ICAO

UNITING AVIATION

A UNITED NATIONS SPECIALIZED AGENCY

State ANP Workshop

November 6-9, 2018

State ANP Workshop Contents

- GANP/ASBU Explained
- ANRF and Summary Table Explained
- ANRF Preparation
- Summary Table Preparation
- State ANP Explained
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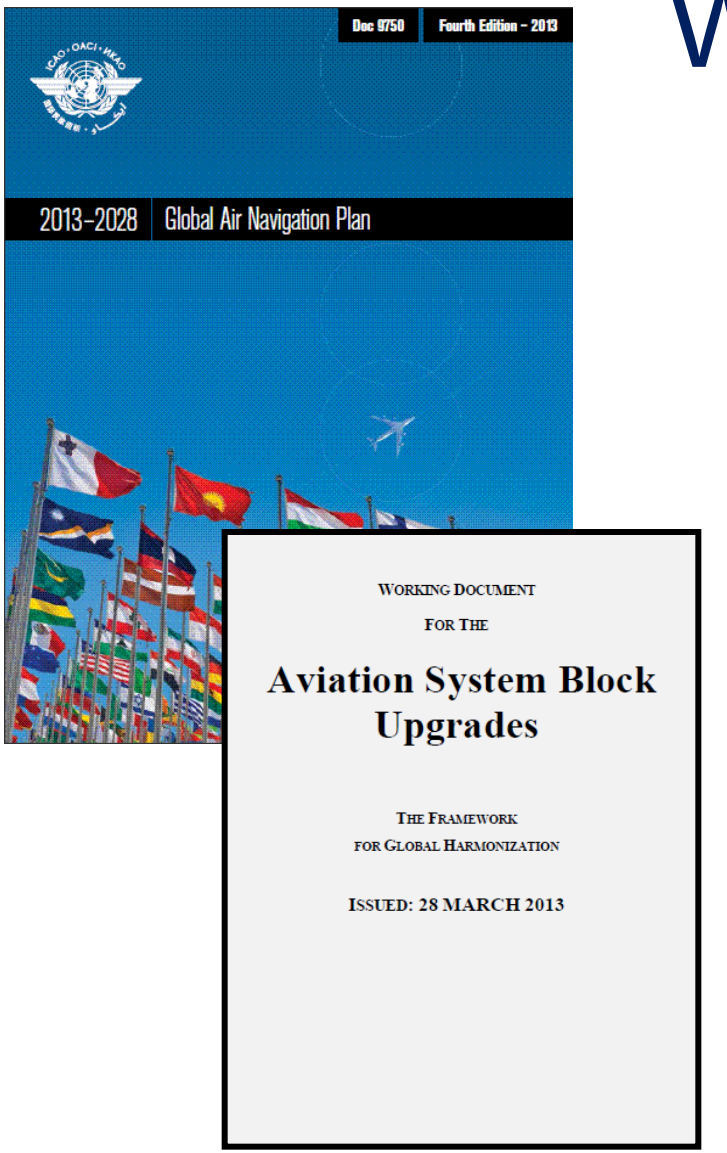
  - ASBU Status
  - RASI Status
  - SASI Status

GANP/ASBU Explained

What is the GANP?



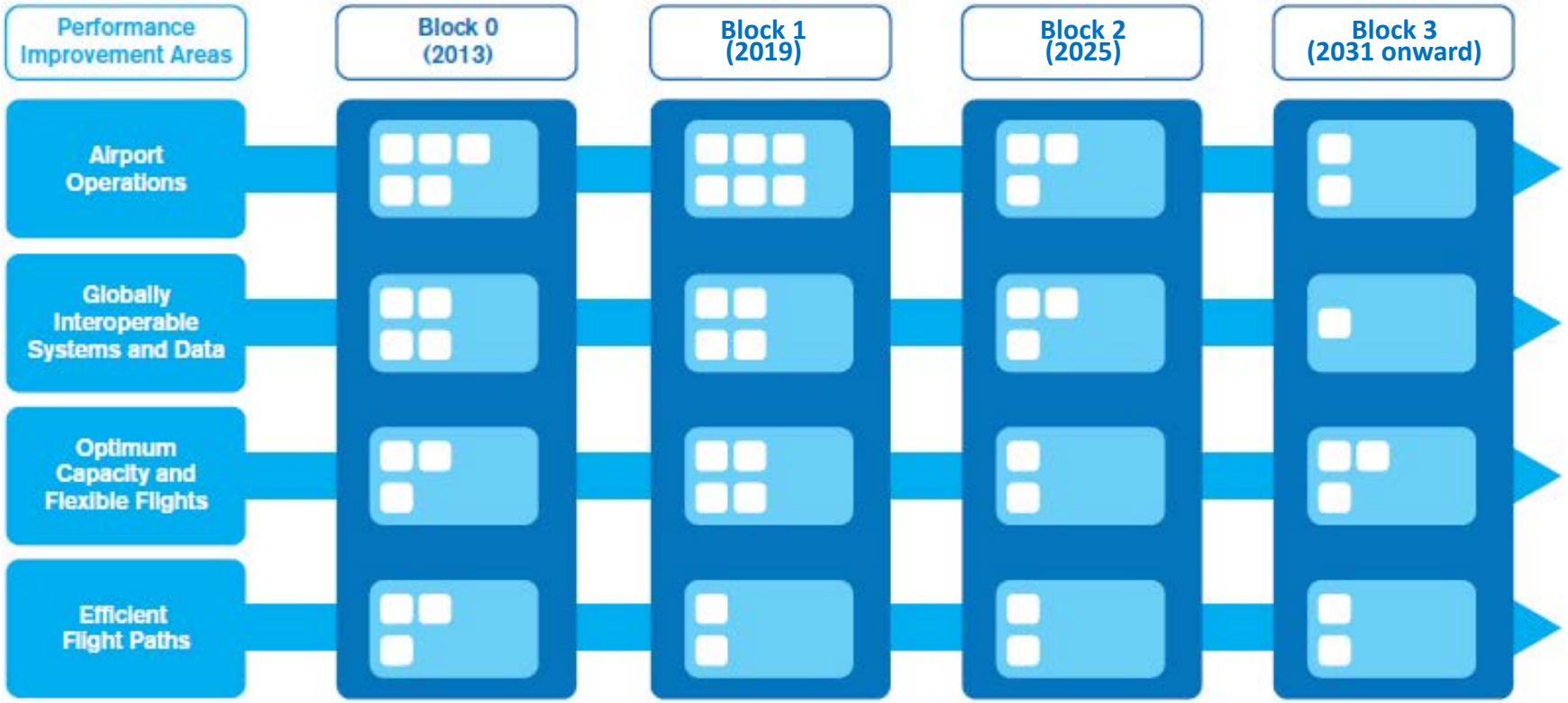
Supports a harmonized global Air Navigation System

- It is an overarching framework
- Addresses key civil aviation policy principles
- Assists ICAO Regions and States to establish air navigation priorities for the next 18 years
- Assists ICAO Regions and States to prepare their navigation plans

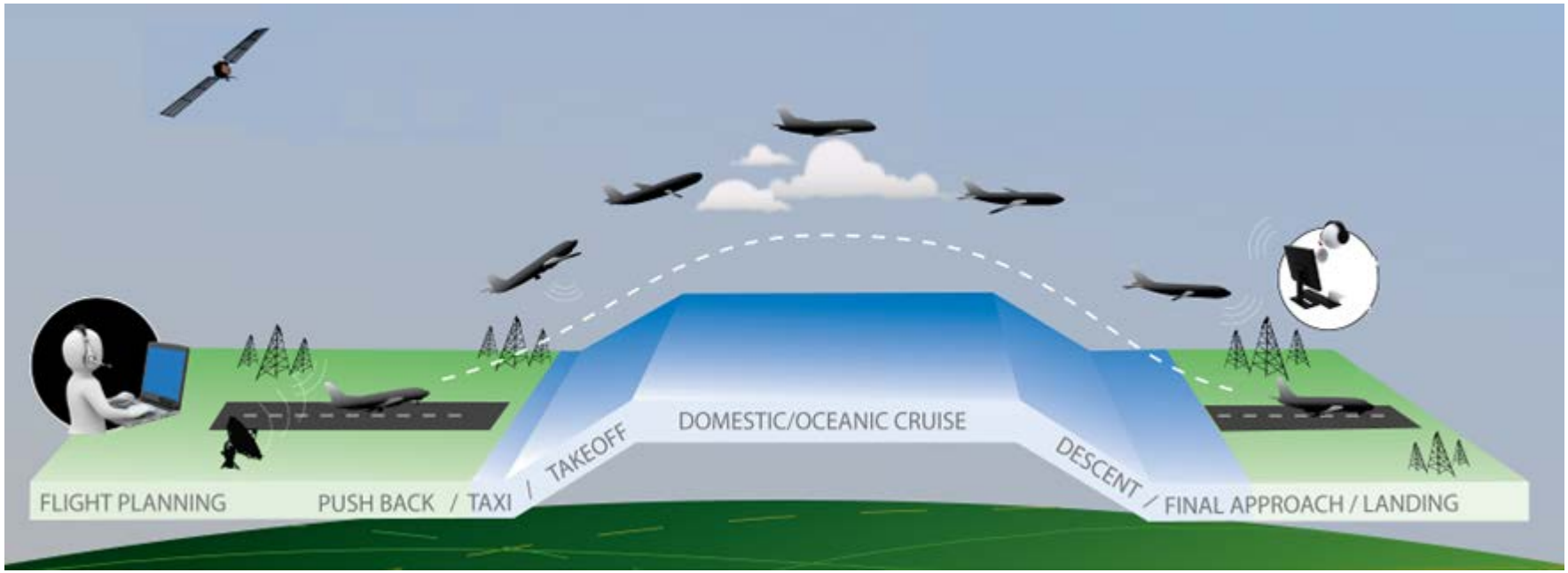
2013 – GANP and ASBU

ASBU Structure:

(1) Performance Improvement Areas (PIA), (2) Blocks, (3) Threads, (4) Modules

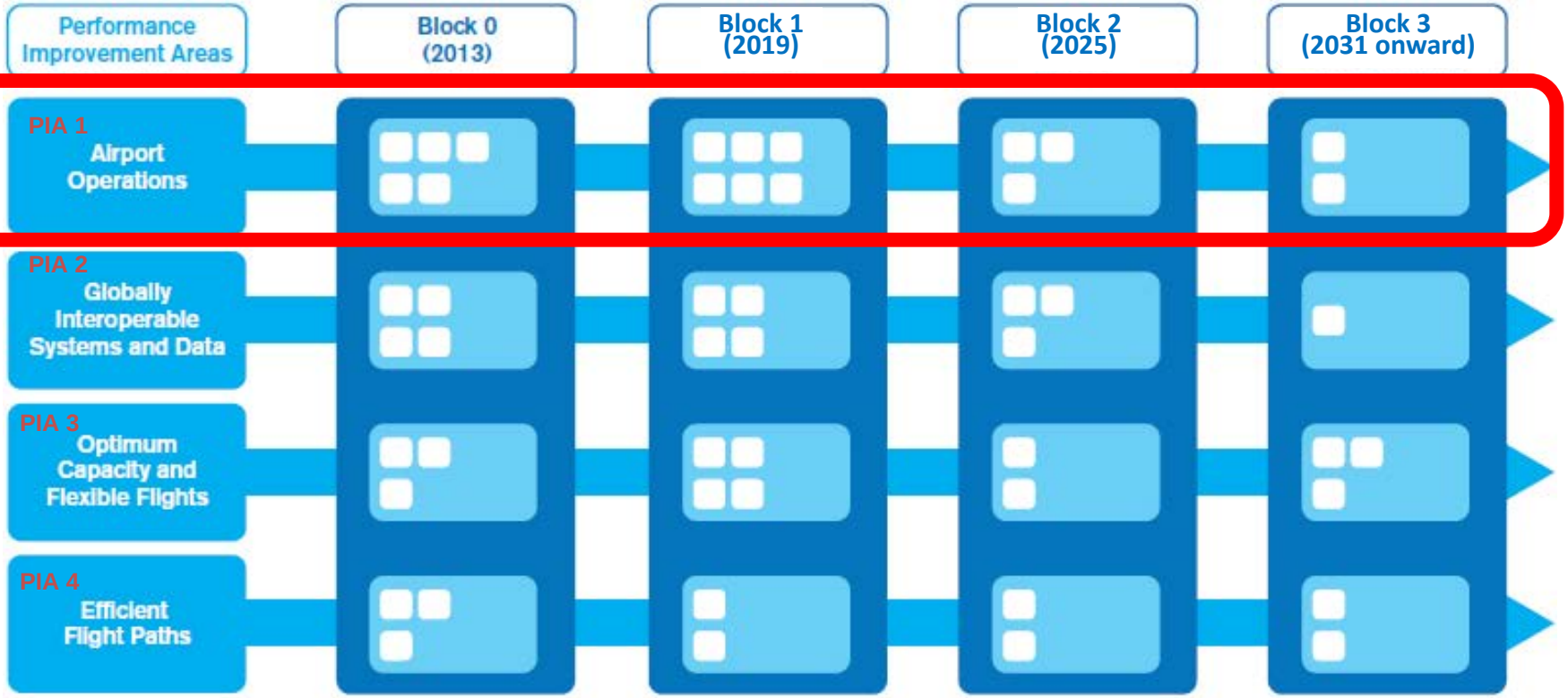


Performance Improvement Areas and Phases of Flight

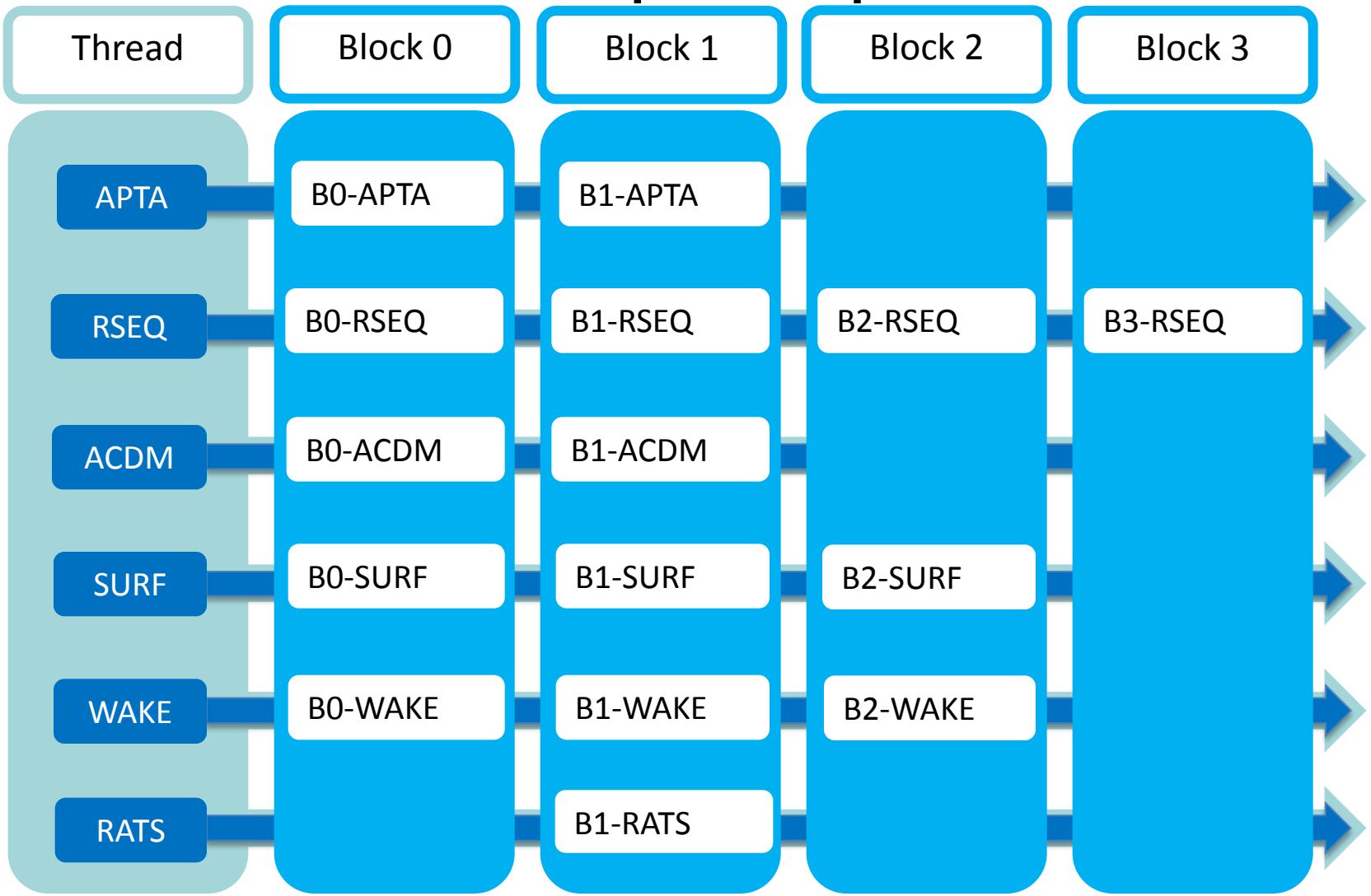


PIA 1: Airport Operations
PIA 2: Globally Interoperable Systems & Data
PIA 3: Optimum Capacity and Flexible Flights
PIA 4: Efficient Flight Paths

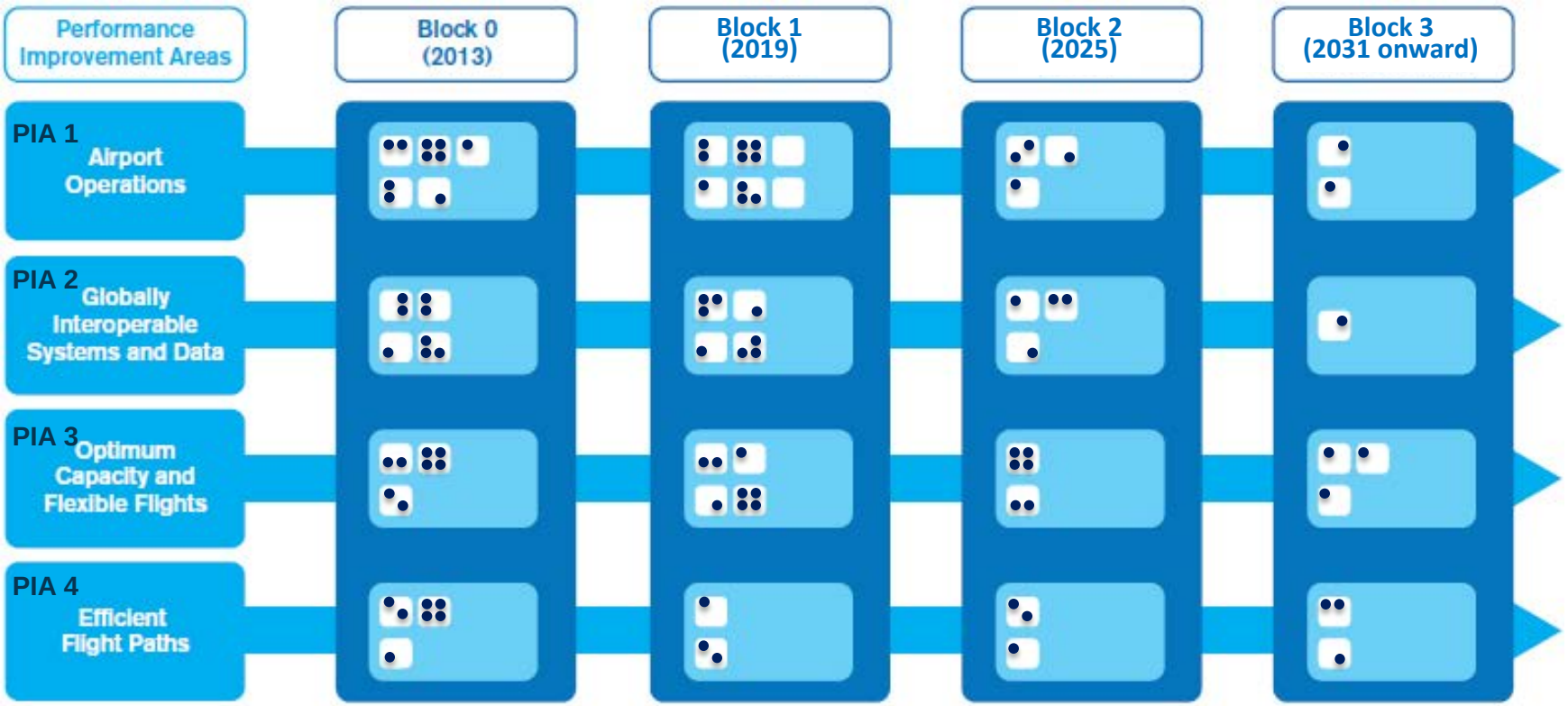
ASBU: Performance Improvement Areas, Blocks, Threads, and Modules



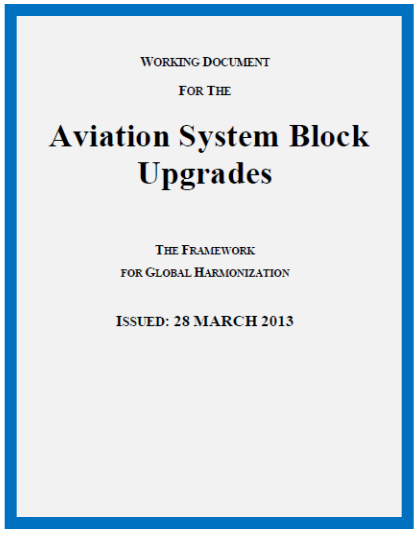
PIA 1: Airport Operations



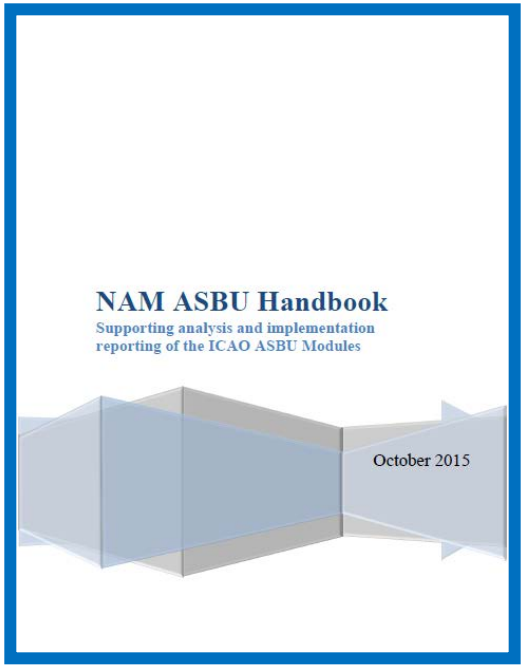
ASBU Structure: (1) Performance Improvement Areas (PIA), (2) Blocks, (3) Threads, (4) Modules, and (5) Elements



Elements Identification

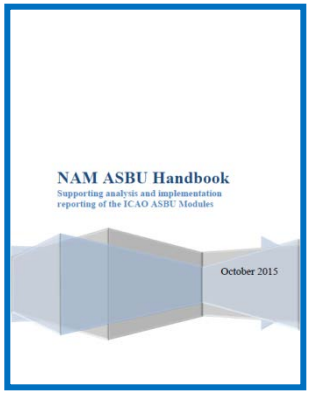


- Identification of Elements is completed based on the ASBU document
- Collaboration with NavCANADA and ICAO NACC Office via North American ANP
- Creation of ASBU Handbook – emphasis on Elements



- ICAO North Atlantic (NAT) and North American, Central American and Caribbean (NACC) ROs have adopted the ASBU Handbook
- Regions and States can add their specific requirements as Elements
- Need to work with ICAO HQ to agree on the definition of elements

Sample Elements

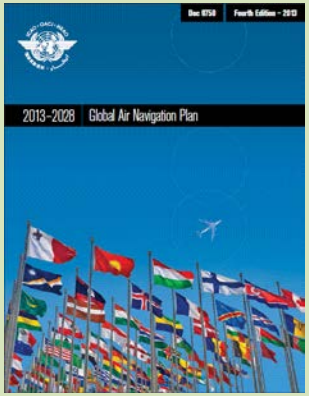


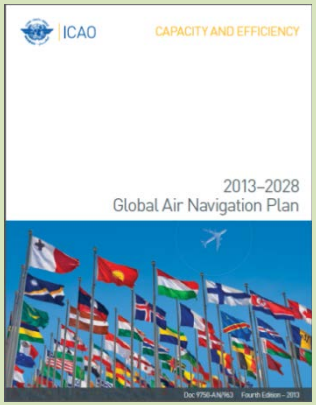
B0 WAKE Elements

1. (**Defined**: Element 1) New PANS-ATM wake turbulence categories and separation minima
2. (**Derived** from Element 2) Dependent diagonal paired approach procedures for parallel runways with centrelines spaced less than 760 meters (2,500 feet) apart
3. (**Derived** from Element 3) Wake independent departure and arrival procedures for parallel runways with centrelines spaced less than 760 meters (2,500 feet) apart
4. (**Derived** from Element 3) Wake turbulence mitigation for departures procedures for parallel runways with centrelines spaced less than 760 meters (2,500 feet) apart
5. (**Identified by** the United States) 6 wake turbulence categories and separation minima

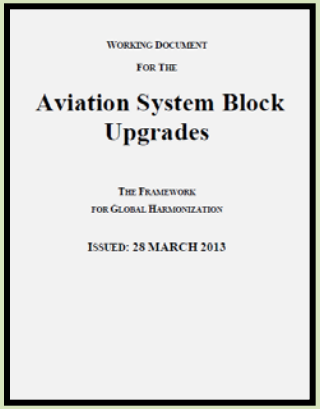
4th Edition (2013) vs 5th Edition (2016)

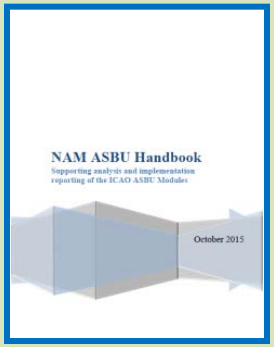
4th Edition GANP





4th Edition ASBU



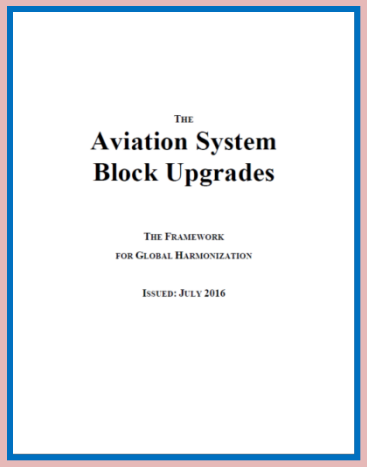


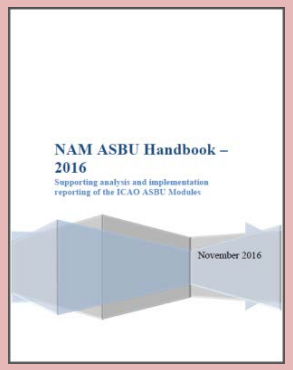
4th Edition Elements

B0 PIA	Elements
PIA 1	20
PIA 2	18
PIA 3	17
PIA 4	8
Total	**63**

5th Edition GANP

5th Edition ASBU



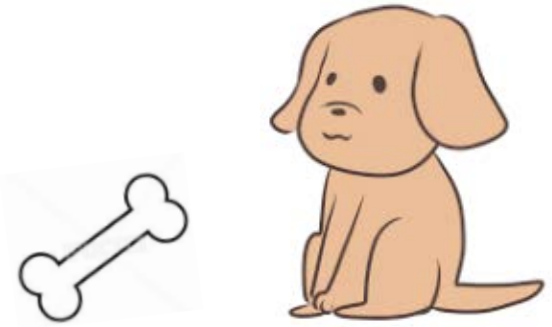


5th Edition Elements

B0 PIA	Elements
PIA 1	23
PIA 2	18
PIA 3	18
PIA 4	10
Total	**69**

2019 version of GANP/ASBU

- Big changes are expected
- Big changes may include a new Block
- Big changes include the definition of Modules
- Big changes include the definition of **Block 1 Elements**
- Wait and see
- Apply the same process



Implementation Approach

- How to plan, monitor, and report our implementation status?
  - Which **Elements** do we need?
  - What is the expected benefit?
  - How much does it cost?
  - What is our implementation schedule?
  - What is our implementation status?
  - Did our needs change?
  - How to report?

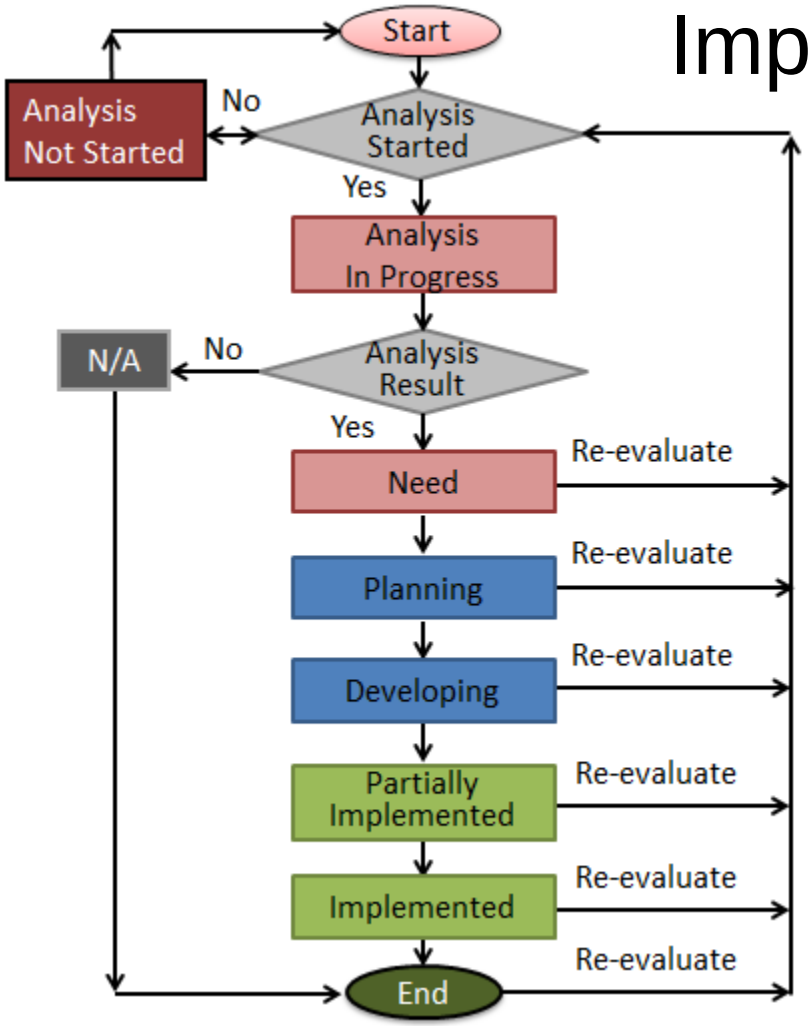
ASBU are designed so that:

- Regions and States can select ~~Module~~ **Elements** and implement them based on their operational needs
- Regions and States can implement ~~Module~~ **Elements** according to their schedule

ASBU must be…

- Simple
- Understandable
- Meaningful

ASBU Element Analysis and Implementation Process



- Evaluate Elements one by one
  - Understand environments
  - Understand needs
  - Understand status
  - Prioritize
  - Plan accordingly
- Report
- If it fails…
  - Analysis Not Started

Simplified ANRF

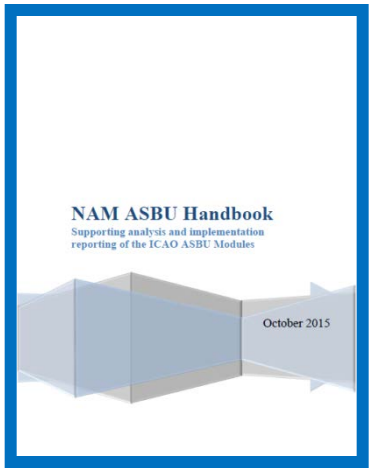
1. AIR NAVIGATION REPORT FORM (ANRF) MY STATE Planning for ASBU Modules 2. REGIONAL/NATIONAL PERFORMANCE OBJECTIVE – B0-05/CDO: Improved Flexibility and Efficiency in Descent Profiles (CDO) Performance Improvement Area 4: Efficient Flight Path					
3. ASBU B0-05/CDO: Impact on Main Key Performance Areas (KPA)					
	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	N	N	Y	N	Y
4. ASBU B0-05/CDO: Planning Targets and Implementation Progress					
5. Elements	6. Targets and implementation progress (Ground and Air)				
1. CDO implementation	2015				
2. PBN STARs	2015				
7. ASBU B0-05/CDO: Implementation Challenges					
Elements	Implementation Area				
	Ground System Implementation	Avionics Implementation	Procedures Availability	Operational Approvals	
1. CDO implementation	The ground trajectory calculation function will need to be upgraded.	CDO Function	LOAs and Training	In accordance with application requirements	
2. PBN STARs	Airspace Design		LOAs and Training		
8. ASBU B0-05/CDO: Performance Monitoring and Measurement 8A. ASBU B0-05/CDO: Implementation Monitoring					
Elements	Performance Indicators/Supporting Metrics				
1. CDO implementation	Indicator: % of International Aerodromes/TMA with CDO implemented Supporting Metric: Number of International Aerodromes/TMAs with CDO implemented				
2. PBN STARs	Indicator: % of International Aerodromes/TMA with PBN STAR implemented Supporting Metric: Number of International Aerodromes/TMAs with PBN STAR implemented				
8. ASBU B0-05/CDO: Performance Monitoring and Measurement 8 B. ASBU B0-05/CDO: Performance Monitoring					
Key Performance Areas	Metrics (if not indicate qualitative Benefits)				
Access & Equity	NA				
Capacity	NA				
Efficiency	Cost savings through reduced fuel burn. Reduction in the number of required radio transmissions				
Environment	Reduced emissions as a result of reduced fuel burn (IFSET)				
Safety	More consistent flight paths and stabilized approach paths. Reduction in the incidence of controlled flight into terrain (CFIT)				

Before

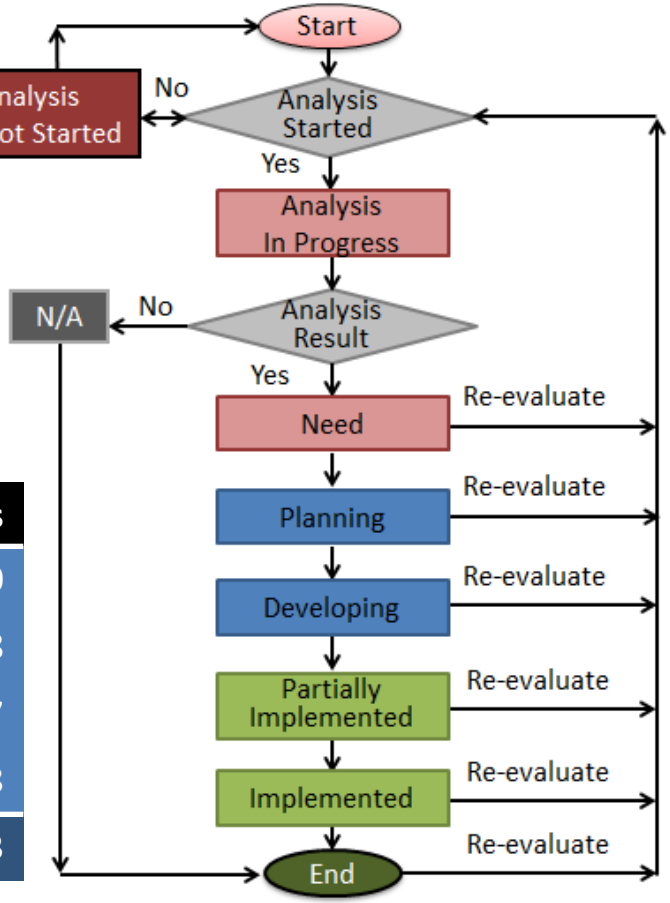
[STATE] ASBU Air Navigation Reporting Form (ANRF)					
PIA	4	Block - Module	B0 - CDO	Date	Month Day, 2016
Module Description: Performance-based airspace and arrival procedures allowing aircraft to fly their optimum profile using continuous descent operations (CDOs). This will optimize throughput, allow fuel efficient descent profiles, and increase capacity in terminal areas.					
Element Implementation Status					
1	**Element Description:** (Derived from Element 1) Procedure changes to facilitate CDO			**Date Planned/Implemented**	**Status**
	Status Details				
2	**Element Description:** (Derived from Element 1) Route changes to facilitate CDO			**Date Planned/Implemented**	**Status**
	Status Details				
3	**Element Description:** (Derived from Element 2) PBN STARs			**Date Planned/Implemented**	**Status**
	Status Details				
Achieved Benefits					
Access and Equity					
Capacity					
Efficiency					
Environment					
Safety					
Implementation Challenges					
Ground system Implementation					
Avionics Implementation					
Procedures Availability					
Operational Approvals					
Notes					

After

Following the Process



B0 PIA	Modules	Elements
PIA 1	5	20
PIA 2	3	18
PIA 3	7	17
PIA 4	3	8
Total	**18**	**63**



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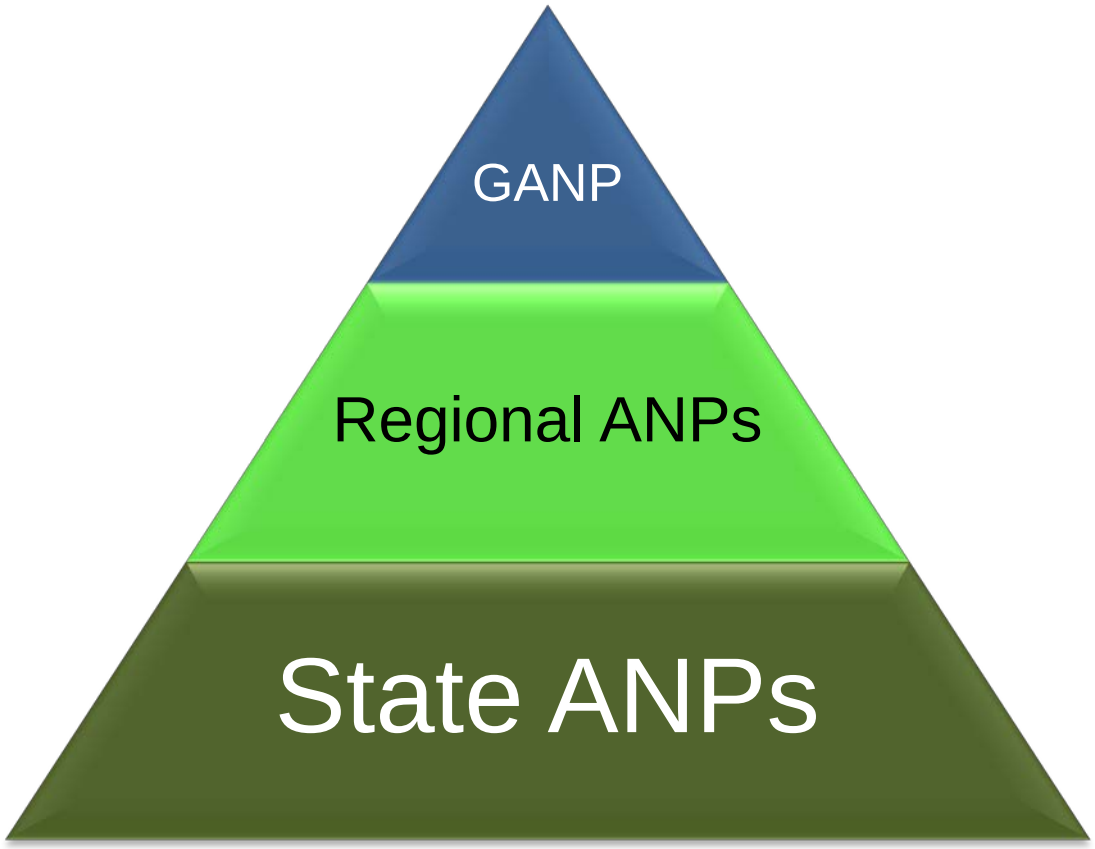
3	**Element Description:** (Derived from Element 2) PBN STARs		**Date Planned/Implemented**	**Status**
	Status Details			
Achieved Benefits				
Access and Equity				
Capacity				
Efficiency				
Environment				
Safety				
Implementation Challenges				
Ground system Implementation				
Avionics Implementation				
Procedures Availability				
Operational Approvals				
Notes				

ANRFs Submitted

- All Block 0 ANRFs are submitted to the ICAO NACC office and available to share with you at:

https://www.icao.int/NACC/Pages/regional-group-asbu.aspx

We are together to

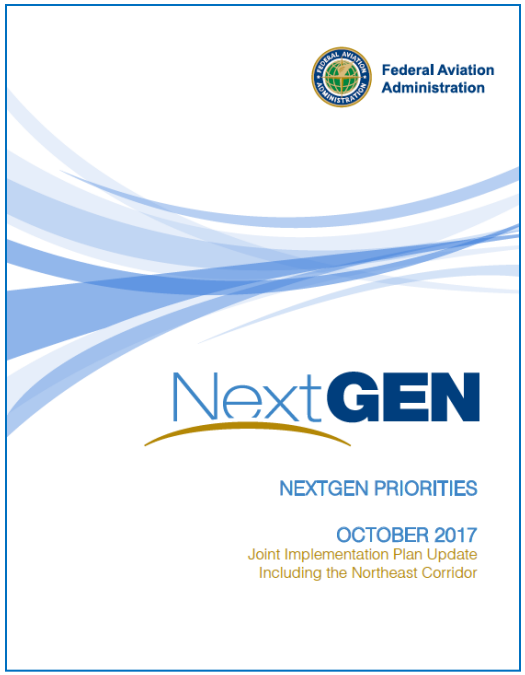


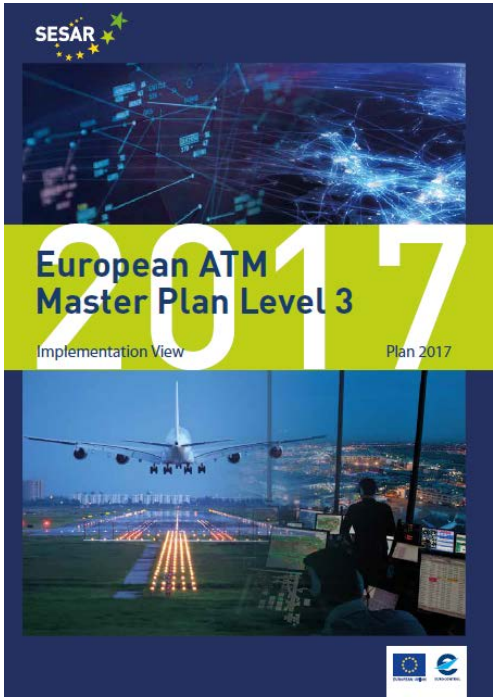
Regional ANPs

- Electronic Regional Air Navigation Plan (**eANP**) Volume III is a Regional ANP
- eANP Volume III template
- Each ICAO Region has prepared or is preparing Volume III

RPBANIP

State ANPs

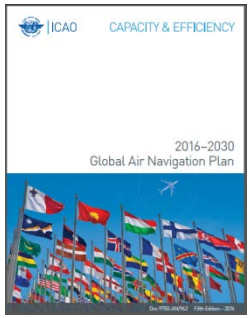




- FAA's State ANP is "NextGen Implementation Plan"
- Europe has "European ATM Master Plan"

Saint Lucia

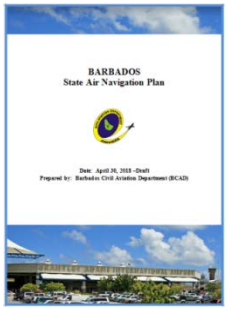
GANP



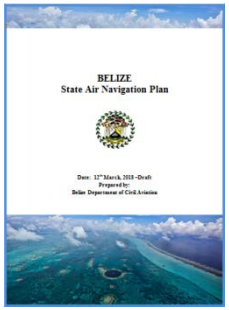
RPBANIP

ANP

For CAR, there will be 21 ANPs:
19 States,
1 Territory,
1 Organization

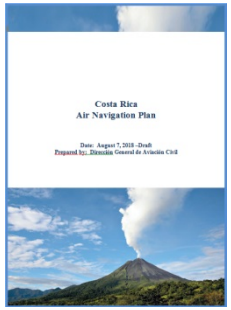


Barbados

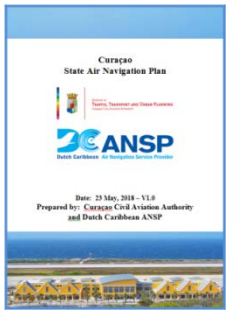


Belize

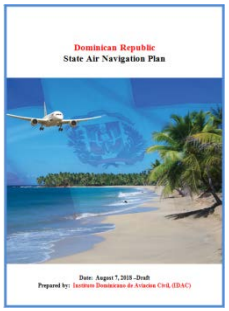
COCESNA



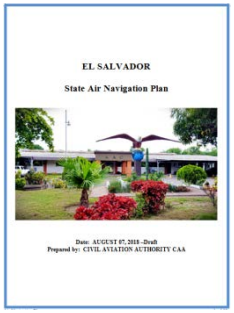
Costa Rica



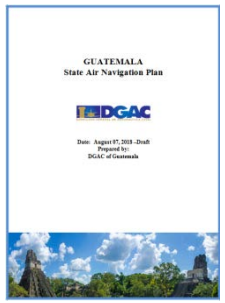
Curacao



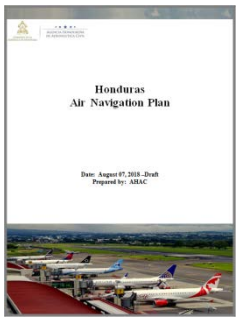
Dominican Republic



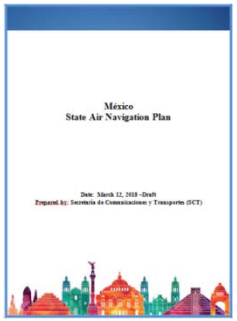
El Salvador



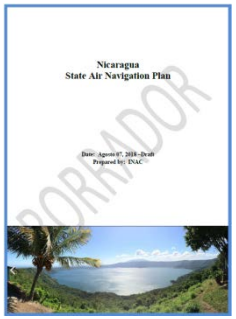
Guatemala



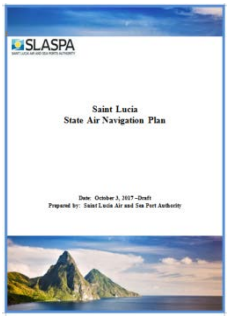
Honduras



Mexico



Nicaragua

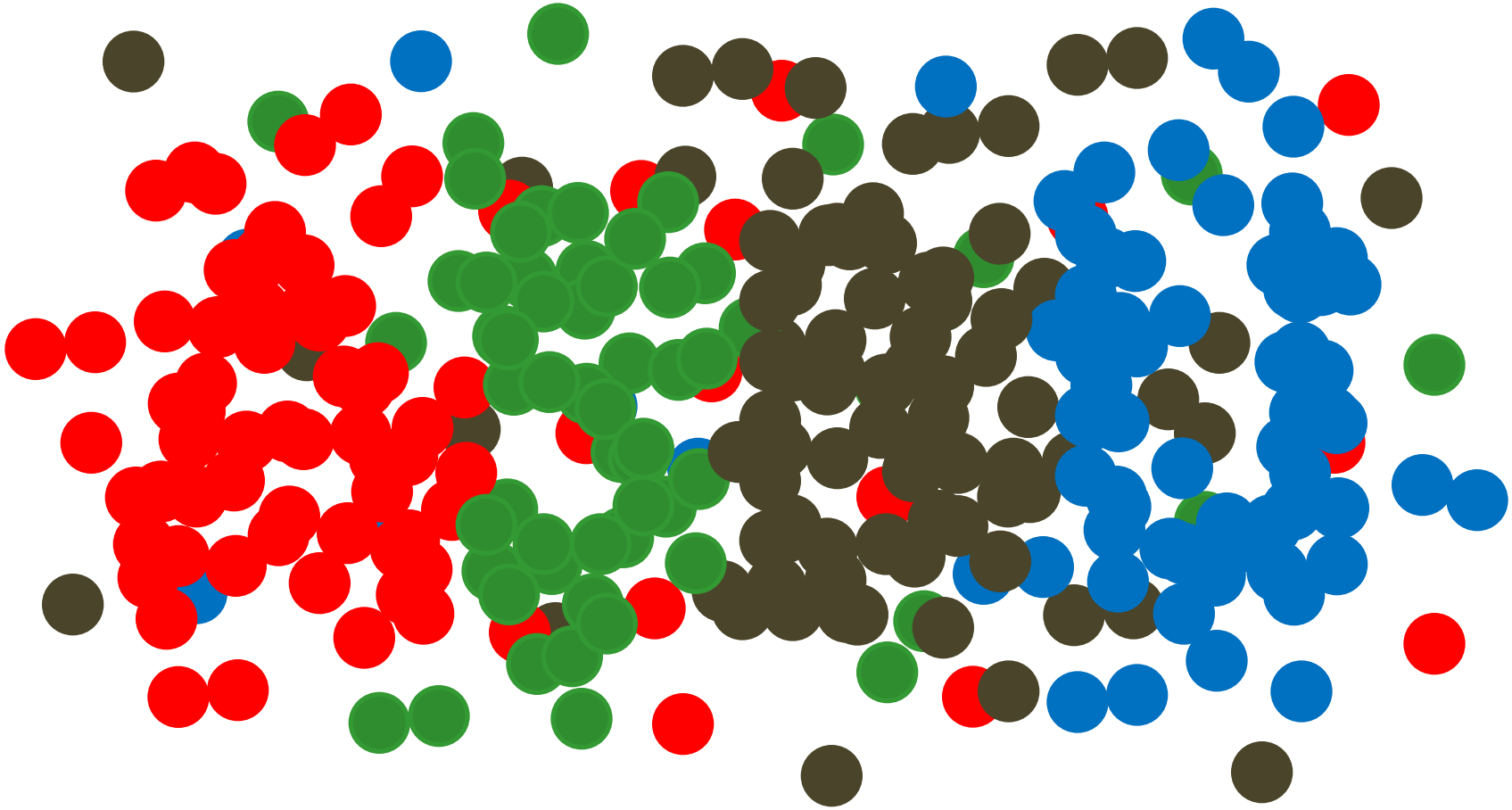


Saint Lucia

Sample State ANP

Table of Contents

Collecting and Connecting Dots



Explained:

- ANRF
- Metrix and Target
- Summary Table

ANRF Hands-on Exercise

- Block 0 consists of 18 Modules, 69 Elements
- 18 ANRFs to prepare (per Module)

PIA	Module	Element #	PIA	Module	Element #
1	ACDM	5	3	ASEP	2
1	APTA	4	3	ASUR	2
1	RSEQ	4	3	FRTO	4
1	SURF	5	3	NOPS	2
1	WAKE	5	3	OPFL	1
2	AMET	8	3	SNET	4
2	DATM	6	4	CCO	3
2	FICE	4	4	CDO	3
3	ACAS	3	4	TBO	4

ANRF Explained (1 of 5)

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.

ANRF Explained (2 of 5)

Status

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

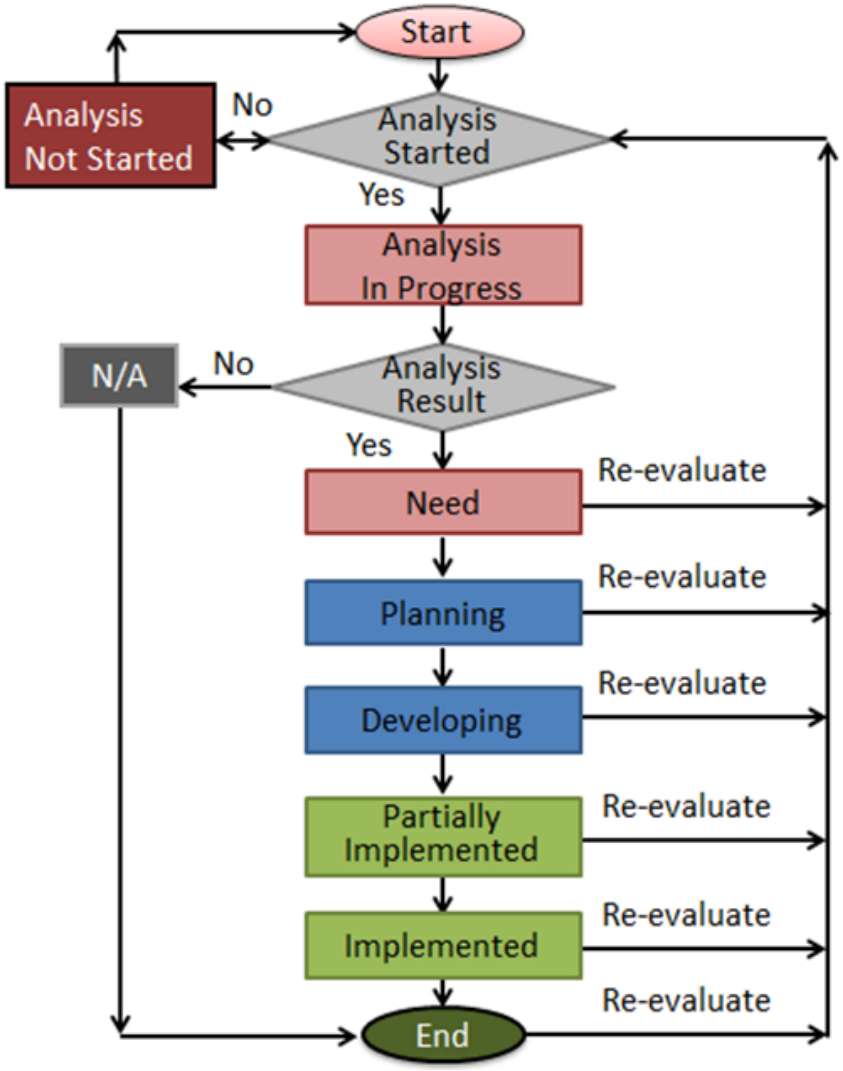
Not Applicable: 1) if all of the Need Analyses completed to date have concluded the Element is not required, or 2) if the Element is not an aerodrome-related improvement and the Region has not adopted the improvement for region-wide implementation.

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.



Analysis and Work Flow

ANRF Explained (3 of 5)

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".

ANRF Explained (4 of 5)

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.

ANRF Explained (5 of 5)

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.

Your Aerodromes

- Identify aerodromes included in the State ANP
- Consider aerodromes listed in the "*Caribbean and South American Air Navigation Plan, Volume I (dated October 2015), Table AOP I-1, International Aerodromes Required in the CAR/SAM Regions*" (see next slides for the list.)

ANGUILLA (United Kingdom)
TQPF THE VALLEY/ Clayton J. Lloyd Intl. Airport
ANTIGUA AND BARBUDA
TAPA SAINT JOHNS/ V.C. Bird International Airport
ARUBA (Kingdom of the Netherlands)
TNCA ORANJESTAD/Reina Beatrix International Airport
BAHAMAS
MYBS ALICE TOWN/ Bimini International Airport
MYSM COCKBURN TOWN/San Salvador International Airport
MYGF FREEPORT/ Grand Bahama International Airport
MYEM GOVERNOR'S HARBOUR/Governor's Harbour International Airport
MYAM MARSH HARBOUR/ Marsh Harbour International Airport
MYNN NASSAU/Lynden Pindling International Airport
MYEH NORTH ELEUTHERA/ North Eleuthera International Airport
MYLS STELLA MARIS/Stella Maris International Airport
MYAT TREASURE CAY/ Treasure Cay International Airport
MYGW WEST END/West End International Airport
BARBADOS
TBPB BRIDGETOWN/Grantley Adams Intl
BELIZE
MZBZ BELIZE/Philip S.W. Goldson Intl
BERMUDA (United Kingdom)
TXKF BERMUDA/ L. F. Wake Intl
CAYMAN ISLANDS (United Kingdom)
MWCB CAYMAN BRAC/Gerrard Smith Intl
MWCR GEORGETOWN/Owen Roberts Intl
COSTA RICA
MROC ALAJUELA/Juan Santamaría Intl.
MRLB LIBERIA/Daniel Oduber Quirós
MRLM LIMON/Limón Intl
MRPV PAVAS/Tobias Bolaños Intl.

CUBA
MUCM CAMAGUEY/Ignacio Agramonte
MUCC CAYO COCO/Jardines del Rey
MUCF CIENFUEGOS/Jaime González
MUCL CAYO LARGO DEL SUR/Vilo Acuña
MUCU SANTIAGO DE CUBA/ Antonio Maceo
MUHA HABANA/José Martí
MUHG HOLGUIN/Frank País
MUMZ MANZANILLO/Sierra Maestra
MUSC SANTA CLARA/Abel Santamaria
MUVR VARADERO/Juan Gualberto Gómez
CURAÇAO (Kingdom of the Netherlands)
TNCC WILLEMSTAD/Hato, Curaçao I.
DOMINICAN REPUBLIC
MDBH BARAHONA/Aeropuerto. Internacional María Montez
MDJB HIGUERO/Dr. Joaquín Balaguer Intl.
MDLR LA ROMANA/Casa de Campo Intl.
MDPP PUERTO PLATA/ Gregorio Luperón Intl
MDPC PUNTA CANA/Punta Cana Intl
MDST SANTIAGO/Cibao Intl
MDSD SANTO DOMINGO/Jose Francisco Peña Gomez Intl
MDCY SAMANA/El Catey Intl.
EL SALVADOR
MSLP SAN SALVADOR/ Aeropuerto Intl El Salvador
MSSS SAN SALVADOR/ Ilopango Intl
FRENCH ANTILLES (France)
TFFF FORT-DE-FRANCE/Le Lamentin, Martinique
TFFR POINTE-À-PITRE/Le Raizet, Guadeloupe
TFFJ SAINT BARTHELEMY/ Saint Barthelemy, Guadeloupe
TFFG SAINT MARTIN/Grand Case, Guadeloupe
GRENADA
TGPZ LAURISTON / Carriacou I.
TGPY SAINT GEORGES /Maurice Bishop Intl.
GUATEMALA
MGGT GUATEMALA/La Aurora
MGPB PUERTO BARRIOS/ Puerto Barrios

MGSJ	SAN JOSE/Puerto de San Jose
MGMM	SANTA HELENA/Mundo Maya Intl.
HAITI	
MTCH	CAP HAITIEN/Cap Haitien Intl
MTPP	PORT-AU-PRINCE/Port-au-Prince Intl
HONDURAS	
MHLC	LA CEIBA/Goloson Intl
MHRO	ROATAN/Juan Manuel Gálvez Intl.
MHLM	SAN PEDRO SULA/Ramón Villeda Morales Intl.
MHTG	TEGUCIGALPA/Toncontín Intl
JAMAICA	
MKJP	KINGSTON/Norman Manley Intl
MKJS	MONTEGO BAY/Sangster Intl
MKBS	OCHO RIOS/Ian Fleming Intl.
MEXICO	
MMAA	ACAPULCO/Gral. Juan N. Alvarez Intl.
MMAS	AGUASCALIENTES/Aeropuerto Jesús Terán
MMBT	BAHIAS DE HUATULCO/Bahías de Huatulco
MMSL	CABO SAN LUCAS/Cabo San Lucas
MMCP	CAMPECHE/Ing. Alberto Acuña Ongay
MMUN	CANCUN/Cancún Intl.
MMCM	CHETUMAL/Chetumal Intl.
MMCT	CHICHEN-ITZA/Chichen Itza
MMCU	CHIHUAHUA/General de División y Piloto Aviador Roberto Fierro Villalobos
MMMC	CIUDAD ACUÑA/Cuidad Acuña Intl.
MMCE	CIUDAD DEL CARMEN/Ciudad del Carmen Intl
MMCN	CIUDAD OBREGON/Ciudad Obregon
MMCV	CIUDAD VICTORIA/General Pedro José Méndez
MMCS	CIUDAD JUÁREZ/Abraham González Intl.
MMCZ	COZUMEL/Cozumel Intl.
MMCB	CUERNAVACA/General Mariano Matamoros
MMCL	CULIACAN/Culiacan
MMDO	DURANGO/Durango
MMGL	GUADALAJARA/Miguel Hidalgo Costilla Intl.
MMGM	GUAYMAS/Gral. José María Yañez Intl.
MMHO	HERMOSILLO/Aeropuerto Internacional General Ignacio Pesqueira García
MMZH	IXTAPA-ZIHUATANEJO/ Ixtapa-Zihuatanejo Intl.
MMLP	LA PAZ/Gral. Manuel Márquez de León Intl.
MMLO	LEON/Aeropuerto Internacional de Guanajuato
MMLT	LORETO/LoretoIntl.
MMLM	LOS MOCHIS/Del Valle del Fuerte
MMZO	MANZANILLO/Playa de Oro Intl.
MMMA	MATAMOROS/Matamoros Intl.
MMMZ	MAZATLAN/Gral. Rafael Buelna Intl.
MMMD	MERIDA/Lic. Manuel Crescencio Rejón Intl
MMML	MEXICALI/Gral. Rodolfo Sánchez Taboada Intl.
MMMX	MEXICO/Aeropuerto Internacional Benito Juárez, Ciudad de México
MMMT	MINATITLAN/Minatitlan
MMMV	MONCLOVA/Venustiano Carranza
MMAN	MONTERREY/Del Norte Intl.
MMMY	MONTERREY/Gral. Mariano Escobedo Intl.
MMMM	MORELIA/Gral. Francisco J. Mujica Intl.
MMNG	NOGALES/Nogales Intl.
MMNL	NUEVO LAREDO/ Aeropuerto Internacional Quetzalcóatl
MMOX	OAXACA/Xoxocotlán
MMPQ	PALENQUE/Palenque
MMPG	PIEDRAS NEGRAS/ Piedras Negras Intl.
MMPB	PUEBLA/Hermanos Serdan
MMPS	PUERTO ESCONDIDO/Puerto Escondido
MMPE	PUERTO PEÑASCO/Aeropuerto del Mar de Cortes
MMPR	PUERTO VALLARTA/ Lic. Gustavo Diaz Ordaz Intl.
MMQT	QUERETARO/Intercontinental de Querétaro
MMRX	REYNOSA/Gral. Lucio Blanco Intl.
MMIO	SALTILLO/Plan de Guadalupe
MMSF	SAN FELIPE/San Felipe Intl.
MMSD	SAN JOSE DEL CABO/ Aeropuerto Internacional Los Cabos
MMSP	SAN LUIS POTOSI/Ponciano Arriaga
MMTM	TAMPICO/Gral. Francisco Javier Mina Intl.
MMTP	TAPACHULA/Tapachula Intl

MMEP TEPIC/Tepic Intl
MMTJ TIJUANA/Gral. Abelardo L. Rodríguez Intl.
MMTO TOLUCA/Jose María Morelos y Pavón
MMTC TORREON/Francisco Sarabia
MMTG TUXTLA GUTIERREZ/Angel Albino Corzo
MMPN URUAPAN/General Ignacio López Rayón
MMVR VERACRUZ/Gral. Heriberto Jara Intl.
MMVA VILLAHERMOSA/Capitán P.A. Carlos Ro
MMZC ZACATECAS/Aeropuerto General Leobardo C. Ruiz Intl.

MONTSERRAT (United Kingdom)
TRPG GERALD´S / John A. Osborne

NETHERLANDS (Netherlands)
TNCB KRALENDIJK/Flamingo, Bonaire I.
TNCE ORANJESTAD/F.D. Roosevelt, Saint Eustatius I.
TNCS THE BOTTOM/Juancho E. Yrausquin Airport, Saba

NICARAGUA
MNMG MANAGUA/Augusto César Sandino Intl

PANAMA
MPBO BOCAS DEL TORO/Bocas del Toro
MPDA DAVID/Enrique Malek
MPMG PANAMA/Marcos A. Gelabert
MPPA PANAMA/Panamá Pacífico
MPSM PANAMA/Cap. Scarlett Martínez
MPTO PANAMA/Tocumen Intl

PUERTO RICO (United States)
TJBQ AGUADILLA/Rafael Hernández Intl
TJFA FAJARDO/Diego Jiménez Torres
TJPS PONCE/Ponce-Mercedita
TJSJ SAN JUAN/Luis Muñoz Marín Intl
TJVQ VIEQUES/Antonio Rivera

SAINT KITTS AND NEVIS
TKPK BASSETERRE/Robert L. Bradshaw, Saint Kitts I.
TKPN CHARLESTOWN/Newcastle Nevis I.

SAINT LUCIA
TLPC CASTRIES/George F. L. Charles
TLPL VIEUX-FORT/Hewanorra Intl

SAINT VINCENT AND THE GRENADINES
TVSB BEQUIA/J.F. Mitchell
TVSC CANOUAN/Canouan
TVSV KINGSTOWN/E.T. Joshua
TVSM MUSTIQUE/Mustique
TVSU UNION ISLAND/Union Island

SINT MAARTEN (Kingdom of the Netherlands)
TNCM PHILIPSBURG/Princess Juliana, St. Maarten I.

TRINIDAD AND TOBAGO
TTPP PORT OF SPAIN/Piarco Intl, Trinidad I.
TTCP SCARBOROUGH/Crown Point, Tobago I.

TURKS AND CAICOS ISLANDS (United Kingdom)
MBGT GRAND TURK/Grand Turk Intl
MBPV PROVIDENCIALES/ Providenciales Intl
MBSC SOUTH CAICOS/South Caicos Intl

VIRGIN ISLANDS (United Kingdom)
TUPJ ROADTOWN/Beef Island
TUPW VIRGIN GORDA I./Virgin Gorda

VIRGIN ISLANDS (United States)
TISX CHRISTIANSTED/Henry E. Rohlsen, St. Croix
TIST SAINT THOMAS/Cyril E. King

ANRF Preparation

ANRF Hands-on Exercise
PIA-1, Block 0

ACDM

[State] ASBU Air Navigation Reporting Form (ANRF)					
PIA	1	**Block - Module**	B0 - ACDM	**Date**	Month XX, 2017
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** Enter date if applicable	**Status** Choose an item.
	Status Details Enter status details				
2	**Element Description:** Interconnection between aircraft operator and airport operator systems to share surface operations information			**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.
	Status Details Enter status details				
3	**Element Description:** Interconnection between airport operator and ANSP systems to share surface operations information			**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.
	Status Details Enter status details				
4	**Element Description:** Interconnection between airport operator, aircraft operator and ANSP systems to share surface operations information			**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.
	Status Details Enter status details				
5	**Element Description:** Collaborative departure queue management			**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.
	Status Details Enter status details				

ANRF Hands-on Exercise
PIA-1, Block 0

APTA

[STATE] ASBU Air Navigation Reporting Form (ANRF)					
PIA	1	**Block - Module**	B0 - APTA	**Date**	Month XX, 2017
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** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details				
2	**Element Description:** PBN approach procedures with vertical guidance to LPV minima		**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details				
3	**Element Description:** PBN approach procedures without vertical guidance to LNAV minima		**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details				
4	**Element Description:** GBAS Landing System (GLS) procedures to CAT I minima		**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details				

ANRF Hands-on Exercise
PIA-1, Block 0

RSEQ

[STATE] ASBU Air Navigation Reporting Form (ANRF)						
PIA	1	**Block - Module**	B0 - RSEQ	**Date**	Month XX, 2017	
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** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details					
2	**Element Description:** Departure management			**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details					
3	**Element Description:** Departure flow management			**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details					
4	**Element Description:** Point merge			**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details					

ANRF Hands-on Exercise
PIA-1, Block 0

SURF

[STATE] ASBU Air Navigation Reporting Form (ANRF)					
PIA	1	**Block - Module**	B0 - SURF	**Date**	Month XX, 2017
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:** A-SMGCS with at least one cooperative surface surveillance system		**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details				
2	**Element Description:** ADS-B APT		**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details				
3	**Element Description:** A-SMGCS alerting with flight identification information		**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details				
4	**Element Description:** EVS for taxi operations		**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details				
5	**Element Description:** Airport vehicles equipped with transponders		**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details				

ANRF Hands-on Exercise
PIA-1, Block 0

WAKE

[STATE] ASBU Air Navigation Reporting Form (ANRF)					
PIA	1	**Block - Module**	B0 - WAKE	**Date**	Month XX, 2017
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** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details				
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** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details				
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** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details				
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** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details				
5	**Element Description:** 6 wake turbulence categories and separation minima		**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details				

ANRF Hands-on Exercise
PIA-2, Block 0

AMET

[STATE] ASBU Air Navigation Reporting Form (ANRF)					
PIA	1	**Block - Module**	B0 - AMET	**Date**	Month XX, 2017

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

1	**Element Description:** WAFS	**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.
	Status Details Enter status details		
2	**Element Description:** IAVW	**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.
	Status Details Enter status details		
3	**Element Description:** TCAC forecasts	**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.
	Status Details Enter status details		

AMET

4	**Element Description:** Aerodrome warnings	**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.
	Status Details Enter status details.		
5	**Element Description:** Wind shear warnings and alerts	**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.
	Status Details Enter status details.		
6	**Element Description:** SIGMET	**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.
	Status Details Enter status details		
7	**Element Description:** Other OPMET information (METAR, SPECI and/or TAF)	**Date Planned/Implemented** Enter date if applicable	**Status** Implemented
	Status Details Enter status details		
8	**Element Description:** QMS for MET	**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.
	Status Details Enter status details		

ANRF Hands-on Exercise
PIA-2, Block 0

DATM

[STATE] ASBU Air Navigation Reporting Form (ANRF)						
PIA	2	**Block - Module**	B0 - DATM	**Date**	Month XX, 2017	
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** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details					
2	**Element Description:** eAIP			**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details					
3	**Element Description:** Digital NOTAM			**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details					
4	**Element Description:** eTOD			**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details.					
5	**Element Description:** WGS-84			**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details					
6	**Element Description:** QMS for AIM			**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details					

ANRF Hands-on Exercise
PIA-2, Block 0

FICE

[STATE] ASBU Air Navigation Reporting Form (ANRF)						
PIA	2	**Block - Module**	B0 - FICE	**Date**	Month XX, 2017	
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** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details					
2	**Element Description:** AIDC to update previously coordinated flight data			**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details					
3	**Element Description:** AIDC for control transfer			**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details					
4	**Element Description:** AIDC to transfer CPDLC logon information to the Next Data Authority			**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details					

ANRF Hands-on Exercise
PIA-3, Block 0

ACAS

[STATE] ASBU Air Navigation Reporting Form (ANRF)						
PIA	3	**Block - Module**	B0 - ACAS	**Date**	Month XX, 2017	
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** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details					
2	**Element Description:** AP/FD function			**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details					
3	**Element Description:** TCAP function			**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details					

ANRF Hands-on Exercise
PIA-3, Block 0

ASEP

[STATE] ASBU Air Navigation Reporting Form (ANRF)					
PIA	3	**Block - Module**	B0 - ASEP	**Date**	Month XX, 2017
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** Enter date if applicable		**Status** Choose an item.
	Status Details Enter status details				
2	**Element Description:** ATSA-VSA		**Date Planned/Implemented** Enter date if applicable		**Status** Choose an item.
	Status Details Enter status details				

ANRF Hands-on Exercise
PIA-3, Block 0

ASUR

[STATE] ASBU Air Navigation Reporting Form (ANRF)						
PIA	3	**Block - Module**	B0 - ASUR	**Date**	Month XX, 2017	
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** Enter date if applicable		**Status** Choose an item.
	Status Details Enter status details					
2	**Element Description:** MLAT			**Date Planned/Implemented** Enter date if applicable		**Status** Choose an item.
	Status Details Enter status details					

ANRF Hands-on Exercise
PIA-3, Block 0

FRTO

[STATE] ASBU Air Navigation Reporting Form (ANRF)					
PIA	3	**Block - Module**	B0 - FRTO	**Date**	Month XX, 2017
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** Enter date if applicable		**Status** Choose an item.
	Status Details Enter status details				
2	**Element Description:** Flexible Use of Airspace (FUA)		**Date Planned/Implemented** Enter date if applicable		**Status** Choose an item.
	Status Details Enter status details				
3	**Element Description:** Flexible routing		**Date Planned/Implemented** Enter date if applicable		**Status** Choose an item.
	Status Details Enter status details.				
4	**Element Description:** CPDLC used to request and receive re-route clearances		**Date Planned/Implemented** Enter date if applicable		**Status** Choose an item.
	Status Details Enter status details				

ANRF Hands-on Exercise
PIA-3, Block 0

NOPS

[STATE] ASBU Air Navigation Reporting Form (ANRF)						
PIA	3	**Block - Module**	B0 - NOPS	**Date**	Month XX, 2017	
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** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details					
2	**Element Description:** Proposing alternative routings to avoid or minimize ATFM delays			**Date Planned/Implemented** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details					

ANRF Hands-on Exercise
PIA-3, Block 0

OPFL

[STATE] ASBU Air Navigation Reporting Form (ANRF)						
PIA	3	**Block - Module**	B0 - OPFL	**Date**	Month XX, 2017	
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** Enter date if applicable	**Status** Choose an item.	
	Status Details Enter status details					

ANRF Hands-on Exercise
PIA-3, Block 0

SNET

[STATE] ASBU Air Navigation Reporting Form (ANRF)					
PIA	3	**Block - Module**	B0 - SNET	**Date**	Month XX, 2017
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:** Short Term Conflict Alert (STCA)		**Date Planned/Implemented** Enter date if applicable		**Status** Choose an item.
	Status Details Enter status details				
2	**Element Description:** Area Proximity Warning (APW)		**Date Planned/Implemented** Enter date if applicable		**Status** Choose an item.
	Status Details Enter status details				
3	**Element Description:** Minimum Safe Altitude Warning (MSAW)		**Date Planned/Implemented** Enter date if applicable		**Status** Choose an item.
	Status Details Enter status details.				
4	**Element Description:** Medium Term Conflict Alert (MTCA)		**Date Planned/Implemented** Enter date if applicable		**Status** Choose an item.
	Status Details Enter status details				

ANRF Hands-on Exercise
PIA-4, Block 0

CCO

[STATE] ASBU Air Navigation Reporting Form (ANRF)						
PIA	4	**Block - Module**	B0 - CCO	**Date**	Month XX, 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:** Procedure changes to facilitate CCO			**Date Planned/Implemented** Enter date if applicable		**Status** Choose an item.
	Status Details Enter status details.					
2	**Element Description:** Airspace changes to facilitate CCO			**Date Planned/Implemented** Enter date if applicable		**Status** Choose an item.
	Status Details Enter status details					
3	**Element Description:** PBN SIDs			**Date Planned/Implemented** Enter date if applicable		**Status** Choose an item.
	Status Details Enter status details					

ANRF Hands-on Exercise
PIA-4, Block 0

CDO

[STATE] ASBU Air Navigation Reporting Form (ANRF)					
PIA	4	**Block - Module**	B0 - CDO	**Date**	Month XX, 2017
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** Enter date if applicable		**Status** Choose an item.
	Status Details Enter status details				
2	**Element Description:** Airspace changes to facilitate CDO		**Date Planned/Implemented** Enter date if applicable		**Status** Choose an item.
	Status Details Enter status details				
3	**Element Description:** PBN STARs		**Date Planned/Implemented** Enter date if applicable		**Status** Choose an item.
	Status Details Enter status details				

ANRF Hands-on Exercise
PIA-4, Block 0

TBO

[STATE] ASBU Air Navigation Reporting Form (ANRF)					
PIA	4	**Block - Module**	B0 – TBO	**Date**	Month XX, 2017
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** Enter date if applicable	**Status** Enter	
	Status Details Enter status details				
2	**Element Description:** CPDLC over continental areas		**Date Planned/Implemented** Enter date if applicable	**Status** Enter	
	Status Details Enter status details				
3	**Element Description:** CPDLC over oceanic and remote areas		**Date Planned/Implemented** Enter date if applicable	**Status** Enter	
	Status Details Enter status details				
4	**Element Description:** SATVOICE direct controller-pilot communication (DCPC)		**Date Planned/Implemented** Enter date if applicable	**Status** Enter	

Metrix and Target Preparation

Summary Table Entry Differences

- Aerodrome Centric Elements:

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: 2 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, or 2* **c.** How many aerodromes implemented the capability? *None, 1, or 2*	**B0-ACDM-1 Target 1:** Assessed in Sep 2017 **a.** Yes **b.** 1 (TLPL) **B0-ACDM-1 Target 2:** Implement by Dec 2019 **c.** None	Status – Planning Only TLPL needs this capability.

Note: Refer back to "Your aerodromes" slide for aerodrome info.

- State/Organization Centric Elements:

Block 0 Modules	Elements	Metrics	Targets	Status & Remarks
Performance Improvement Area 4: Efficient Flight Paths				
TBO	1. ADS-C over oceanic and remote areas	**a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *Yes or No* **c.** Have we implemented the capability? *Yes or No*	**B0-TBO-1. Target 1:** Assessed in Dec 2016 **a.** Yes **b.** None **B0-TBO-1. Target 2:** **c.** N/A	Status - N/A

Note: If your State contracts out certain capabilities, either (a) check N/A box or (b) enter * into the appropriate box and explain who is your service provider.

Metrix & Targets: ACDM

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: 2 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, or 2* **c.** How many aerodromes implemented the capability? *None, 1, or 2*	**B0-ACDM-1 Target 1:** Assessed in Sep 2017 **a.** Yes **b.** 1 (TBTF) **B0-ACDM-1 Target 2:** Implement by Dec 2019 **c.** None	Status – Planning Only TBTF needs this capability.
	2. Interconnection between aircraft operator & airport operator systems to share surface operations information	Number of aerodromes to be considered: 2 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, or 2* **c.** How many aerodromes implemented the capability? *None, 1, or 2*	**B0-ACDM-2 Target 1:** Assessed in Sep 2017 **a.** Yes **b.** 1 (TBTF) **B0-ACDM-2 Target 2:** Implement by Dec 2019 **c.** None	Status – Planning Only TBTF needs this capability.
	3. Interconnection between airport operator & ANSP systems to share surface operations information	Number of aerodromes to be considered: 2 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, or 2* **c.** How many aerodromes implemented the capability? *None, 1, or 2*	**B0-ACDM-3 Target 1:** Assessed in Sep 2017 **a.** Yes **b.** 1 (TBTF) **B0-ACDM-3 Target 2:** Implement by Dec 2019 **c.** None	Status – Planning Only TBTF needs this capability.
	4. Interconnection between airport operator, aircraft operator & ANSP systems to share surface operations information	Number of aerodromes to be considered: 2 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, or 2* **c.** How many aerodromes implemented the capability? *None, 1, or 2*	**B0-ACDM-4 Target 1:** Assessed in Sep 2017 **a.** Yes **b.** 1 (TBTF) **B0-ACDM-4 Target 2:** Implement by Dec 2019 **c.** None	Status – Planning Only TBTF needs this capability.
	5. Collaborative departure queue management	Number of aerodromes to be considered: 2 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, or 2* **c.** How many aerodromes implemented the capability? *None, 1, or 2*	**B0-ACDM-5 Target 1:** Assessed in Dec 2016 **a.** Yes **b.** 1 (TBTF) **B0-ACDM-5 Target 2:** Implement by Dec 2019 **c.** None	Status – Planning Only TBTF needs this capability.

Metrix & Targets: APTA

Block 0 Modules	Elements	Metrics	Targets	Status & Remarks
APTA	1. PBN approach procedures with vertical guidance to LNAV/VNAV minima	Number of aerodromes to be considered: 2 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, or 2* **c.** How many aerodromes implemented the capability? *None, 1, or 2*	**B0-APTA-1 Target 1:** Assessed in Sep 2017 **a.** Yes **b.** 1 (TBTF) **B0-APTA-1 Target 2:** Implemented in Aug 2010 **c.** 1	Status – Implemented Only TBTF needs this capability.
	2. PBN approach procedures with vertical guidance to LPV minima	Number of aerodromes to be considered: 2 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, or 2* **c.** How many aerodromes implemented the capability? *None, 1, or 2*	**B0-APTA-2 Target 1:** Assessed in Sep 2017 **a.** Yes **b.** None **B0-APTA-2 Target 2:** **c.** N/A	Status – N/A
	3. PBN Approach Procedures without vertical guidance (LP, LNAV minima; using SBAS)	Number of aerodromes to be considered: 2 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, or 2* **c.** How many aerodromes implemented the capability? *None, 1, or 2*	**B0-APTA-3. Target 1:** Assessed in Sep 2017 **a.** Yes **b.** 2 **B0-APTA-3 Target 2:** Implemented in Aug 2010 **c.** 1	Status – Implemented At both TWOW and TBTF.
	4. GBAS Landing System (GLS) Approach procedures	Number of aerodromes to be considered: 2 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, or 2* **c.** How many aerodromes implemented the capability? *None, 1, or 2*	**B0-APTA-4. Target 1:** Assessed in Sep 2017 **a.** Yes **b.** 2 (TWOW, TBTF) **B0-APTA-4. Target 2:** Implement by Dec 2019 **c.** None	Status – Need Both TWOW and TBTF need this capability.

Metrix & Targets: RSEQ

Block 0 Modules	Elements	Metrics	Targets	Status & Remarks
RSEQ	1. AMAN via controlled time of arrival to a reference fix	Number of aerodromes to be considered: 2 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, or 2* **c.** How many aerodromes implemented the capability? *None, 1, or 2*	**B0-RSEQ-1. Target 1:** Assessed in Dec 2016 **a.** Yes **b.** None **B0- RSEQ-1 Target 2:** **c.** N/A	Status – N/A
	2. Departure management	Number of aerodromes to be considered: 2 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, or 2* **c.** How many aerodromes implemented the capability? *None, 1, or 2*	**B0-RSEQ-2. Target 1:** Assessed in Dec 2016 **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: 2 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, or 2* **c.** How many aerodromes implemented the capability? *None, 1, or 2*	**B0-RSEQ-3. Target 1:** Assessed in Dec 2016 **a.** Yes **b.** None **B0-RSEQ-3. Target 2:** **c.** N/A	Status – N/A
	4. Point merge	Number of aerodromes to be considered: 2 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, or 2* **c.** How many aerodromes implemented the capability? *None, 1, or 2*	**B0-RSEQ-4. Target 1:** Assessed in Dec 2016 **a.** Yes **b.** None **B0-RSEQ-4. Target 2:** **c.** N/A	Status – N/A

Metrix & Targets: SURF

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: 2 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, or 2* **c.** How many aerodromes implemented the capability? *None, 1, or 2*	**B0-SURF-1. Target 1:** Assessed in Dec 2016 **a.** Yes **b.** None **B0-SURF-1. Target 2:** **c.** N/A	Status – N/A
	2. Including ADS-B APT as an element of A-SMGCS	Number of aerodromes to be considered: 2 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, or 2* **c.** How many aerodromes implemented the capability? *None, 1, or 2*	**B0-SURF-2. Target 1:** Assessed in Dec 2016 **a.** Yes **b.** None **B0-SURF-2. Target 2:** **c.** N/A	Status – N/A
	3. A-SMGCS alerting with flight identification information	Number of aerodromes to be considered: 2 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, or 2* **c.** How many aerodromes implemented the capability? *None, 1, or 2*	**B0-SURF-3. Target 1:** Assessed in Dec 2016 **a.** Yes **b.** None **B0-SURF-3. Target 2:** **c.** N/A	Status – N/A
	4. EVS for taxi operations	Number of aerodromes to be considered: 2 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, or 2* **c.** How many aerodromes implemented the capability? *None, 1, or 2*	**B0-SURF-4. Target 1:** Assessed in Dec 2016 **a.** Yes **b.** None **B0-SURF-4. Target 2:** **c.** N/A	Status – N/A
	5. Airport vehicles equipped with transponders	Number of aerodromes to be considered: 2 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, or 2* **c.** How many aerodromes implemented the capability? *None, 1, or 2*	**B0-SURF-5. Target 1:** Assessed in Dec 2016 **a.** Yes **b.** None **B0-SURF-5. Target 2:** **c.** N/A	Status – N/A

Metrix & Targets: WAKE

Block 0 Modules	Elements	Metrics	Targets	Status & Remarks
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: 2 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, or 2* **c.** How many aerodromes implemented the capability? *None, 1, or 2*	**B0-WAKE-2. Target 1:** Assessed in Dec 2016 **a.** Yes **b.** None **B0-WAKE-2. Target 2:** **c.** N/A	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: 2 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, or 2* **c.** How many aerodromes implemented the capability? *None, 1, or 2*	**B0-WAKE-3. Target 1:** Assessed in Dec 2016 **a.** Yes **b.** None **B0-WAKE-3. Target 2:** **c.** N/A	Status – N/A
	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: 2 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, or 2* **c.** How many aerodromes implemented the capability? *None, 1, or 2*	**B0-WAKE-4. Target 1:** Assessed in Dec 2016 **a.** Yes **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: 2 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, or 2* **c.** How many aerodromes implemented the capability? *None, 1, or 2*	**B0-WAKE-5. Target 1:** Assessed in Dec 2016 **a.** Yes **b.** None **B0-WAKE-5. Target 2:** **c.** N/A	Status – N/A

Metrix & Targets: AMET

Block 0 Modules	Elements	Metrics	Targets	Status & Remarks
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:** Assessed in Dec 2016 a. Yes b. Yes **B0-AMET-1.Target 2:** Implemented in Jan 2000 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:** Assessed in Dec 2016 a. Yes b. No **B0-AMET-2. Target 2:** c. N/A	Status – N/A
	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:** Assessed in Dec 2016 a. Yes b. Yes **B0-AMET-3.Target 2:** Implemented in Jan 2000 c. Yes	Status – Implemented
	4. Aerodrome warnings	Number of aerodromes to be considered: 2 a. Have we assessed the need? *Yes or No* b. How many aerodromes need this capability? *None, 1, or 2* c. How many aerodromes implemented the capability? *None, 1, or 2*	**B0-AMET-4. Target 1:** Assessed in Dec 2016 a. Yes b. 2 (TWOW, TBTF) **B0-AMET-4.Target 2:** Implement by Dec 2019 c. 2	Status – Partially Implemented In the process of training and acquiring all equipment
	5. Wind shear warnings and alerts	Number of aerodromes to be considered: 2 a. Have we assessed the need? *Yes or No* b. How many aerodromes need this capability? *None, 1, or 2* c. How many aerodromes implemented the capability? *None, 1, or 2*	**B0-AMET-5. Target 1:** Assessed in Dec 2016 a. Yes b. 2 (TWOW, TBTF) **B0-AMET-5.Target 2:** Implement by Dec 2019 c. 2	Status - Partially Implemented In the process of training and acquiring all equipment
	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:** Assessed in Dec 2016 a. Yes b. No **B0-AMET-6. Target 2:** c. N/A	Status – N/A
	7. Other OPMET information (METAR, SPECI and/or TAF)	Number of aerodromes to be considered: 2 a. Have we assessed the need? *Yes or No* b. How many aerodromes need this capability? *None, 1, or 2* c. How many aerodromes implemented the capability? *None, 1, or 2*	**B0-AMET-7. Target 1:** Assessed in Dec 2016 a. Yes b. 2 **B0-AMET-7.Target 2:** Implemented in Jan 2000 c. 2	Status – Implemented At both TWOW and TBTF
	8. QMS for MET	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-8. Target 1:** Assessed in Dec 2016 a. Yes b. Yes **B0-AMET-8.Target 2:** Implement by Dec 2019 c. No	Status - Partially Implemented In the process of preparing documents and trainings

Metrix & Targets: DATM

Block 0 Modules	Elements	Metrics	Targets	Status & Remarks
DATM	1. Aeronautical Information Exchange Model (AIXM)	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-DATM-1. Target 1:** Assess by Dec 2017 a. No b. TBD **B0-DATM-1. Target 2:** Implement by TBD c. No	Status - Analysis Not Started
	2. eAIP	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-DATM-2. Target 1:** Assessed in Dec 2016 a. Yes b. Yes **B0-DATM-2. Target 2:** Implemented in Jan 2012 c. Yes	Status – Implemented
	3. Digital NOTAM	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-DATM-3. Target 1:** Assess by Dec 2017 a. No b. TBD **B0-DATM-3. Target 2:** Implement by TBD c. No	Status - Analysis Not Started
	4. eTOD	Number of aerodromes to be considered: 2 a. Have we assessed the need? *Yes or No* b. How many aerodromes need this capability? *None, 1, or 2* c. How many aerodromes implemented the capability? *None, 1, or 2*	**B0-DATM-4. Target 1:** Assess by Dec 2017 a. No b. TBD **B0-DATM-4. Target 2:** Implement by TBD c. No	Status - Analysis Not Started
	5. WGS-84	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-DATM-5. Target 1:** Assessed in Dec 2016 a. Yes b. Yes **B0-DATM-5. Target 2:** Implemented in Jan 1993 c. Yes	Status – Implemented
	6. QMS for AIM	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-DATM-6. Target 1:** Assessed in Dec 2016 a. Yes b. Yes **B0-DATM-6. Target 2:** Implement by Dec 2019 a. No	Status – Developing

Metrix & Targets: FICE

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:** Assessed in Dec 2016 a. Yes b. No **B0-FICE-1. Target 2:** c. N/A	Status - N/A
	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:** Assessed in Dec 2016 a. Yes b. No **B0-FICE-2. Target 2:** c. N/A	Status - N/A
	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-3. Target 1:** Assessed in Dec 2016 a. Yes b. No **B0-FICE-3. Target 2:** c. N/A	Status - N/A
	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-4. Target 1:** Assessed in Dec 2016 a. Yes b. No **B0-FICE-4. Target 2:** c. N/A	Status - N/A

Metrix & Targets: ACAS & ASEP

Block 0 Modules	Elements	Metrics	Targets	Status & Remarks
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:** Assessed in Dec 2016 a. No b. TBD **B0-ACAS-1. Target 2:** Implement by TBD c. No	Status - Analysis Not Started
	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:** Assessed in Dec 2016 a. Yes b. No **B0-ACAS-2. Target 2:** c. N/A	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:** Assessed in Dec 2016 a. Yes b. No **B0-ACAS-3. Target 2:** c. N/A	Status - N/A
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:** Assessed in Dec 2016 a. Yes b. No **B0-ASEP-1. Target 2:** c. N/A	Status - N/A
	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:** Assessed in Dec 2016 a. Yes b. No **B0-ASEP-2. Target 2:** c. N/A	Status - N/A

Metrix & Targets: ASUR & FRTO

Block 0 Modules	Elements	Metrics	Targets	Status & Remarks
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:** Assessed in Dec 2016 **a.** Yes **b.** Yes **B0-ASUR-1. Target 2:** Implement by Dec 2019 **c.** No	Status – Planning
	2. Multilateration (MLAT)	Number of aerodromes to be considered: 2 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, or 2* **c.** How many aerodromes implemented the capability? *None, 1, or 2*	**B0-ASUR-2. Target 1** Assessed in Dec 2016: **a.** Yes **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 Dec 2016 **a.** Yes **b.** No **B0-FRTO-1. Target 2:** **c.** N/A	Status - N/A
	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 Dec 2016 **a.** Yes **b.** No **B0-FRTO-2. Target 2:** **c.** N/A	Status - N/A
	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** Assessed in Dec 2016: **a.** Yes **b.** No **B0-FRTO-3. Target 2:** **c.** N/A	Status - N/A
	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-4. Target 1:** Assessed in Dec 2016 **a.** Yes **b.** No **B0-FRTO-4. Target 2:** **c.** N/A	Status - N/A

Metrix & Targets: NOPS, OFL, & SNET

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* b. Do we need this capability? *Yes or No* c. Have we implemented the capability? *Yes or No*	**B0-NOPS-1. Target 1:** Assessed in Sep 2017 a. Yes b. Yes **B0-NOPS-1. Target 2:** Implement by Dec 2019 c. No	Status – Developing
	2. Proposing alternative routings to avoid or minimize ATFM delays	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-NOPS-2. Target 1:** Assessed in Sep 2017 a. Yes b. No **B0-NOPS-2. Target 2:** c. N/A	Status - N/A
OPFL	1. ITP using 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-OFTL-1. Target 1:** Assessed in Dec 2016 a. Yes b. No **B0-OFTL-1. Target 2:** c. N/A	Status - N/A
SNET	1. Short Term Conflict Alert (STCA)	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-SNET-1. Target 1:** Assessed in Dec 2016 a. Yes b. No **B0-SNET-1. Target 2:** c. N/A	Status - N/A
	2. Area Proximity Warning (APW)	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-SNET-2. Target 1:** Assessed in Dec 2016 a. Yes b. No **B0-SNET-2. Target 2:** c. N/A	Status - N/A
	3. Minimum Safe Altitude Warning (MSAW)	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-SNET-3. Target 1:** Assessed in Dec 2016 a. Yes b. No **B0-SNET-3. Target 2:** c. N/A	Status - N/A
	4. Medium Term Conflict Alert (MTCA)	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-SNET-4. Target 1:** Assessed in Dec 2016 a. Yes b. No **B0-SNET-4. Target 2:** c. N/A	Status - N/A

Metrix & Targets: CCO & CDO

Block 0 Modules	Elements	Metrics	Targets	Status & Remarks
CCO	1. Procedure changes to facilitate CCO	Number of aerodromes to be considered: 2 a. Have we assessed the need? *Yes or No* b. How many aerodromes need this capability? *None, 1, or 2* c. How many aerodromes implemented the capability? *None, 1, or 2*	**B0-CCO-1. Target 1:** Assessed in Dec 2016 a. Yes b. None **B0-CCO-1. Target 2:** c. N/A	Status - N/A
	2. Route changes to facilitate CCO	Number of aerodromes to be considered: 2 a. Have we assessed the need? *Yes or No* b. How many aerodromes need this capability? *None, 1, or 2* c. How many aerodromes implemented the capability? *None, 1, or 2*	**B0-CCO-2. Target 1:** Assessed in Dec 2016 a. Yes b. None **B0-CCO-2. Target 2:** c. N/A	Status - N/A
	3. PBN SIDs	Number of aerodromes to be considered: 2 a. Have we assessed the need? *Yes or No* b. How many aerodromes need this capability? *None, 1, or 2* c. How many aerodromes implemented the capability? *None, 1, or 2*	**B0-CCO-3. Target 1:** Assessed in Dec 2016 a. Yes b. 1 (TBTF) **B0-CCO-3. Target 2:** Implement by Dec 2019 c. None	Status – Developing Only TBTF needs this capability.
CDO	1. Procedure changes to facilitate CDO	Number of aerodromes to be considered: 2 a. Have we assessed the need? *Yes or No* b. How many aerodromes need this capability? *None, 1, or 2* c. How many aerodromes implemented the capability? *None, 1, or 2*	**B0-CDO-1. Target 1:** Assessed in Dec 2016 a. Yes b. None **B0-CDO-1. Target 2:** c. N/A	Status - N/A
	2. Route changes to facilitate CDO	Number of aerodromes to be considered: 2 a. Have we assessed the need? *Yes or No* b. How many aerodromes need this capability? *None, 1, or 2* c. Have we implemented the capability? *None, 1, or 2*	**B0-CDO-2. Target 1:** Assessed in Dec 2016 a. Yes b. None **B0-CDO-2. Target 2:** c. N/A	Status - N/A
	3. PBN STARs	Number of aerodromes to be considered: 2 a. Have we assessed the need? *Yes or No* b. How many aerodromes need this capability? *None, 1, or 2* c. How many aerodromes implemented the capability? *None, 1, or 2*	**B0-CDO-3. Target 1:** Assessed in Dec 2016 a. Yes b. 2 (TWOW, TBTF) **B0-CDO-3. Target 2:** Implemented in Aug 2020 c. 2	Status – Implemented At both TWOW and TBTF.

Metrix & Targets: TBO

Block 0 Modules	Elements	Metrics	Targets	Status & Remarks
TBO	1. ADS-C over oceanic and remote areas	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-TBO-1. Target 1:** Assessed in Dec 2016 a. Yes b. None **B0-TBO-1. Target 2:** c. N/A	Status - N/A
	2. CPDLC over continental areas	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-TBO-2. Target 1:** Assessed in Sep 2017 a. Yes b. None **B0-TBO-2. Target 2:** c. N/A	Status - N/A
	3. CPDLC over oceanic and remote areas	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-TBO-3. Target 1:** Assessed in Dec 2016 a. Yes b. None **B0-TBO-3. Target 2:** c. N/A	Status - N/A
	4. SATVOICE direct controller-pilot communication (DCPC)	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-TBO-4. Target 1:** Assessed in Dec 2016 a. Yes b. None **B0-TBO-4. Target 2:** c. N/A	Status - N/A

Summary Table Preparation

Summary Table Entry Differences

- Aerodrome Centric Elements: Enter number

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								

Note: Sum of numbers per Element equals number of aerodromes identified in "Your aerodromes" slide.

- State/Organization Centric Elements: Enter check mark √

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 2: Globally Interoperable Systems and Data									
AMET	1. WAFS								
	2. IAVW								

Note: If your State contracts out certain capabilities, either (a) check N/A box or (b) enter * into the appropriate box and explain who is your service provider.

PIA 1

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. ADS-B APT								
	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								

PIA 2

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 2: Globally Interoperable Systems and Data									
AMET	1. WAFS								
	2. IAVW								
	3. TCAC forecasts								
	4. Aerodrome warnings								
	5. Wind shear warnings and alerts								
	6. SIGMET								
	7. Other OPMET information (METAR, SPECI and/or TAF)								
	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								

PIA 3

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 3: Optimum Capacity and Flexible Flights									
ACAS	1. ACAS II (TCAS version 7.1)								
	2. APFD 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)								

PIA 4

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 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								
	4. SATVOICE direct controller-pilot communication (DCPC)								

State ANP Explained and Preparation

Lesson 1: Introduction

Lesson 1: Introduction

Lesson 1: Introduction

1.2.3 Aerodromes

- Describe aerodromes identified to be included in the State ANP *(refer to earlier exercise)*

1.2.4 Traffic Forecast

- Open “NACC RO Traffic Forecast” spreadsheet
- Enter your aerodrome name
- Enter the Number of typical daily operation (arrivals and departures)
- Decide the annual increase/decrease rate
- Transfer the results to this section of State ANP

Lesson 1: Introduction

State ANP

Lesson 2: ASBU Implementation Status

State ANP

Lesson 2: ASBU Implementation Status

2.1.1 ASBU B0 Implementation Metrics and Targets

- Aerodrome Centric Elements
  - All Elements from PIA 1 (Airport Operation)
  - AMET Elements 4, 5, and 7
  - DATM Element 4
  - ASUR Element 2
  - CCO Elements 1, 2, and 3
  - CDO Elements 1, 2, an 3
- State/Organization Centric Elements

State ANP

Lesson 2: ASBU Implementation Status

2.1.1 ASBU B0 Implementation Metrics and Targets

- Aerodrome Centric Elements

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: 2 **a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *None, 1, or 2* **c.** How many aerodromes implemented the capability? *None, 1, or 2*	**B0-ACDM-1 Target 1:** Assessed in Sep 2017 **a.** Yes **b.** 1 (TLPL) **B0-ACDM-1 Target 2:** Implement by Dec 2019 **c.** None	Status – Planning Only TLPL needs this capability.

- State/Organization Centric Elements

Block 0 Modules	Elements	Metrics	Targets	Status & Remarks
Performance Improvement Area 4: Efficient Flight Paths				
TBO	**1.** ADS-C over oceanic and remote areas	**a.** Have we assessed the need? *Yes or No* **b.** How many aerodromes need this capability? *Yes or No* **c.** Have we implemented the capability? *Yes or No*	**B0-TBO-1. Target 1:** Assessed in Dec 2016 **a.** Yes **b.** None **B0-TBO-1. Target 2:** **c.** N/A	Status - N/A

State ANP

Lesson 2:
ASBU Implementation Status

2.1.2 ASBU B0 Implementation Status Summary

- Insert the ASBU B0 Implementation Status Summary Table *(refer to the previous exercise)*

State ANP

Lesson 2:
ASBU Implementation Status

2.2 ASBU Block 1 Implementation Targets and Status
2.3 ASBU Block 2 Implementation Targets and Status
2.4 ASBU Block 3 Implementation Targets and Status

State ANP

Lesson 3:
ASBU Implementation Status

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

- Prepare the RASI ANRF
- Describe the summary of RASI status
- Note: RASI ANRF will be inserted in Appendix

State ANP

Lesson 3: ASBU Implementation Status

4. Your State Aviation System Improvements (SASI) Status

- 4.1 Equipment Upgrades
- 4.2 Procedure Upgrades
- 4.3 Infrastructure Upgrades

- Prepare the SASI ANRF
- Describe the summary of SASI status
- Note: SASI ANRF will be inserted in Appendix

State ANP

Lesson 3:
ASBU Implementation Status

5. Your State ANP Next Review Schedule

State ANP

Lesson 3:
ASBU Implementation Status

Appendix A: ANRF Explained
Appendix B: ASBU ANRF Template
Appendix C: RASI and SASI ANRF Templates

State ANP

Lesson 3: ASBU Implementation Status

Appendix D: Your ASBU Block 0 ANRFs

- Insert your ASBU B0 ANRF *(previous exercise results)*

Appendix E: Your ASBU Block 1 ANRFs

Appendix F: Your ASBU Block 2 ANRFs

Appendix G: Your ASBU Block 3 ANRFs

Appendix H: Your RASI ANRFs

- Insert your RASI ANRF

Appendix I: Your SASI ANRFs

- Insert your SASI ANRF

Midori Tanino
ANI/WG ASBU TF Rapporteur
Midori.Tanino@faa.gov