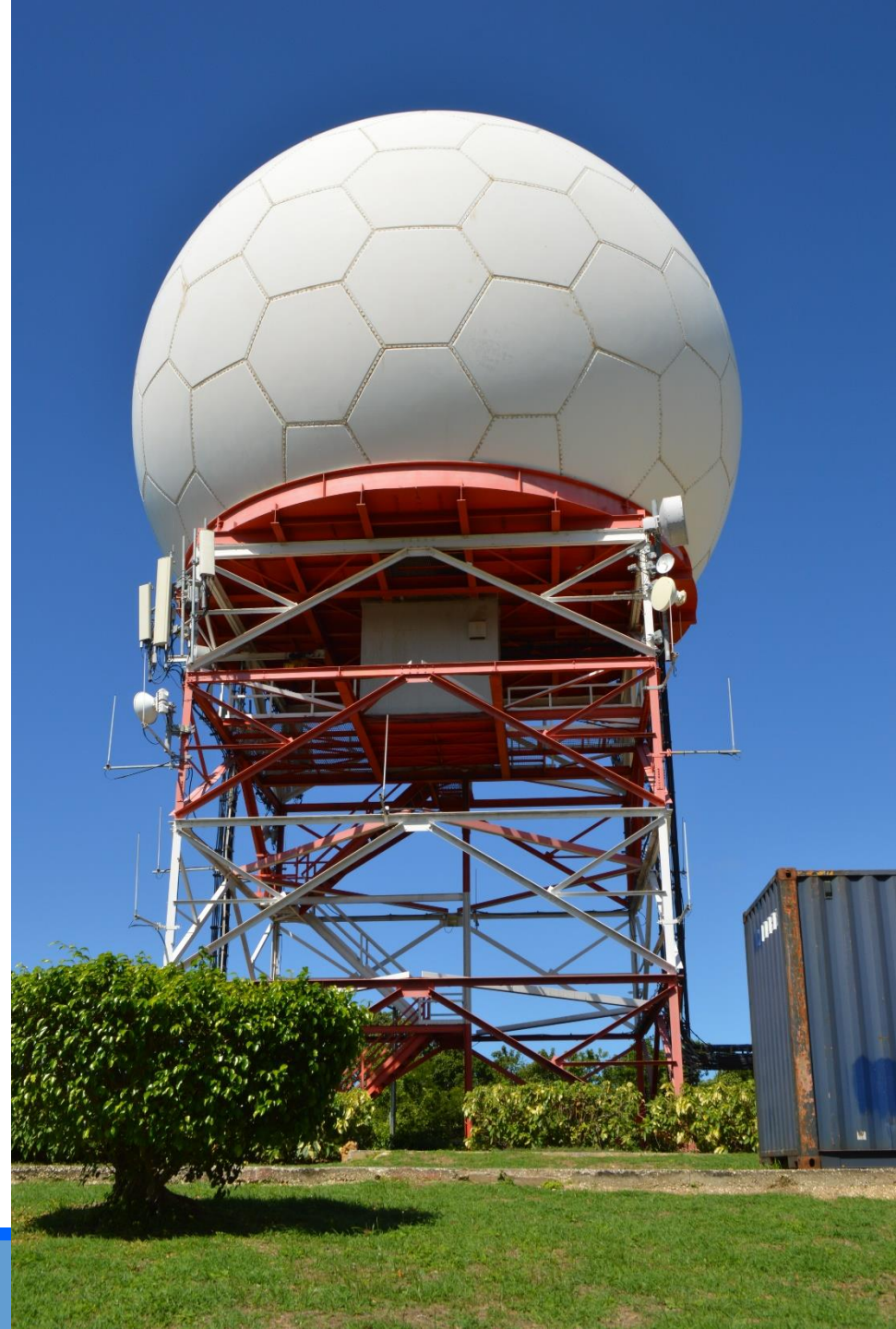
JAMAICA CIVIL AVIATION AUTHORITY

AIR NAVIGATION SERVICES DIVISION – National Air Navigation Plan

June 14, 2023

Howard Greaves - Deputy Director General,
Air Navigation Services



AIR NAVIGATION SERVICES

Offered Services

- Air Traffic Management
- Aeronautical Information Management
- Communication, Navigation & Surveillance
- Aeronautical Search & Rescue
- Aviation Meteorology (Delegated – MET)

People

176 ANS 130 ATCs

Technology

Radar
ATM Automation
Microwave Link
A-G Radios

Customers

Air Operators

Domestic | International
General Aviation | Commercial

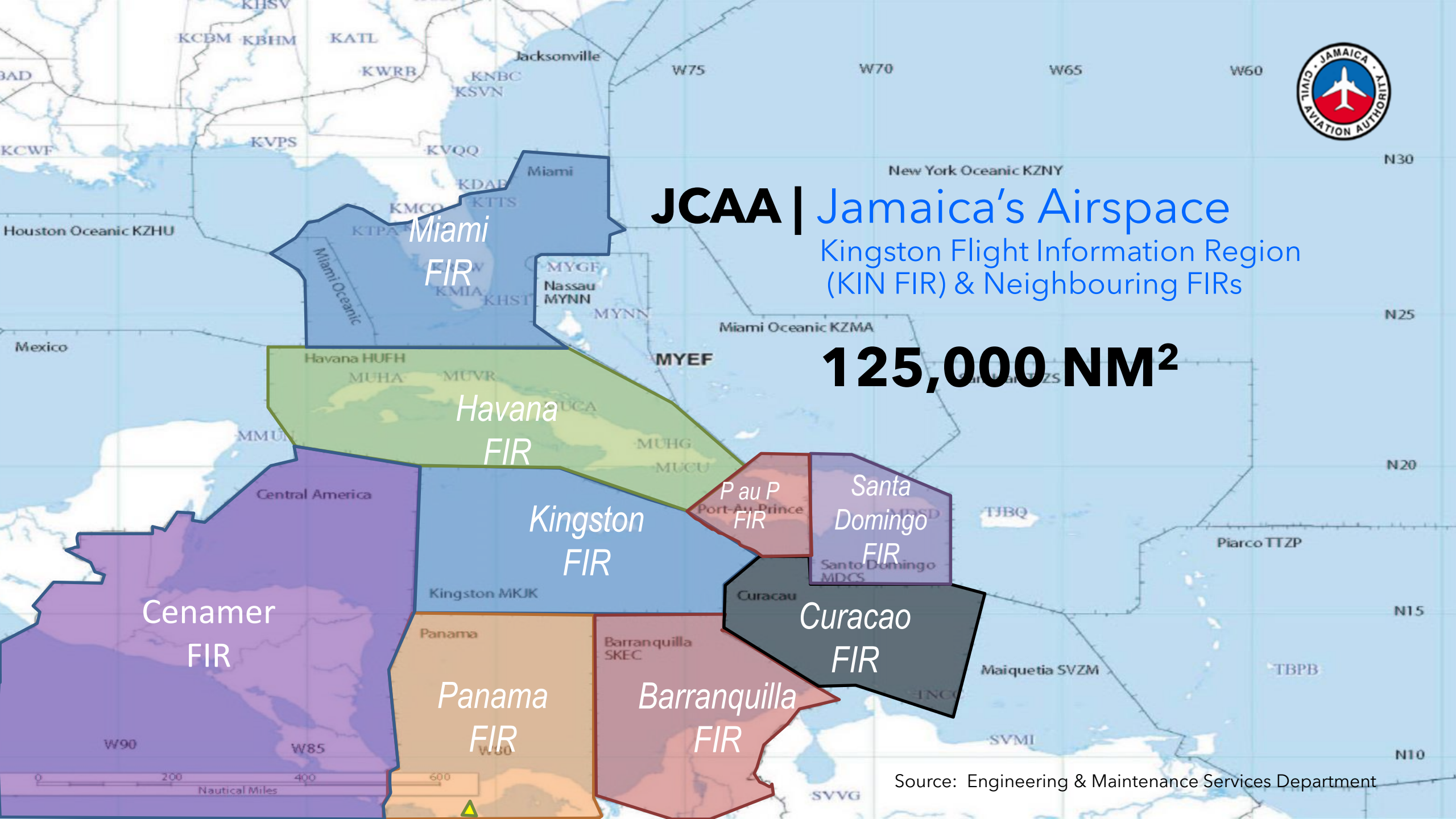
Partners & Key Stakeholders

Team • Regulator • GOJ MDAs • AEROTEL • Other Vendors • ICAO • CANSO • JATCA

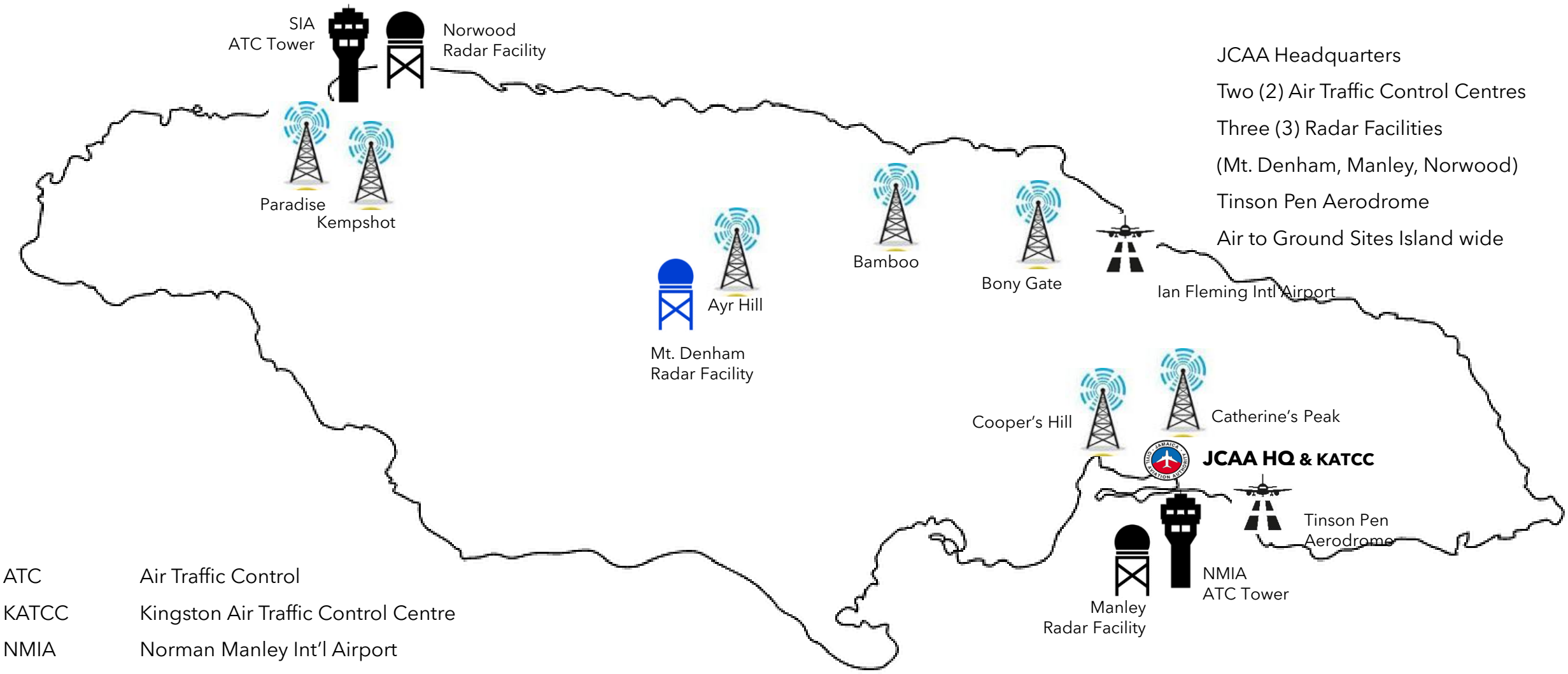
Core Processes

- Airspace design & management
- Manage air traffic flows & capacity
- Design & maintain CNS/ATM Infrastructure & Systems

Source: RPRA Department


JCAA | Jamaica's Airspace
Kingston Flight Information Region
(KIN FIR) & Neighbouring FIRs
125,000 NM²
Miami FIR
Havana FIR
Kingston FIR
P au P FIR
Santa Domingo FIR
Curacao FIR
Barranquilla FIR
Panama FIR
Cenamer FIR
Miami Oceanic
Central America
Nassau MYNN
Havana HUFH
Kingston MKJK
Santo Domingo MDCS
Curacau
Barranquilla SKEC
Panama
Piarco TTZP
Maiquetia SVZM
New York Oceanic KZNY
Miami Oceanic KZMA
Houston Oceanic KZHU
Jacksonville
Mexico
MYEF
W90
W85
W75
W70
W65
W60
N30
N25
N20
N15
N10
0 200 400 600
Nautical Miles
Source: Engineering & Maintenance Services Department

Key Sites and Facilities



JCAA Headquarters

Two (2) Air Traffic Control Centres

Three (3) Radar Facilities

(Mt. Denham, Manley, Norwood)

Tinson Pen Aerodrome

Air to Ground Sites Island wide

ATC	Air Traffic Control
KATCC	Kingston Air Traffic Control Centre
NMIA	Norman Manley Int'l Airport
SIA	Sangster Int'l Airport

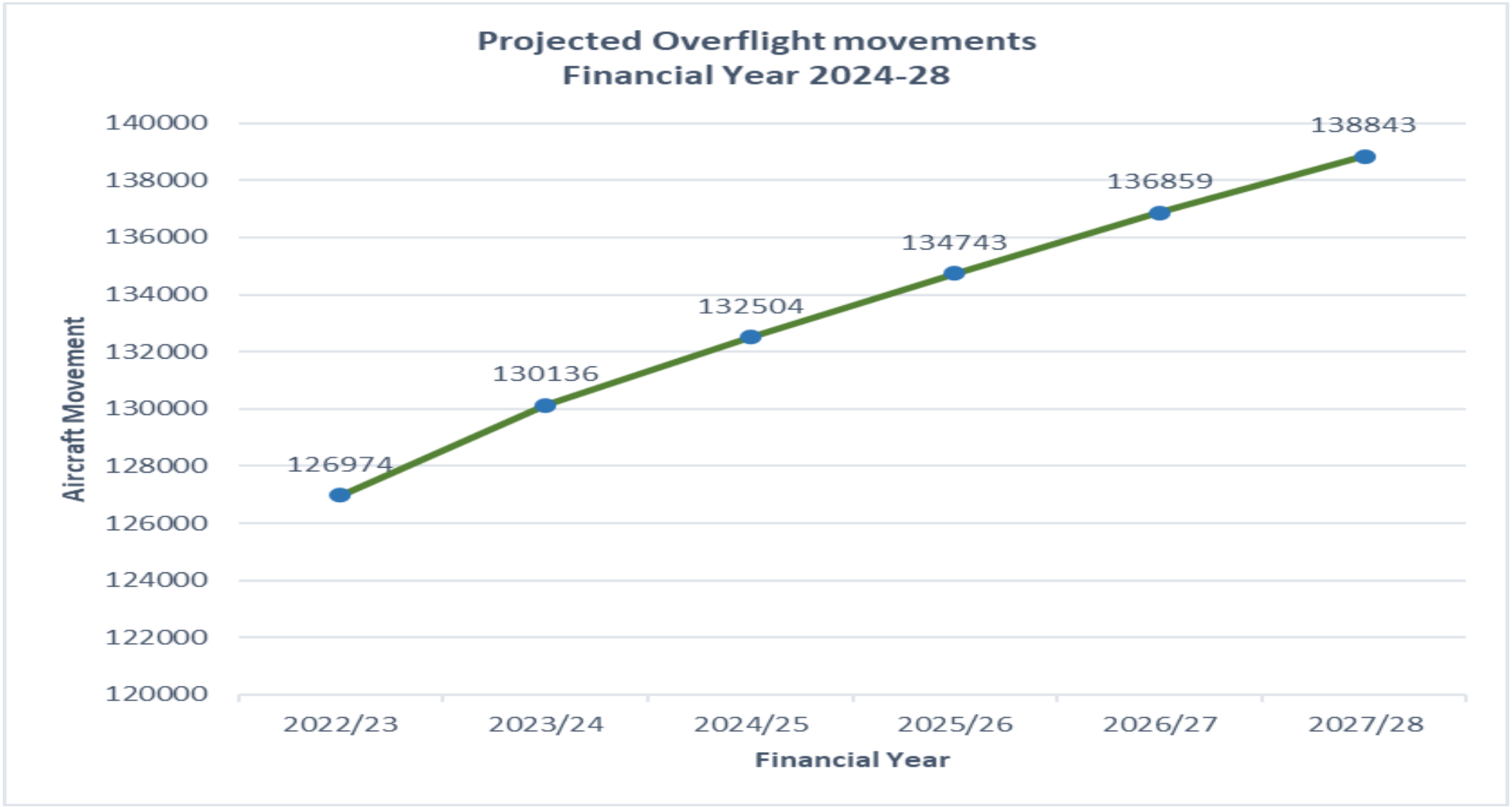
Achievements of Elements of our National Air Navigation Plan

INFRASTRUCTURE UPGRADES

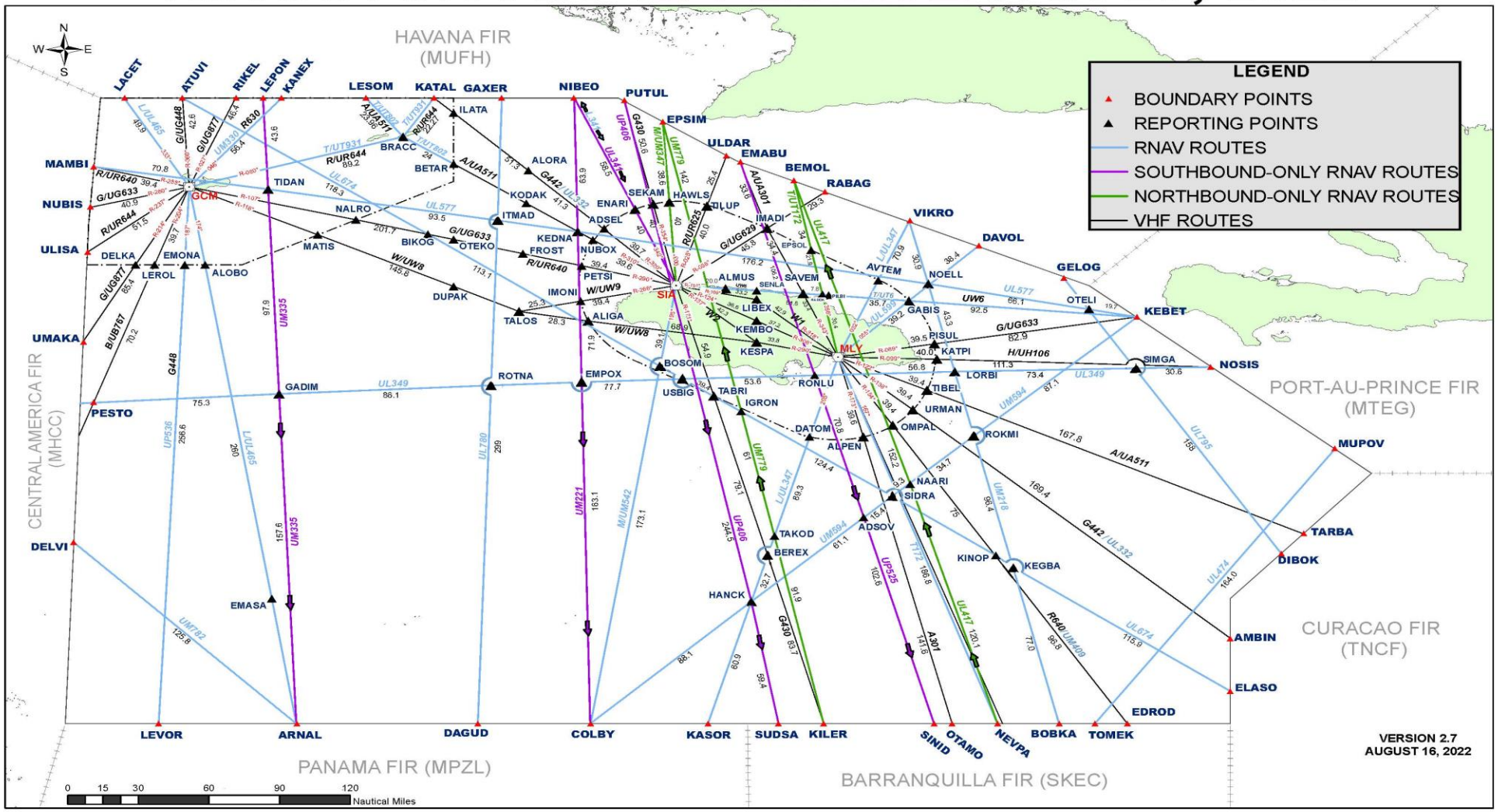
(TOWERS, KATCC, A/G RADIOS, DVOR/DME, ETC.)

AIRSPACE REDESIGN

NEW PERFORMANCE-BASED NAVIGATION ROUTES FOR AIRSPACE EFFICIENCY


Projected Overflight movements
Financial Year 2024-28
Aircraft Movement
140000
138000
136000
134000
132000
130000
128000
126000
124000
122000
120000
126974
130136
132504
134743
136859
138843
2022/23
2023/24
2024/25
2025/26
2026/27
2027/28
Financial Year

KINGSTON FIR- EFFECTIVE JAN 27, 2022



FRTO – Free Route Operations	**Yes**	**The implementation of FRTO or Free Route Airspace [FRA] offers a number of efficiency benefits for the operators. There are also a number of challenges and issues but, overall, this is considered one of the most cost-effective changes to the ATS provision in Europe. The most notable benefits are:** • **Reduced flight time, since most flights will be using the shortest routes possible;** • **Reduced CO2 emissions, as a consequence of the reduced flight time;** • **Reduced fuel waste, also a consequence of the reduced flight time and more optimal flight profiles;** • **Low implementation costs for ANSPs – in most cases implementation of FRA is supported by the existing ACC equipment;** • **Fewer conflicts – since the same number of aircraft are spread over more routes;** • **Weight optimisation – in general FRA reduces the difference in distance between the planned route and the actual route. This in turn reduces the amount of extra fuel that needs to be carried potentially allowing for a heavier payload.**	**To Be Determined**	**0%**

RATS: Remote air traffic services

RATS: Remote air traffic services	Yes	The main target for the single and multiple remote tower services are small airports, which today are struggling with low business margins e.g. Tinson Pen and Ian Fleming International Airport. Both ATC and AFIS aerodromes are expected to benefit. The main targets for the contingency tower solution are medium to large airports – those that are large enough to require a contingency solution, but who require an alternative to A-SMGCS based “heads down” solutions or where maintaining a visual view is required. Although some cost benefits are possible with remote provision of ATS to a single aerodrome, maximum benefit is expected with the remote provision of ATS to multiple aerodromes.	FY2025/26	0%

ENGINEERING & MAINTENANCE SERVICES

Department
(Also known as the Communications, Navigation and Surveillance (CNS) Department)

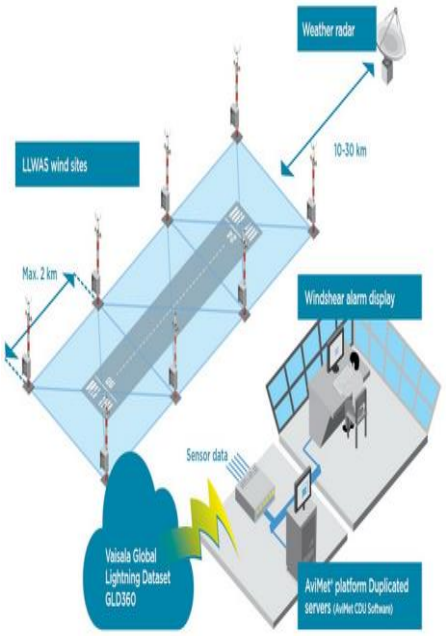
Responsible for Jamaica's network of communications, navigation and surveillance facilities, infrastructure, systems and team which are foundational for the provision of air navigation services.

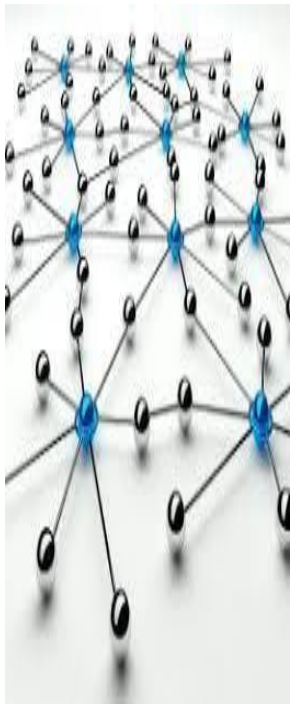
Instrument Landing System (ILS) – NMIA (Replacement)

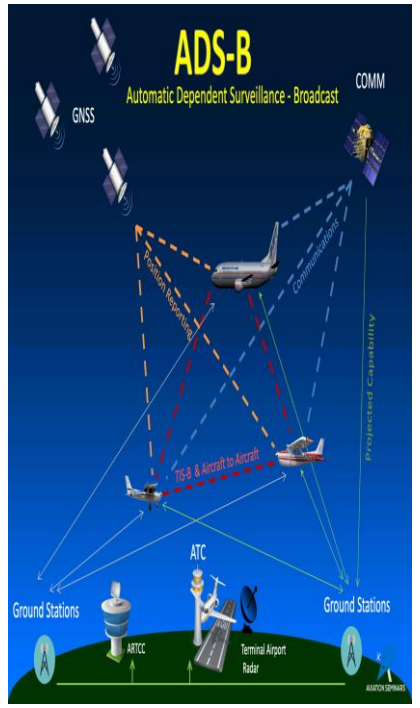
Low-Level Wind Shear

MEVA III Node (Contingency)

Automatic Dependent Surveillance – Broadcast (ADS-B)





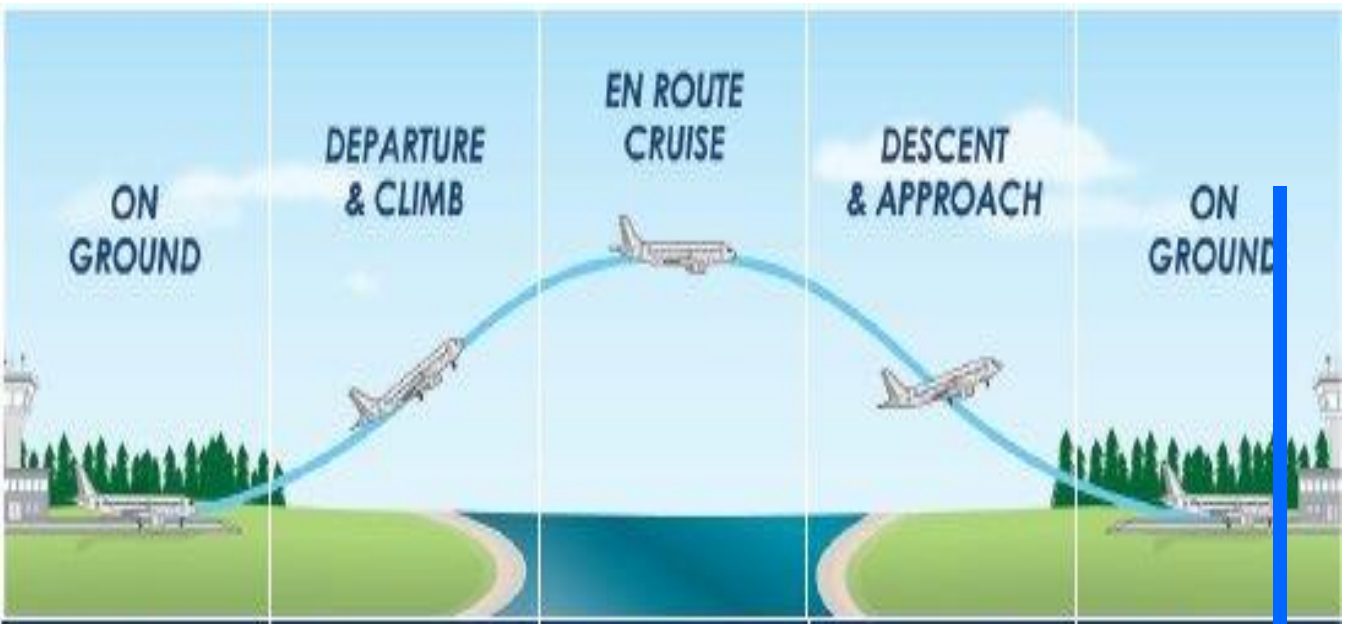


Airport Collaborative Decision Making (ACDM)

Airport Collaborative Decision Making (ACDM)	Yes	Airport operations need to be improved by more capabilities such as Airport Collaborative Decision Making (ACDM). To support airport operations, having accurate and timely weather and aeronautical information is essential. Information such as aerodrome warnings and wind shear warnings/alerts will increase safety of operations.	FY2025/26	Airport operators currently receive timely and accurate weather information. However, with the addition of the low-level windshear alert system [LLWAS] to the AWOS at both airports, the system will be improved with this safety feature.

SUR: Alternative surveillance

SUR: Alternative surveillance	**Yes**	**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**	**FY2025/26**	**ATM Systems upgraded to receive alternative surveillance source.** **2 ADS-B stations will be procured in the FY2023/24 to data gathering and preparation of safety case.** **Full roll out of ADS-B to be completed in FY2025/26 with the procurement and implementation of possible 3 other ADS-B stations, with two to be located in Grand Cayman and Haiti.**



Surface Operations Management	Departure Flow Management	Traffic Flow Management	Arrival Flow Management	Surface Operations Management
Rapid irregular operations recovery	Optimized taxi routes	System-wide efficiency	Optimized arrival sequencing	Complete situational awareness
Surface movement optimization	Minimized departure queues	Airline CDM slot substitution	Arrival capacity optimization	Predictive gate conflict detection
Automated	Overhead traffic flow	Trajectory-based	En route delay	Reduced taxiway

AIDC (ATS Inter facility Data Communication)

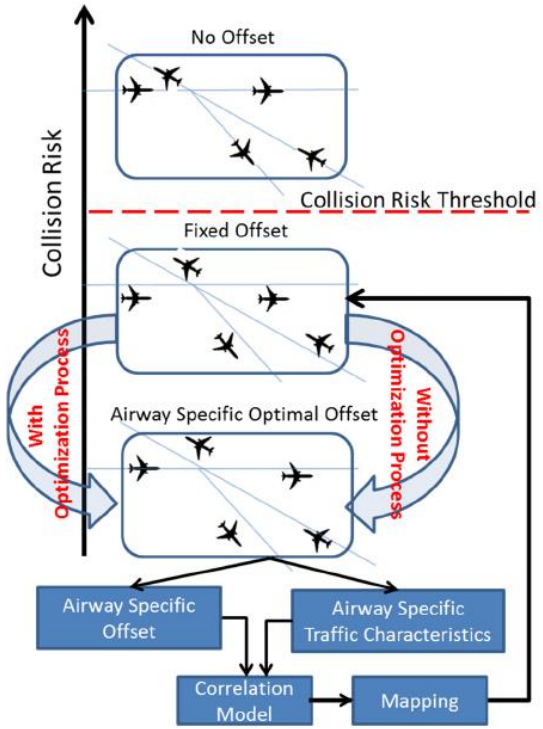
Support the following operational services

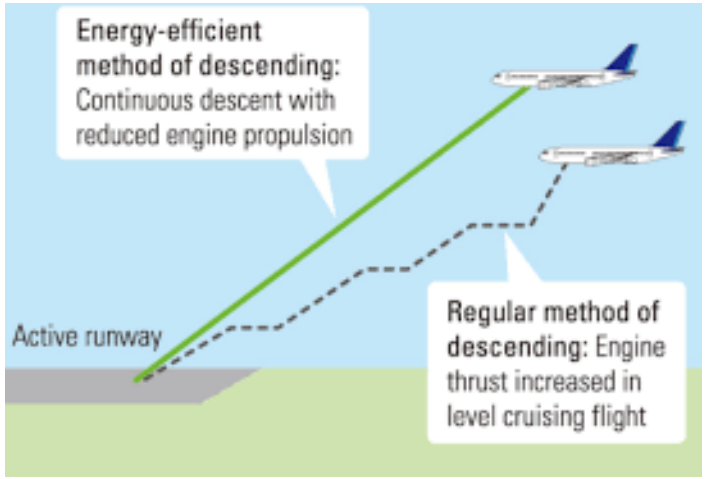
a)Flight notification;
b)Flight coordination;
c)Transfer of executive control;
d)Transfer of communications; &
e)Transfer of general information (Flight related data or free text messages, i.e. unstructured)

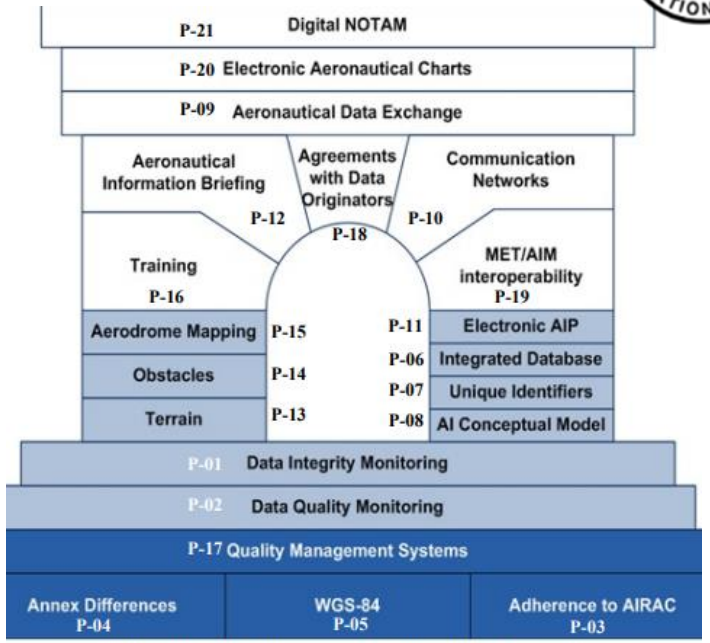
Air Traffic Management: Air Traffic Flow Management and AIDC/CPDLC

Flight & Flow Information for a Collaborative Environment (FF-ICE)

Flight & Flow Information for a Collaborative Environment (FF-ICE)	Yes	**FF-ICE** is an enabler to deliver benefits to all members of the ATM community: Airspace User – Greater equity in airspace access; greater access to timely and relevant information for decision support and more autonomy in decision making leading to opportunities for better delivery of business and individual objectives. Service Provider (including airports) – Ability to operate within an information-rich environment, with real-time data plus automated decision support and decision-making tools, to optimise the services provided to airspace users.	FY2025/26	**AIDC** and **CPLDC** implementation on-going. Current ATM system has the capabilities to support implementation. Awaiting, SLA implementation and TopSky upgrade to continue roll-out. **ATFM** implementation partially implemented. Requirement for ATFM software and additional personnel to support full roll-out required.







Positioning of the 21 steps of the roadmap in the three phases

AERONAUTICAL INFORMATON MANAGEMENT
Department: Airspace Optimization, CCO/CDO and AIM Transition

DATM – Digital ATM Information

DATM – Digital ATM information:	**Yes**	**Service improvement through digital aeronautical information management Initial introduction of digital processing and management of information, by the implementation of AIS/AIM making use of AIXM, moving to electronic AIP and better quality and availability of data.**	**FY2023/24**	**90% completed**

Continuous Climb and Descent Operations [CCOs and CDOs]

Continuous Climb and Descent Operations [CCOs and CDOs]	Yes	CCO and CDO operations allow arriving or departing aircraft to descend or climb continuously, to the greatest extent possible. Aircraft applying CCO employ optimum climb engine thrust and climb speeds until reaching their cruising levels. With CDO, aircraft employ minimum engine thrust, ideally from top of descent and in a low drag configuration, prior to the final approach fix. Employment of these techniques reduces intermediate level-offs and results in time being spent at more fuel-efficient higher cruising levels, hence significantly reducing fuel burn and lowering emissions and fuel costs (see ICAO Doc 9993 and ICAO Doc 9931)	FY2024/25	Procedures under development by the Procedure Design team in AIM in collaboration with ATM.

SWIM: System-wide information management

SWIM: System-wide information management	Yes	System-wide information management (SWIM) is an essential enabler for ATM applications which provides an appropriate infrastructure and ensures the availability of the information needed by the applications run by the users. The related geo- and time-enabled, seamless and open interoperable data exchange relies on the use of common methodology and the use of a suitable technology and compliant system interfaces. The availability of SWIM will make possible the deployment of advanced end-user applications as it will provide extensive information sharing and the capability to find the right information wherever the provider is.	FY2028/29	0%

CHALLENGES & OPPORTUNITIES

- Recovery – Air traffic and passenger growth
- Maintaining and increasing level of technical expertise
- Training, development and certification of ATM, EMS (CNS), AIM & S&C Department personnel
- Procurement of new CNS/ATM and AIM systems
- Keeping pace with Regional Air Navigation Plan objectives and priorities

AIM	Aeronautical Information Management
ATM	Air Traffic Management
CNS	Communication, Navigation & Surveillance
EMS	Engineering & Maintenance Department (also known as CNS)

Jamaica

State Air Navigation Plan

Date: September 4, 2018 –Draft

Prepared by: Jamaica Civil Aviation Authority (JCAA)

Jamaica

State Air Navigation Plan

Version 2

Date: September 4, 2024 –Draft

Prepared by: Jamaica Civil Aviation Authority (JCAA)


THANK YOU!