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INFORMATION PAPER

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**Second NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/2)**  
Puntarenas, Costa Rica, 1 to 4 June 2015

- Agenda Item 4: Follow-up on the NAM/CAR Regional Performance Based Air Navigation Implementation Plan (NAM/CAR RPBANIP)**  
**4.2 National Plans Reports on Aviation System Block Upgrade (ASBU) (AIM, ATM and CNS)**

**U.S. IMPLEMENTATION OF THE AVIATION SYSTEM BLOCK UPGRADES (ASBU)  
BLOCK 0 MODULES**

(Presented by United States of America)

<b>EXECUTIVE SUMMARY</b>	
This paper presents information on the United States' implementation of the ICAO Aviation System Block Upgrades (ASBUs) in support of the Global Air Navigation Plan (GANP). It describes areas of ASBU implementation in the United States, and its broader effects on international aviation.	
<i>Strategic Objectives:</i>	<ul style="list-style-type: none"><li>• Safety</li><li>• Air Navigation Capacity and Efficiency</li><li>• Environmental Protection</li></ul>
<i>References:</i>	<ul style="list-style-type: none"><li>• Doc 9750 – <i>Global Air Navigation Plan</i>, ICAO, Fourth Edition</li><li>• Working Document for the Aviation System Block Upgrades, <i>The Framework for Global Harmonization</i>, issued on 28 March 2013</li></ul>

**1. Introduction**

1.1 The Global Air Navigation Plan (GANP) and the Aviation System Block Upgrades (ASBUs) concept and documents were developed to provide the framework and strategic direction for a global and harmonized aviation system. With endorsement and approval from the 12<sup>th</sup> Air Navigation Conference and the 38<sup>th</sup> Assembly, the GANP and ASBUs provide the strategic direction and define measurable operational improvements for the next 15 years, and include key civil aviation policy principles to assist ICAO regions, sub-regions and States with the preparation and implementation of their air navigation plans. The benefit of the GANP and ASBU program is that modernization can be implemented based on a State's needs, capabilities, and resources.

## 2. Information on the U.S. ASBU Block 0 Implementation Status

2.1 With the GANP and ASBUs now in place, the United States (U.S.) and other Member States are addressing steps toward implementation. The objective of this working paper is to provide the status of U.S. implementation of the ASBUs in support of the GANP. To date, we have implemented all of the modules in Block 0, either across the National Airspace System (NAS) or at select locations, and are working on additional Blocks.

2.2 The tables provided below show the list of ASBU Block 0 modules and their elements to be implemented. The FAA has identified 47 elements for the 18 Block 0 modules. For each Performance Improvement Area (PIA) table, the first column shows the module acronyms. The second column describes the elements, and the last column presents the FAA’s implementation status. We note that our status on these modules and elements may be in different stages of implementation.

2.3 Many of the descriptions of the Module Elements are derived directly from the Working Document for the Aviation System Block Upgrades, *The Framework for Global Harmonization*, issued on March 28, 2013. Please note:

- If the Element descriptions are accompanied with “(D)”, the description was derived from the Working Document.
- If the Element descriptions are accompanied with“(NACC),” indicates that the Elements were added by the ICAO NACC Regional Office.
- Element descriptions of “1a” and “1b” indicate that the Elements are directly from the Working Document, but broken into two parts.

Table 1 describes the PIA 1, Airport Operations. PIA 1 consists of 5 modules and 15 Elements.

PIA 1: Airport Operations									
Block 0 Modules	Elements	Not Started	Need Analysis			Implementation Status (if Needed)			
			In process	Need	N/A	Plan-ning	Develop- ing	Partially Imple- mented	Imple- mented
ACDM	1(D): International aerodromes with Airport CDM			X					X
	2(NACC): Certified international aerodromes			X					X
	3(NACC): International aerodromes with Rescue and Fire Fighting equipment as per Annex 14			X					X
APTA	1(D): APV with Baro VNAV			X					X
	2(D): APV with SBAS (WAAS)			X					X
	3(D): APV with GBAS			X					X
RSEQ	1: AMAN and time-based metering			X					X
	2: Departure management			X					X
	3: Point merge				X				
SURF	1a: International aerodromes with at least one cooperative surface surveillance system such as Surface Movement Radar, Secondary Surveillance Radar Mode S, ADS-B, and Multilateration			X					X
	1b: International aerodromes with a cooperative transponder systems on vehicles			X					X
	2: Alerting			X					X
WAKE	1: 6-category wake vortex separation			X					X
	2: Increasing aerodrome arrival operational capacity			X					X
	3: Increasing aerodrome departure operational capacity			X					X

**Table 1: Implementation Status of PIA 1 - Airport Operations**

Table 2 describes the PIA 2, Globally Interoperable Systems and Data. PIA 2 consists of 3 modules and 14 Elements.

<b>PIA 2: Globally Interoperable Systems and Data</b>									
Block 0 Modules	Elements	Not Started	Need Analysis			Implementation Status (if Needed)			
			In process	Need	N/A	Plan-ning	Develop-ing	Partially Imple-mented	Imple-mented
AMET	1: WAFS			X					X
	2: IAVW			X					X
	3: Tropical cyclone watch			X					X
	4: Aerodrome warnings			X					X
	5: Wind shear warnings and alerts			X					X
	6: SIGMET and other operational meteorological (OPMET) information			X					X
DATM	1(D): Implementation of AIXM			X					X
	2(D): Implementation of eAIP			X					X
	3(D): Implementation of Digital NOTAM			X					X
	4(NACC): Implementation of WGS-84			X					X
	5(NACC): Implementation of eTOD			X					X
	6(NACC): Implementation of QMS for AIM			X					X
FICE	1(D): ATS units with AIDC			X					X
	2(NACC): Implementation of AMHS/IPS			X					X

**Table 2: Implementation Status of PIA 2 - Globally Interoperable Systems and Data**

Table 3 describes the PIA 3, Optimum Capacity and Flexible Flights. PIA 3 consists of 7 modules and 13 Elements.

<b>PIA 3: Optimum Capacity and Flexible Flights</b>									
Block 0 Modules	Elements	Not Started	Need Analysis			Implementation Status (if Needed)			
			In process	Need	N/A	Plan-ning	Develop-ing	Partially Imple-mented	Imple-mented
ACAS	1: Aircraft with ACAS logic V7.1			X					X
ASEP	1: ATSA-AIRB			X					X
	2: ATSA-VSA			X					X
ASUR	1: International aerodromes with ADS-B implemented			X					X
	2: Multilateral system implemented			X					X
FRTO	1: Airspace planning			X					X
	2: Flexible use of airspace (FUA) Time segregated airspaces are available for civil operations in the State			X					X
	3: Flexible routing			X					X
NOPS	1(D): ATS units using ATFM services			X					X
OPFL	1(D): Aircraft used ITP			X					X
SNET	1: Short Term Conflict Alert implementation (STCA)			X					X
	2: Area Proximity Warning (APW)/ Minimum Safe Altitude Warning (MSAW)			X					X
	3: Medium Term Conflict Alert (MTCA)			X					X

**Table 3: Implementation Status of PIA 3 - Optimum Capacity and Flexible Flights**

Table 4 describes the PIA 4, Efficient Flight Path. PIA 4 consists of 3 modules and 5 Elements.

<b>PIA 4: Efficient Flight Path</b>									
Block 0 Modules	Elements	Not Started	Need Analysis			Implementation Status (if Needed)			
			In process	Need	N/A	Plan-ning	Develop-ing	Partially Imple-mented	Imple-mented
CCO	1(D): International aerodromes with CCO implemented			X					X
	2(D): International aerodromes with PBN SIDs implemented			X					X
CDO	1: International aerodromes with CDO implemented			X					X
	2: International aerodromes/TMAs with PBN STARs implemented			X					X
TBO	1: Number of ADS-C/CPDLC procedures available over oceanic and remote areas			X					X

**Table 4: Implementation Status of PIA 4 - Efficient Flight Path**

2.3 As described in this paper, the United States is approaching air traffic modernization from a systemic and holistic point-of-view, and views modernization as a process that must be developed and implemented with the entire system in mind. This process is being driven by the U.S. NextGen Program.

**3. Conclusion**

3.1 In order to coordinate the modernization of the global air navigation system, it is important to have a harmonised plan for aviation regulators, operators and industry to follow. The planning, development, training and implementation of a globally harmonized system are contingent on a framework that includes scalable plans and provides operational, economic, and safety benefits.