | √ | | | | |
| | 2. Including ADS-B APT as an element of A-SMGCS | | | | √ | | | | |
| | 3. A-SMGCS alerting with flight identification information | | | | √ | | | | |
| | 4. EVS for taxi operations | | | | √ | | | | |
| | 5. Airport vehicles equipped with transponders | | | | √ | | | | |
| **WAKE** | 1. New PANS-ATM wake turbulence categories and separation minima | | | | √ | | | | |
| | 2. Dependent diagonal paired approach procedures for parallel runways with centrelines spaced less than 760 meters (2,500 feet) apart | | | | √ | | | | |
| | 3. Wake independent departure and arrival operations (WIDAO) for parallel runways with centrelines spaced less than 760 meters (2,500 feet) apart | | | | √ | | | | |
| | 4. Wake turbulence mitigation for departures (WTMD) procedures for parallel runways with centrelines spaced less than 760 meters (2,500 feet) apart based on observed crosswinds | | | | √ | | | | |
| | 5. 6 wake turbulence categories and separation minima | | | | √ | | | | |
| **Performance Improvement Area 2: Globally Interoperable Systems and Data** | | | | | | | | | |
| **AMET** | 1. WAFS | | | | | | | | √ |
| | 2. IAVW | | | | | | | | √ |
| | 3. TCAC forecasts | | | | | | | | √ |
| | 4. Aerodrome warnings | | | | √ | | | | |
| | 5. Wind shear warnings and alerts | | | | √ | | | | |

| Module | Elements | Not Started | In Progress | Need | N/A | Planning | Developing | Partially Implemented | Implemented |
|---|---|:-:|:-:|:-:|:-:|:-:|:-:|:-:|:-:|
| | 6. SIGMET | | | | | | | | √ |
| | 7. Other OPMET information | | | | | | | | √ |
| | 8. QMS for MET | | | | √ | | | | |
| DATM | 1. Standardized Aeronautical Information Exchange Model (AIXM) | | | | | | | | √ |
| | 2. eAIP | | | | | | | | √ |
| | 3. Digital NOTAM | | √ | | | | | | |
| | 4. eTOD | | | | √ | | | | |
| | 5. WGS-84 | | | | | | | | √ |
| | 6. QMS for AIM | | | | | | | | √ |
| FICE | 1. AIDC to provide initial flight data to adjacent ATSUs | | | | | | | √ | |
| | 2. AIDC to update previously coordinated flight data | | | | | | | √ | |
| | 3. AIDC for control transfer | | | | | | | √ | |
| | 4. AIDC to transfer CPDLC logon information to the Next Data Authority | | | | √ | | | | |
| **Performance Improvement Area 3: Optimum Capacity and Flexible Flights** | | | | | | | | | |
| ACAS | 1. ACAS II (TCAS version 7.1) | | | | | | | | √ |
| | 2. AP.FD function | | | | √ | | | | |
| | 3. TCAP function | | | | √ | | | | |
| ASEP | 1. ATSA-AIRB | √ | | | | | | | |
| | 2. ATSA-VSA | √ | | | | | | | |
| ASUR | 1. ADS-B | | | | | | | √ | |
| | 2. Multilateration (MLAT) | | | | √ | | | | |
| FRTO | 1. CDM incorporated into airspace planning | | | | | | | | √ |
| | 2. Flexible Use of Airspace (FUA) | | | | | | | | √ |
| | 3. Flexible routing | √ | | | | | | | |
| | 4. CPDLC used to request and receive re-route clearances | | | | | | | | √ |
| NOPS | 1. Sharing prediction of traffic load for next day | | | | | | | √ | |
| | 2. Proposing alternative routings to avoid or minimize ATFM delays | √ | | | | | | | |
| OPFL | 1. ITP using ADS-B | √ | | | | | | | |
| SNET | 1. Short Term Conflict Alert implementation (STCA) | | | | | | | | √ |
| | 2. Area Proximity Warning (APW) | | | | | | | | √ |
| | 3. Minimum Safe Altitude Warning (MSAW) | | | | | | | | √ |
| | 4. Medium Term Conflict Alert (MTCA) | | | | | | | | √ |
| **Performance Improvement Area 4: Efficient Flight Paths** | | | | | | | | | |
| CCO | 1. Procedure changes to facilitate CCO | | √ | | | | | | |
| | 2. Airspace changes to facilitate CCO | | √ | | | | | | |
| | 3. PBN SIDs | | √ | | | | | | |
| CDO | 1. Procedure changes to facilitate CDO | | √ | | | | | | |
| | 2. Airspace changes to facilitate CDO | | √ | | | | | | |
| | 3. PBN STARs | | √ | | | | | | |
| TBO | 1. ADS-C over oceanic and remote areas | | | | | | | | √ |
| | 2. CPDLC over continental areas | | | | | | | | √ |
| | 3. CPDLC over oceanic and remote areas | | | | | | | | √ |

## 2.2. ASBU Block 1 Implementation Targets and Status

This section will be written after 2019. Appendix E is reserved for ASBU B1 ANRFs.

### 2.3. ASBU Block 2 Implementation Targets and Status

This section will be written after 2025.  Appendix F is reserved for ASBU B2 ANRFs.

### 2.4. ASBU Block 3 Implementation Targets and Status

This section will be written after 2031.  Appendix G is reserved for ASBU B3 ANRFs.

### 3.  ICAO NACC Regional Aviation System Improvements (RASI) Status

The RPBANIP is aligned with GANP and provides guidance to States in the NACC region.  The ICAO NACC RO also provides guidance to implement certain capabilities outside the ASBU scope, yet regionally important improvements.  Currently 4 aerodrome associated NACC region specific improvements are identified and shown below.  RASI ANRF for ICAO NACC Regional Initiatives is prepared and provided in Appendix H.

- Aerodrome certification – Status: N/A
- Heliport operational approval – Status: Implemented
- Visual aids for navigation – Status: Implemented
- Aerodrome Bird/Wildlife Organization and Control Programme – Status: N/A

### 4.  COCESNA's State Aviation System Improvements (SASI) Status

COCESNA's State Aviation System Improvements (SASI) are broken into three categories; (1) Equipment upgrades; (2) Procedure upgrades; and (3) Infrastructure upgrades.  The details of upgrades were recorded using SASI ANRFs and provided in Appendix I.

### 4.1. Equipment Upgrades

Equipment upgrades are not identified at this time.

### 4.2. Procedure Upgrades

Procedure upgrades are not identified at this time.

### 4.3. Infrastructure Upgrades

There are three infrastructure upgrades, shown below, which have been identified to address anticipated airport and airspace demand growth.  SASI ANRF for Infrastructure Upgrades is prepared and provided in Appendix I.

- Airport Terminal Development – Status: N/A
- Airport Rwy Rehabilitation and extension – Status: N/A
- Control Tower and Technical Building upgrade – Status: N/A

### 5. COCESNA State ANP Next Review Schedule

The next review and revision of this document is scheduled in September 2018.

### Appendix A:  ANRF Explained

An ASBU ANRF should be completed for each applicable ASBU Module as follows:

**PIA**    The Performance Improvement Area (1, 2, 3 or 4) for the ASBU Module, as per the *NAM ASBU Handbook*.

**Block - Module**    The Module Designation for the ASBU Module, as per the *NAM ASBU Handbook*.

**Date**    The date when the form was completed or updated.

**Module Description**    The Summary Description for the ASBU Module, as per the *NAM ASBU Handbook*.

**Element**    The descriptive text for each Element, as per the *NAM ASBU Handbook*.  It is not necessary to include the Defined, Derived from or Identified By information.  Insert additional rows, if necessary, to accommodate all of the Elements listed for the ASBU Module.

**Date Planned or Implemented** The month and year when the Element was fully implemented or the year when it is planned for the Element to be fully implemented by all applicable States or at all applicable aerodromes. This field should be left blank if the Status for the Element is "Analysis Not Started" or "Not Applicable" for all States or aerodromes in the Region.

**Status**    The Need Analysis or Implementation status for the Element, in accordance with Table NAM ASBU III-1, III-2, III-3 or III-4.  Indicate the status as follows:

**Not Started:** if the Need Analysis has not been started for any of the States or aerodromes

**In Progress:** if at least one Need Analysis has been started but none have yet been completed

**Need:** if at least on Need Analysis has determined a requirement for the Element, but no implementation planning has yet been initiated

**Not Applicable:** 1) if all of the Need Analyses completed to date have concluded the Element is not required, or 2) if the Element is not an aerodrome-related improvement and the Region has not adopted the improvement for region-wide implementation.

**Planning:** if at least one implementation is in the Planning phase and no implementations have yet been completed.

**Developing:** if at least one implementation is in the Developing phase but no implementations have yet been completed.

**Partially Implemented:** if at least one, but not all, implementations have been completed.

**Implemented:** if all of Needed implementations have been completed.

**Status Details**    Further information to support or explain the reported status. The reason(s) an Element was found to be "Not Applicable" for all the aerodromes (or States) in

the Region. The reason(s) why the Need Analysis has not been completed for all or some of the aerodromes (or States) in the Region. Information on where implementation has or has not been completed (as appropriate) if the reported status is "Partially Implemented".

**Achieved Benefits**     Describe the achieved benefits for the entire Module or particular Elements. The benefits can be quantitative or qualitative. The benefits should be described for the following 5 of the 11 Key Performance Areas (KPAs) defined the *Manual on Global Performance of the Air Navigation System* (Doc 9883):

*Access & Equity:* Improving the operating environment so as to ensure all airspace users have the right of access to ATM resources needed to meet their specific operational requirements; and ensuring that the shared use of the airspace for different airspace users can be achieved safely. Providing equity for all airspace users that have access to a given airspace or service. Generally, the first aircraft ready to use the ATM resources will receive priority, except where significant overall safety or system operational efficiency would accrue or national defence considerations or interests dictate by providing priority on a different basis.

*Capacity:* Improving the ability to meet airspace user demand at peak times and locations while minimizing restrictions on traffic flow. Responding to future growth by increasing capacity, efficiency, flexibility, and predictability while ensuring that there are no adverse impacts to safety and giving due consideration to the environment. Increasing resiliency to service disruption and minimising resulting temporary loss of capacity.

*Efficiency:* Improving the operational and economic cost effectiveness of gate-to-gate flight operations from the airspace users' perspective. Increasing the ability for airspace users to depart and arrive at the times they select and fly the trajectory they determine to be optimum in all phases of flight.

*Environment:* Contributing to the protection of the environment by minimizing or reducing noise, gaseous emissions, and other negative environmental effects in the implementation and operation of the air navigation system.

*Safety:* Reducing the likelihood or severity of operational safety risks associated with the provision or use of air navigation services.

**Implementation Challenges**     A description of any circumstances that have been encountered or are foreseen that might prevent or delay implementation. Challenges should be categorized and described under the applicable subject area.

**Notes**     Any further information as deemed appropriate.

## Appendix B: ASBU ANRF Template

| COCESNA ASBU Air Navigation Reporting Form (ANRF) | | | | | |
|---|---|---|---|---|---|
| **PIA** | 4 | **Block - Module** | B0 - CDO | **Date** | |
| **Module Description:** To use performance-based airspace and arrival procedures allowing an aircraft to fly its optimum profile using continuous descent operations. This will optimize throughput, allow fuel efficient descent profiles, and increase capacity in terminal areas. The application of PBN enhances CDO. | | | | | |
| **Element Implementation Status** | | | | | |
| 1 | **Element Description:** Procedure changes to facilitate CDO | | **Date Planned/Implemented** | | **Status** N/A |
| | **Status Details** | | | | |
| 2 | **Element Description** Route changes to facilitate CDO | | **Date Planned/Implemented** | | **Status** N/A |
| | **Status Details** | | | | |
| 3 | **Element Description** PBN STARs | | **Date Planned/Implemented** | | **Status** N/A |
| | **Status Details** | | | | |
| **Achieved Benefits** | | | | | |
| *Access and Equity* **Element 1:** **Element 3:** | | | | | |
| *Capacity* | | | | | |
| *Efficiency* | | | | | |
| *Environment* | | | | | |
| *Safety* | | | | | |
| **Implementation Challenges** | | | | | |
| *Ground system Implementation* | | | | | |
| *Avionics Implementation* | | | | | |
| *Procedures Availability* | | | | | |
| *Operational Approvals* | | | | | |
| **Notes** | | | | | |

## Appendix C:  RASI and SASI ANRF Templates

RASI and SASI ANRF templates are the same with ASBU ANRF template with exception of the header as shown in this Appendix.  The first header is for the ICAO NACC Regional Office specific improvements while the second header is for the State specific improvements.

### Section C.1:  Regional Aviation System Improvements (RASI) ANRF Header

Enter appropriate State Name and Date.  Describe the Module (i.e., improvement group description.)

| COCESNA RASI Air Navigation Reporting Form (ANRF) | | |
|---|---|---|
| **ICAO NACC Regional Initiatives** | **Date** | |
| **Module Description:**  ICAO NACC RO has identified airport improvements. | | |
| Refer to the ASBU ANRF for the remaining sections (i.e., Element Implementation Status, Achieved Benefits, Implementation Challenges, and Notes) | | |

### Section C.2:  State Aviation System Improvements (RASI) ANRF Header

Enter appropriate State Name, Upgrades category (i.e., Equipment, Procedure, Infrastructure, etc.), Date. Describe the Module (i.e., Upgrades category description.)

| **State Name** SASI Air Navigation Reporting Form (ANRF) | | |
|---|---|---|
| **Infrastructure Upgrades** | **Date** | |
| **Module Description:**  Describe module. | | |
| Refer to the ASBU ANRF for the remaining sections (i.e., Element Implementation Status, Achieved Benefits, Implementation Challenges, and Notes) | | |

### Appendix D: COCESNA's ASBU Block 0 ANRFs

| COCESNA ASBU Air Navigation Reporting Form (ANRF) | | | | | |
|---|---|---|---|---|---|
| **PIA** | 1 | **Block - Module** | B0 - ACDM | **Date** | March 12, 2018 |
| **Module Description:** To implement collaborative applications that will allow the sharing of surface operations data among the different stakeholders on the airport. This will improve surface traffic management reducing delays on movement and manoeuvring areas and enhance safety, efficiency and situational awareness. | | | | | |
| **Element Implementation Status** | | | | | |
| **1** | **Element Description:** Interconnection between aircraft operator and ANSP systems to share surface operations information | | **Date Planned/Implemented** N/A | | **Status** N/A |
| | **Status Details** We would like to receive DEP/ARR messages from the aircraft operators if airport cannot deliver | | | | |
| **2** | **Element Description:** Interconnection between aircraft operator and airport operator systems to share surface operations information. | | **Date Planned/Implemented** N/A | | **Status** N/A |
| | **Status Details** This element is between aircraft operators and airport operator | | | | |
| **3** | **Element Description:** Interconnection between airport operator and ANSP systems to share surface operations information | | **Date Planned/Implemented** **N/A** | | **Status** N/A |
| | **Status Details** We would like to receive DEP/ARR messages from airport operator is aircraft operator cannot provide | | | | |
| **4** | **Element Description:** Interconnection between airport operator, aircraft operator and ANSP systems to share surface operations information | | **Date Planned/Implemented** N/A | | **Status** N/A |
| | **Status Details** Applies for airports near each other | | | | |
| **5** | **Element Description:** Collaborative departure queue management | | **Date Planned/Implemented** N/A | | **Status** N/A |
| | **Status Details** | | | | |
| **Achieved Benefits** | | | | | |
| *Access and Equity:* | | | | | |
| *Capacity:* | | | | | |
| *Efficiency:* | | | | | |
| *Environment:* | | | | | |
| *Safety:* | | | | | |
| **Implementation Challenges** | | | | | |
| *Ground System Implementation:* | | | | | |
| *Avionics Implementation:* | | | | | |
| *Procedures Availability:* | | | | | |
| *Operational Approvals:* | | | | | |
| **Notes** | | | | | |

| COCESNA ASBU Air Navigation Reporting Form (ANRF) | | | | | |
|---|---|---|---|---|---|
| **PIA** | 1 | **Block - Module** | B0 - APTA | **Date** | March 12, 2018 |

**Module Description:** The use of Performance-based Navigation (PBN) and ground-based augmentation system (GBAS) landing system (GLS) procedures will enhance the reliability and predictability of approaches to runways, thus increasing safety, accessibility and efficiency. This is possible through the application of basic global navigation satellite system (GNSS), Baro-vertical navigation (VNAV), satellite-based augmentation system (SBAS) and GLS. The flexibility inherent in PBN approach design can be exploited to increase runway capacity.

**Element Implementation Status**

| | | | |
|---|---|---|---|
| 1 | **Element Description:** PBN approach procedures with vertical guidance to LNAV/VNAV minima | **Date Planned/Implemented** N/A | **Status** N/A |
| | **Status Details** N/A | | |
| 2 | **Element Description:** PBN approach procedures with vertical guidance to LPV minima | **Date Planned/Implemented** N/A | **Status** N/A |
| | **Status Details** N/A | | |
| 3 | **Element Description:** PBN approach procedures without vertical guidance to LNAV minima | **Date Planned/Implemented** N/A | **Status** N/A |
| | **Status Details** N/A | | |
| 4 | **Element Description:** GBAS Landing System (GLS) procedures to CAT I minima | **Date Planned/Implemented** N/A | **Status** N/A |
| | **Status Details** N/A | | |

**Achieved Benefits**

| |
|---|
| *Access and Equity:* |
| *Capacity:* |
| *Efficiency:* |
| *Environment:* |
| *Safety:* |

**Implementation Challenges**

| |
|---|
| *Ground system Implementation:* |
| *Avionics Implementation:* |
| *Procedures Availability:* |
| *Operational Approvals:* |

**Notes**

| |
|---|
| |

| COCESNA ASBU Air Navigation Reporting Form (ANRF) | | | | | |
|---|---|---|---|---|---|
| **PIA** | 1 | **Block - Module** | B0 - RSEQ | **Date** | March 12, 2018 |

**Module Description:** To manage arrivals and departures (including time-based metering) to and from a multi-runway aerodrome or locations with multiple dependent runways at closely proximate aerodromes, to efficiently utilize the inherent runway capacity.

**Element Implementation Status**

| 1 | **Element Description:** AMAN via controlled time of arrival to a reference fix | **Date Planned/Implemented** N/A | **Status** N/A |
|---|---|---|---|
| | **Status Details** N/A | | |
| 2 | **Element Description:** Departure management | **Date Planned/Implemented** N/A | **Status** N/A |
| | **Status Details** N/A | | |
| 3 | **Element Description:** Departure flow management | **Date Planned/Implemented** N/A | **Status** N/A |
| | **Status Details** N/A | | |
| 4 | **Element Description:** Point merge | **Date Planned/Implemented** N/A | **Status** N/A |
| | **Status Details** N/A | | |

**Achieved Benefits**

*Access and Equity:* N/A

*Capacity:* N/A

*Efficiency:* N/A

*Environment:* N/A

*Safety:* N/A

**Implementation Challenges**

*Ground system Implementation:* N/A

*Avionics Implementation:* N/A

*Procedures Availability:* N/A

*Operational Approvals:* N/A

**Notes**

| COCESNA ASBU Air Navigation Reporting Form (ANRF) | | | | |
|---|---|---|---|---|
| **PIA** | 1 | **Block - Module** B0 - SURF | **Date** | March 12, 2018 |

**Module Description:** First levels of advanced-surface movement guidance and control systems (A-SMGCS) provides surveillance and alerting of movements of both aircraft and vehicles at the aerodrome, thus improving runway/aerodrome safety.

Automatic dependent surveillance-broadcast (ADS-B) information is used when available (ADS-B APT). Enhanced vision systems (EVS) is used for low-visibility operations.

**Element Implementation Status**

| | | | |
|---|---|---|---|
| 1 | **Element Description:**<br>A-SMGCS with at least one cooperative surface surveillance system | **Date Planned/Implemented**<br>N/A | **Status**<br>N/A |
| | **Status Details**<br>N/A | | |
| 2 | **Element Description:**<br>ADS-B APT | **Date Planned/Implemented**<br>N/A | **Status**<br>N/A |
| | **Status Details**<br>N/A | | |
| 3 | **Element Description:**<br>A-SMGCS alerting with flight identification information | **Date Planned/Implemented**<br>N/A | **Status**<br>N/A |
| | **Status Details**<br>N/A | | |
| 4 | **Element Description:**<br>EVS for taxi operations | **Date Planned/Implemented**<br>N/A | **Status**<br>N/A |
| | **Status Details**<br>N/A | | |
| 5 | **Element Description:**<br>Airport vehicles equipped with transponders | **Date Planned/Implemented**<br>N/A | **Status**<br>N/A |
| | **Status Details**<br>N/A | | |

**Achieved Benefits**

*Access and Equity:* N/A

*Capacity:* N/A

*Efficiency:* N/A

*Environment:* N/A

*Safety:* N/A

**Implementation Challenges**

*Ground system Implementation:* N/A

*Avionics Implementation:* N/A

*Procedures Availability:* N/A

*Operational Approvals:* N/A

**Notes**

| COCESNA ASBU Air Navigation Reporting Form (ANRF) | | | | | |
|---|---|---|---|---|---|
| **PIA** | 1 | **Block - Module** | B0 - WAKE | **Date** | March 12, 2018 |

**Module Description:** Improved throughput on departure and arrival runways through optimized wake turbulence separation minima, revised aircraft wake turbulence categories and procedures.

**Element Implementation Status**

| 1 | **Element Description:** New PANS-ATM wake turbulence categories and separation minima | **Date Planned/Implemented** N/A | **Status** N/A |
|---|---|---|---|
| | **Status Details** Wait for the ICAO document to be published | | |
| 2 | **Element Description:** Dependent diagonal paired approach procedures for parallel runways with centrelines spaced less than 760 meters (2,500 feet) apart | **Date Planned/Implemented** N/A | **Status** N/A |
| | **Status Details** N/A | | |
| 3 | **Element Description:** Wake independent departure and arrival operations (WIDAO) for parallel runways with centrelines spaced less than 760 meters (2,500 feet) apart | **Date Planned/Implemented** N/A | **Status** N/A |
| | **Status Details** N/A | | |
| 4 | **Element Description:** Wake turbulence mitigation for departures (WTMD) procedures for parallel runways with centrelines spaced less than 760 meters (2,500 feet) apart based on observed crosswinds | **Date Planned/Implemented** N/A | **Status** N/A |
| | **Status Details** N/A | | |
| 5 | **Element Description:** 6 wake turbulence categories and separation minima | **Date Planned/Implemented** N/A | **Status** N/A |
| | **Status Details** N/A | | |

**Achieved Benefits**

| |
|---|
| *Access and Equity:* N/A |
| *Capacity:* N/A |
| *Efficiency:* N/A |
| *Environment:* N/A |
| *Safety:* N/A |

**Implementation Challenges**

| |
|---|
| *Ground system Implementation:* N/A |
| *Avionics Implementation:* N/A |
| *Procedures Availability:* N/A |
| *Operational Approvals:* N/A |

**Notes**

| COCESNA ASBU Air Navigation Reporting Form (ANRF) | | | | |
|---|---|---|---|---|
| **PIA** | 2 | **Block - Module** | B0 - AMET | **Date** March 12, 2018 |

**Module Description:** Global, regional and local meteorological information:

  a) forecasts provided by world area forecast centres (WAFC), volcanic ash advisory centres (VAAC) and tropical cyclone advisory centres (TCAC);

  b) aerodrome warnings to give concise information of meteorological conditions that could adversely affect all aircraft at an aerodrome including wind shear; and

  c) SIGMETs to provide information on occurrence or expected occurrence of specific enroute weather phenomena which may affect the safety of aircraft operations and other operational meteorological (OPMET) information, including METAR/SPECI and TAF, to provide routine and special observations and forecasts of meteorological conditions occurring or expected to occur at the aerodrome.

This information supports flexible airspace management, improved situational awareness and collaborative decision making, and dynamically optimized flight trajectory planning.

This module includes elements which should be viewed as a subset of all available meteorological information that can be used to support enhanced operational efficiency and safety.

**Element Implementation Status**

| | **Element Description:** | | **Date Planned/Implemented** | **Status** |
|---|---|---|---|---|
| **1** | WAFS | | 2017 | Implemented |
| | **Status Details** Information is being provided to COCESNA by each State Member and the WAFC in Washington | | | |
| **2** | **Element Description:** IAVW | | **Date Planned/Implemented** 2017 | **Status** Implemented |
| | **Status Details** | | | |
| **3** | **Element Description:** TCAC forecasts | | **Date Planned/Implemented** 2017 | **Status** Implemented |
| | **Status Details** | | | |
| **4** | **Element Description:** Aerodrome warnings | | **Date Planned/Implemented** N/A | **Status** N/A |
| | **Status Details** N/A | | | |
| **5** | **Element Description:** Wind shear warnings and alerts | | **Date Planned/Implemented** N/A | **Status** N/A |
| | **Status Details** N/A | | | |
| **6** | **Element Description:** SIGMET | | **Date Planned/Implemented** 2017 | **Status** Implemented |
| | **Status Details** N/A | | | |
| **7** | **Element Description:** Other OPMET information (METAR, SPECI and/or TAF) | | **Date Planned/Implemented** 2017 | **Status** Implemented |
| | **Status Details** N/A | | | |
| **8** | **Element Description:** QMS for MET | | **Date Planned/Implemented** N/A | **Status** N/A |
| | **Status Details** N/A | | | |

**Achieved Benefits**

| |
|---|
| *Access and Equity:* |
| *Capacity:* |
| *Efficiency:* |
| *Environment:* |
| *Safety:* |
| **Implementation Challenges** |

| | |
|---|---|
| *Ground system Implementation:* | |
| *Avionics Implementation:* | |
| *Procedures Availability:* | |
| *Operational Approvals* | |
| **Notes** | |

| COCESNA ASBU Air Navigation Reporting Form (ANRF) | | | | | |
|---|---|---|---|---|---|
| **PIA** | 2 | **Block - Module** | B0 - DATM | **Date** | March 12, 2018 |

**Module Description:** The initial introduction of digital processing and management of information, from origination to publication, through aeronautical information service (AIS)/aeronautical information management (AIM) implementation, use of aeronautical exchange model (AIXM), migration to electronic aeronautical information publication (AIP) and better quality and availability of data.

**Element Implementation Status**

| | | | |
|---|---|---|---|
| 1 | **Element Description:** Standardized Aeronautical Information Exchange Model (AIXM) | **Date Planned/Implemented** 2017 | **Status** Implemented |
| | **Status Details** COCESNA migration from AFTN to AMHS includes AIXM implementation | | |
| 2 | **Element Description:** eAIP | **Date Planned/Implemented** 2017 | **Status** Implemented |
| | **Status Details** COCESNA migration from AFTN to AMHS includes eAIP implementation for Honduras, and being developed in Guatemala and Belice | | |
| 3 | **Element Description:** Digital NOTAM | **Date Planned/Implemented** TBD | **Status** Analysis in progress |
| | **Status Details** We have the capability to develop Digital Notam, however, we need the State Members approval. We will review this element in 2020. | | |
| 4 | **Element Description:** eTOD | **Date Planned/Implemented** N/A | **Status** N/A |
| | **Status Details** It is each Member State´s responsibility | | |
| 5 | **Element Description:** WGS-84 | **Date Planned/Implemented** 2017 | **Status** Implemented |
| | **Status Details** It is each Member State´s responsibility | | |
| 6 | **Element Description:** QMS for AIM | **Date Planned/Implemented** 2017 | **Status** Implemented |
| | **Status Details** In transition from AIS to AIM | | |

| **Achieved Benefits** |
|---|
| **Achieved Benefits** |
| *Access and Equity:* |
| *Capacity:* |
| *Efficiency:* |
| *Environment:* |
| *Safety:* |
| **Implementation Challenges** |
| *Ground system Implementation:* |
| *Avionics Implementation:* |
| *Procedures Availability:* |
| **Notes** |
| |

| COCESNA ASBU Air Navigation Reporting Form (ANRF) | | | | | |
|---|---|---|---|---|---|
| **PIA** | 2 | **Block - Module** | B0 - FICE | **Date** | March 12, 2018 |

**Module Description:** To improve coordination between air traffic service units (ATSUs) by using ATS interfacility data communication (AIDC) defined by ICAO's Manual of Air Traffic Services Data Link Applications (Doc 9694). An additional benefit is the improved efficiency of the transfer of communication in a data link environment.

**Element Implementation Status**

| 1 | **Element Description:** AIDC to provide initial flight data to adjacent ATSUs | **Date Planned/Implemented** 2019 | **Status** Partially Implemented |
|---|---|---|---|
| | **Status Details** We have AIDC with Mexico ACC, Habana ACC, El Salvador APP and Nicaragua APP. We are planning to connect AIDC with Costa Rica APP and Belice APP in 2018. | | |
| 2 | **Element Description:** AIDC to update previously coordinated flight data | **Date Planned/Implemented** 2019 | **Status** Partially Implemented |
| | **Status Details** We have AIDC with El Salvador APP and Nicaragua APP. We are planning to connect AIDC with Costa Rica APP and Belice APP in 2018. | | |
| 3 | **Element Description:** AIDC for control transfer | **Date Planned/Implemented** 2019 | **Status** Partially Implemented |
| | **Status Details** We have AIDC with El Salvador APP and Nicaragua APP. We are planning AIDC control transfer with Costa Rica APP and Belice APP, Mexico ACC and Habana ACC in 2018. | | |
| 4 | **Element Description:** AIDC to transfer CPDLC logon information to the Next Data Authority | **Date Planned/Implemented** N/A | **Status** N/A |
| | **Status Details** N/A | | |

**Achieved Benefits**

| *Access and Equity:* |
|---|
| *Capacity:* |
| *Efficiency:* |
| *Environment:* |
| *Safety:* |

**Implementation Challenges**

| *Ground system Implementation:* |
|---|
| *Avionics Implementation:* |
| *Procedures Availability:* |
| *Operational Approvals:* |

**Notes**

| COCESNA ASBU Air Navigation Reporting Form (ANRF) | | | | | |
|---|---|---|---|---|---|
| **PIA** | 3 | **Block - Module** | B0 - ACAS | **Date** | March 12, 2018 |

**Module Description:** To provide short-term improvements to existing airborne collision avoidance systems (ACAS) to reduce nuisance alerts while maintaining existing levels of safety. This will reduce trajectory deviations and increase safety in cases where there is a breakdown of separation.

**Element Implementation Status**

| 1 | **Element Description:** ACAS II (TCAS version 7.1) | **Date Planned/Implemented** 2017 | **Status** Implemented |
|---|---|---|---|
| | **Status Details** N/A | | |
| 2 | **Element Description:** AP/FD function | **Date Planned/Implemented** N/A | **Status** N/A |
| | **Status Details** N/A | | |
| 3 | **Element Description:** TCAP function | **Date Planned/Implemented** N/A | **Status** N/A |
| | **Status Details** N/A | | |

**Achieved Benefits**

*Access and Equity:*

*Capacity:*

*Efficiency:*

*Environment:*

*Safety:*

**Implementation Challenges**

*Ground system Implementation:*

*Avionics Implementation:*

*Procedures Availability:*

*Operational Approvals:*

**Notes**

| COCESNA ASBU Air Navigation Reporting Form (ANRF) | | | | | |
|---|---|---|---|---|---|
| **PIA** | 3 | **Block - Module** | B0 - ASEP | **Date** | March 12, 2018 |

**Module Description:** Two air traffic situational awareness (ATSA) applications which will enhance safety and efficiency by providing pilots with the means to enhance traffic situational awareness and achieve quicker visual acquisition of targets:
a) AIRB (basic airborne situational awareness during flight operations).
b) VSA (visual separation on approach).

**Element Implementation Status**

| 1 | **Element Description:** ATSA-AIRB | **Date Planned/Implemented** 2019 | **Status** Analysis not started |
|---|---|---|---|
| | **Status Details** N/A | | |

| 2 | **Element Description:** ATSA-VSA | **Date Planned/Implemented** 2019 | **Status** Analysis not started |
|---|---|---|---|
| | **Status Details** N/A | | |

**Achieved Benefits**

*Access and Equity:*

*Capacity:*

*Efficiency:*

*Environment:*

*Safety:*

**Implementation Challenges**

*Ground system Implementation:*

*Avionics Implementation:*

*Procedures Availability:*

*Operational Approvals:*

**Notes**

| COCESNA ASBU Air Navigation Reporting Form (ANRF) | | | | | |
|---|---|---|---|---|---|
| **PIA** | 3 | **Block - Module** | B0 - ASUR | **Date** | March 12, 2018 |

**Module Description:** To provide initial capability for lower cost ground surveillance supported by new technologies such as ADS-B OUT and wide area multilateration (MLAT) systems. This capability will be expressed in various ATM services, e.g. traffic information, search and rescue and separation provision.

**Element Implementation Status**

| 1 | **Element Description:** ADS-B | **Date Planned/Implemented** 2019 | **Status** Partially Implemented |
|---|---|---|---|
| | **Status Details** Up to date the following enroute ADS-B have been implemented: Belize, Isla del Coco (Costa Rica), Juan Santamaria (Costa Rica), Monte Crudo (Honduras), Cerra Santiago (Guatemala), Mata de Caña (Costa Rica), Puerto Cabezas (Nicaragua) and Grand Cayman (Cayman Island). In 2018, we will implement two more stations to have a full ADS-B continental coverage. | | |
| 2 | **Element Description:** MLAT | **Date Planned/Implemented** | **Status** N/A |
| | **Status Details** | | |

**Achieved Benefits**

| *Access and Equity:* |
|---|
| *Capacity:* |
| *Efficiency:* |
| *Environment:* |
| *Safety:* |

**Implementation Challenges**

| *Ground system Implementation:* |
|---|
| *Avionics Implementation:* |
| *Procedures Availability:* |
| *Operational Approvals:* |

**Notes**

| COCESNA ASBU Air Navigation Reporting Form (ANRF) | | | | | |
|---|---|---|---|---|---|
| **PIA** | 3 | **Block - Module** | B0 - FRTO | **Date** | March 12, 2018 |

**Module Description:** To allow the use of airspace which would otherwise be segregated (i.e. special use airspace) along with flexible routing adjusted for specific traffic patterns. This will allow greater routing possibilities, reducing potential congestion on trunk routes and busy crossing points, resulting in reduced flight lengths and fuel burn.

**Element Implementation Status**

| 1 | **Element Description:** CDM incorporated into airspace planning | **Date Planned/Implemented** 2018 | **Status** Implemented |
|---|---|---|---|
| | **Status Details** COCESNA is member of the ATFM data exchange network of the Americas CADENA | | |
| 2 | **Element Description:** Flexible Use of Airspace (FUA) | **Date Planned/Implemented** 2017 | **Status** Implemented |
| | **Status Details** LOA has been signed with each State allowing Civil Aviation overfly military areas. | | |
| 3 | **Element Description:** Flexible routing | **Date Planned/Implemented** N/A | **Status** N/A |
| | **Status Details** N/A | | |
| 4 | **Element Description:** CPDLC used to request and receive re-route clearances | **Date Planned/Implemented** 2017 | **Status** Implemented |
| | **Status Details** AIP Publication of the use of CPDLC was made for all the Central American Airspace. | | |

**Achieved Benefits**

| *Access and Equity:* |
|---|
| *Capacity:* |
| *Efficiency:* |
| *Environment:* |
| *Safety:* |

**Implementation Challenges**

| *Ground system Implementation:* |
|---|
| *Avionics Implementation:* |
| *Procedures Availability:* |
| *Operational Approvals:* |

**Notes**

| COCESNA ASBU Air Navigation Reporting Form (ANRF) | | | | | |
|---|---|---|---|---|---|
| **PIA** | 3 | **Block - Module** | B0 - NOPS | **Date** | March 12, 2018 |

**Module Description:** Air traffic flow management (ATFM) is used to manage the flow of traffic in a way that minimizes delays and maximizes the use of the entire airspace. Collaborative ATFM can regulate traffic flows involving departure slots, smooth flows and manage rates of entry into airspace along traffic axes, manage arrival time at waypoints or flight information region (FIR)/sector boundaries and re-route traffic to avoid saturated areas. ATFM may also be used to address system disruptions including a crisis caused by human or natural phenomena.

**Element Implementation Status**

| 1 | **Element Description:** Sharing prediction of traffic load for next day | **Date Planned/Implemented** 2019 | **Status** Partially Implemented |
|---|---|---|---|
| | **Status Details** Planning to do the TFM Flight Data Exchange with FAA via SWIM | | |
| 2 | **Element Description:** Proposing alternative routings to avoid or minimize ATFM delays | **Date Planned/Implemented** 2019 | **Status** Analysis not started |
| | **Status Details** Currently developing a CDM process with airlines and airport operators. | | |

**Achieved Benefits**

*Access and Equity:*

*Capacity:*

*Efficiency:*

*Environment:*

*Safety:*

**Implementation Challenges**

*Ground system Implementation:*

*Avionics Implementation:*

*Procedures Availability:*

*Operational Approvals:*

**Notes**

| COCESNA ASBU Air Navigation Reporting Form (ANRF) | | | | | |
|---|---|---|---|---|---|
| **PIA** | 3 | **Block - Module** | B0 - OPFL | **Date** | March 12, 2018 |
| **Module Description:** To enable aircraft to reach a more satisfactory flight level for flight efficiency or to avoid turbulence for safety. The main benefit of ITP is fuel/emissions savings and the uplift of greater payloads. | | | | | |
| **Element Implementation Status** | | | | | |
| **1** | **Element Description:** ITP using ADS-B | | **Date Planned/Implemented** TBD | | **Status** Analysis not started |
| | **Status Details** N/A | | | | |
| **Achieved Benefits** | | | | | |
| *Access and Equity:* N/A | | | | | |
| *Capacity:* N/A | | | | | |
| *Efficiency:* N/A | | | | | |
| *Environment:* N/A | | | | | |
| *Safety:* N/A | | | | | |
| **Implementation Challenges** | | | | | |
| *Ground system Implementation:* N/A | | | | | |
| *Avionics Implementation:* N/A | | | | | |
| *Procedures Availability:* N/A | | | | | |
| *Operational Approvals:* N/A | | | | | |
| **Notes** | | | | | |

| COCESNA ASBU Air Navigation Reporting Form (ANRF) | | | | | |
|---|---|---|---|---|---|
| **PIA** | 3 | **Block - Module** | B0 - SNET | **Date** | March 12, 2018 |

**Module Description:** To enable monitoring of flights while airborne to provide timely alerts to air traffic controllers of potential risks to flight safety. Alerts from short-term conflict alert (STCA), area proximity warnings (APW) and minimum safe altitude warnings (MSAW) are proposed. Ground-based safety nets make an essential contribution to safety and remain required as long as the operational concept remains human centred.

**Element Implementation Status**

| 1 | **Element Description:**<br>Short Term Conflict Alert (STCA) | **Date Planned/Implemented**<br>2015 | **Status**<br>Implemented |
|---|---|---|---|
| | **Status Details**<br>It was implemented in the CENAMER ACC upgrade (AIRCON2100 R) | | |
| 2 | **Element Description:**<br>Area Proximity Warning (APW) | **Date Planned/Implemented**<br>2015 | **Status**<br>Implemented |
| | **Status Details**<br>It was implemented in the CENAMER ACC upgrade (AIRCON2100 R) | | |
| 3 | **Element Description:**<br>Minimum Safe Altitude Warning (MSAW) | **Date Planned/Implemented**<br>2015 | **Status**<br>Implemented |
| | **Status Details**<br>It was implemented in the CENAMER ACC upgrade (AIRCON2100 R) | | |
| 4 | **Element Description:**<br>Medium Term Conflict Alert (MTCA) | **Date Planned/Implemented**<br>2015 | **Status**<br>Implemented |
| | **Status Details**<br>It was implemented in the CENAMER ACC upgrade (AIRCON2100 R) | | |

**Achieved Benefits**

*Access and Equity:*

*Capacity:*

*Efficiency:*

*Environment:*

*Safety:*

**Implementation Challenges**

*Ground system Implementation:*

*Avionics Implementation:*

*Procedures Availability:*

*Operational Approvals:*

**Notes**

| COCESNA ASBU Air Navigation Reporting Form (ANRF) | | | | | |
|---|---|---|---|---|---|
| **PIA** | 4 | **Block - Module** | B0 - CCO | **Date** | October 25, 2017 |

**Module Description:** To implement continuous climb operations in conjunction with performance-based navigation (PBN) to provide opportunities to optimize throughput, improve flexibility, enable fuel-efficient climb profiles, and increase capacity at congested terminal areas. The application of PBN enhances CCO.

**Element Implementation Status**

| 1 | **Element Description:**<br>Procedure changes to facilitate CCO | **Date Planned/Implemented**<br>2019 | **Status**<br>Analysis in progress |
|---|---|---|---|
| | **Status Details** | | |

| 2 | **Element Description:**<br>Airspace changes to facilitate CCO | **Date Planned/Implemented**<br>**2019** | **Status**<br>Analysis in progress |
|---|---|---|---|
| | **Status Details** | | |

| 3 | **Element Description:**<br>PBN SIDs | **Date Planned/Implemented**<br>2019 | **Status**<br>Analysis in progress |
|---|---|---|---|
| | **Status Details** | | |

**Achieved Benefits**

*Access and Equity:*

*Capacity:*

*Efficiency:*

*Environment:*

*Safety:*

**Implementation Challenges**

*Ground system Implementation:*

*Avionics Implementation:*

*Procedures Availability:*

*Operational Approvals:*

**Notes**

| COCESNA ASBU Air Navigation Reporting Form (ANRF) | | | | | |
|---|---|---|---|---|---|
| **PIA** | 4 | **Block - Module** | B0 - CDO | **Date** | March 12, 2018 |

**Module Description:** To use performance-based airspace and arrival procedures allowing an aircraft to fly its optimum profile using continuous descent operations. This will optimize throughput, allow fuel efficient descent profiles, and increase capacity in terminal areas. The application of PBN enhances CDO.

**Element Implementation Status**

| 1 | **Element Description:** Procedure changes to facilitate CDO | **Date Planned/Implemented 2019** | **Status** Analysis not started |
|---|---|---|---|
| | **Status Details** | | |

| 2 | **Element Description:** Airspace changes to facilitate CDO | **Date Planned/Implemented 2019** | **Status** Analysis not started |
|---|---|---|---|
| | **Status Details** | | |

| 3 | **Element Description:** PBN STARs | **Date Planned/Implemented 2019** | **Status** Analysis not started |
|---|---|---|---|
| | **Status Details** | | |

**Achieved Benefits**

*Access and Equity:*

*Capacity:*

*Efficiency:*

*Environment:*

*Safety:*

**Implementation Challenges**

*Ground system Implementation:*

*Avionics Implementation:*

*Procedures Availability:*

*Operational Approvals:*

**Notes**

| **COCESNAASBU Air Navigation Reporting Form (ANRF)** | | | | | |
|---|---|---|---|---|---|
| **PIA** | 4 | **Block - Module** | B0 - TBO | **Date** | March 12, 2018 |
| **Module Description:** To implement a set of data link applications supporting surveillance and communications in air traffic services, which will lead to flexible routing, reduced separation and improved safety. | | | | | |
| **Element Implementation Status** | | | | | |
| 1 | **Element Description:** ADS-C over oceanic and remote areas | | **Date Planned/Implemented** 2017 | | **Status** Implemented |
| | **Status Details** AIP Publication on April 2017 | | | | |
| 2 | **Element Description:** CPDLC over continental areas | | **Date Planned/Implemented** 2017 | | **Status** Implemented |
| | **Status Details** AIP Publication on April 2017 | | | | |
| 3 | **Element Description:** CPDLC over oceanic and remote areas | | **Date Planned/Implemented** 2017 | | **Status** Implemented |
| | **Status Details** AIP Publication on April 2017 | | | | |
| **Achieved Benefits** | | | | | |
| *Access and Equity:* | | | | | |
| *Capacity:* | | | | | |
| *Efficiency:* | | | | | |
| *Environment:* | | | | | |
| *Safety:* | | | | | |
| **Implementation Challenges** | | | | | |
| *Ground system Implementation:* | | | | | |
| *Avionics Implementation:* | | | | | |
| *Procedures Availability:* | | | | | |
| *Operational Approvals:* | | | | | |
| **Notes** | | | | | |

### Appendix E:  COCESNA's ASBU Block 1 ANRFs
Insert ASBU B1 ANRFs in the future.

### Appendix F:  COCESNA´s SBU Block 2 ANRFs
Insert ASBU B2 ANRFs in the future.

### Appendix G:  COCESNA´s ASBU Block 3 ANRFs
Insert ASBU B3 ANRFs in the future.

## Appendix H: COCESNA´s Organization RASI ANRFs

| COCESNA´s RASI Air Navigation Reporting Form (ANRF) | | | |
|---|---|---|---|
| **ICAO NACC Regional Initiatives** | | **Date** | |
| **Module Description:** ICAO NACC RO has identified airport improvements. | | | |
| **Element Implementation Status** | | | |
| **1** **Element Description:** Aerodrome certification | | **Date Planned/Implemented** | **Status** N/A |
| **Status Details** | | | |
| **2** **Element Description:** Heliport operational approval | | **Date Planned/Implemented** | **Status** N/A |
| **Status Details** | | | |
| **3** **Element Description:** Visual aids for navigation | | **Date Planned/Implemented** | **Status** N/A |
| **Status Details** | | | |
| **4** **Element Description:** Aerodrome Bird/Wildlife Organization and Control Programme | | **Date Planned/Implemented** | **Status** N/A |
| **Status Details** | | | |
| **Achieved Benefits** | | | |
| *Access and Equity* | | | |
| *Capacity*: | | | |
| *Efficiency* | | | |
| *Environment*: No report | | | |
| *Safety* | | | |
| **Implementation Challenges** | | | |
| *Ground system Implementation*: | | | |
| *Avionics Implementation*: | | | |
| *Procedures Availability*: | | | |
| *Operational Approvals*: | | | |
| **Notes** | | | |

### Appendix I:  COCESNA´s Organization SASI ANRFs

| COCESNA´s Air Navigation Reporting Form (ANRF) | | | |
|---|---|---|---|
| **Infrastructure Upgrades** | | **Date** | September 1, 2017 |
| **Module Description:**  Development of major components of the overall Airport/Aerodrome to meet the demands of the growing Aviation Industry.  This will improve capacity and safety in the in terminal and allow seamless maneuvering of wide body Aircraft (example B777) at the turning bay.  Such maneuvering will reduce runway occupancy time and reduce surface wear and tear.  New ATC facility is required to meet the demands of increase staffing.  Improving operational space is vital to meet the need of increased traffic.  The benefits of such infrastructure upgrades will increase an overall traffic management efficiency and enhance safety. | | | |
| **Element Implementation Status** | | | |
| **1** | **Element Description:** Airport Terminal Development | **Date Planned/Implemented** TBD | **Status** N/A |
| | **Status Details** | | |
| **2** | **Element Description:** Airport Runway Rehabilitation and Extension | **Date Planned/Implemented** TBD | **Status** N/A |
| | **Status Details** | | |
| **3** | **Element Description:** Control Tower and Technical Building Upgrades | **Date Planned/Implemented** TBD | **Status** N/A |
| | **Status Details** | | |
| **Achieved Benefits** | | | |
| *Access and Equity* | | | |
| *Capacity* | | | |
| *Efficiency* | | | |
| *Environment* | | | |
| *Safety* | | | |
| **Implementation Challenges** | | | |
| *Ground system Implementation* | | | |
| *Avionics Implementation* | | | |
| *Procedures Availability* | | | |
| *Operational Approvals* | | | |
| **Notes** | | | |