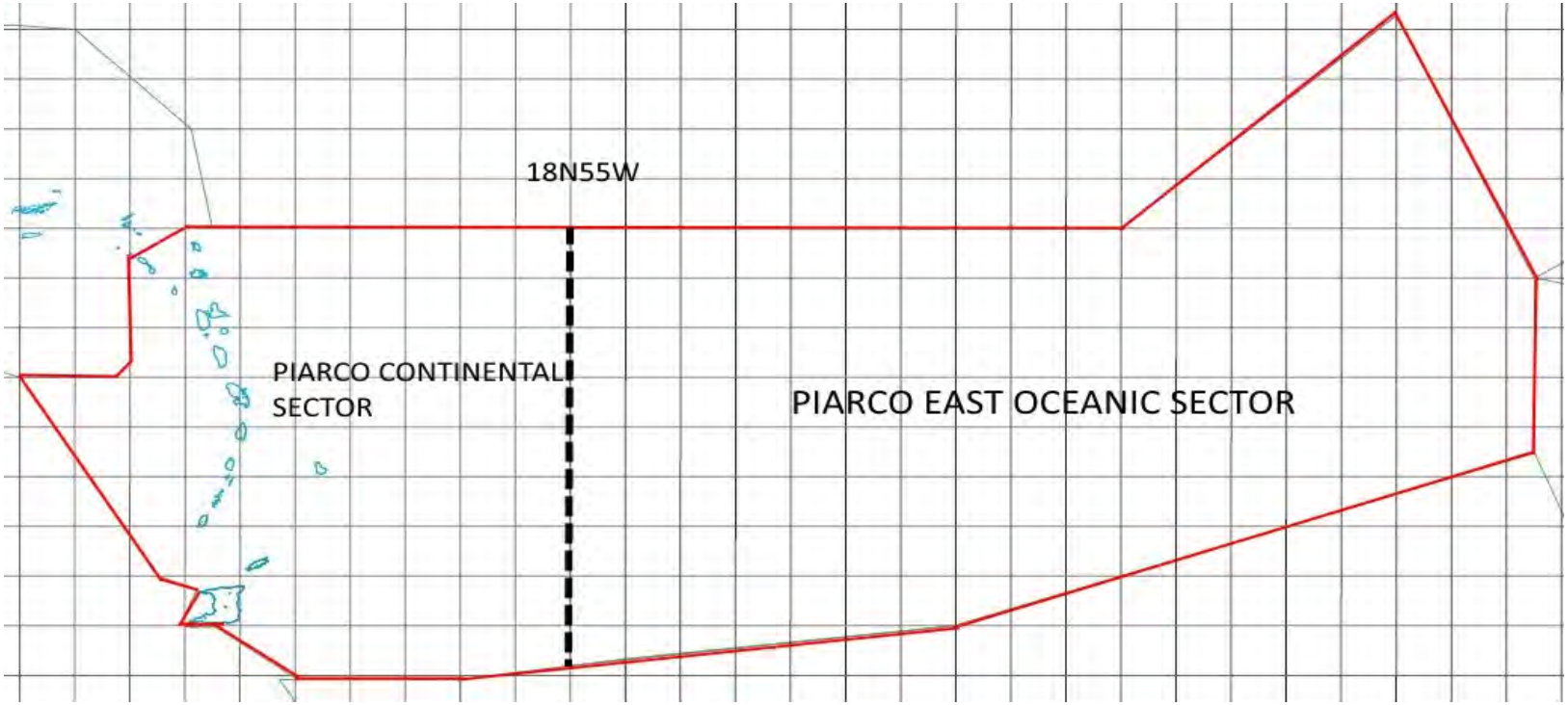
PIARCO FIR PBN AIRSPACE REDESIGN CONCEPT 2015-2020

Workshop on Regional Implementation on PBN Airspace Redesign for the CAR Region
Mexico City, Mexico, 4 to 8 May 2015

PRESENT PIARCO FIR

This is all of the 750,000 sq. miles of airspace where Piarco provides Air Navigation Services excluding the Terminal Airspaces (TMA's)



PRESENT PIARCO FIR LIMITATIONS

PIARCO CONTINENTAL AIRSPACE

- ATS ROUTES ARE NAVAID CENTRIC
- CONGESTION AT THE PIARCO/SYGC FIR BOUNDARY AND AT VORs
- INEFFICIENT ATS ROUTING SYSTEM
- ENROUTE AND ARRIVAL/DEPARTURE PATHS ARE COINCIDENT
- NO SIDs AND STARs IN TBPB, TAPA, TGPY, TVSV, TLPL, TTPP & TTCP

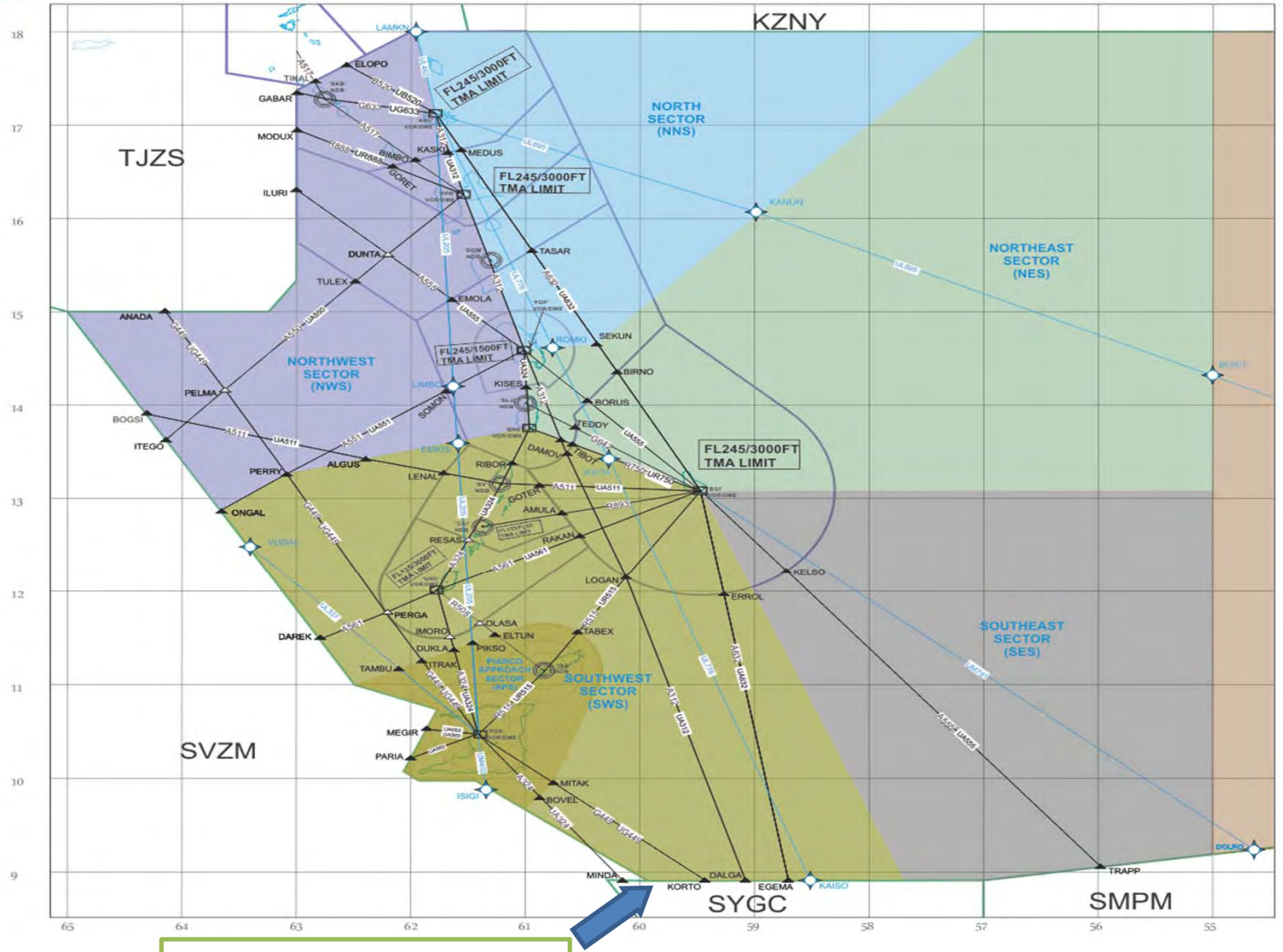
PIARCO OCEANIC SECTOR

- NO SURVEILLANCE – FLIGHT PLAN TRACKS (FPTS) HAVE TO BE GENERATED FOR FLIGHTS ENTERING THIS AIRSPACE.
- THIRD PARTY HF COMMUNICATION (HF COMMUNICATIONS VIA NEW YORK ARINC CAUSES A TIME LAPSE BETWEEN PILOT/CONTROLLER COMMUNICATIONS (5 MINUTES OR MORE).
- LACK OF HARMONIZATION WITH ADJACENT FIRS.

PIARCO APPROACH AIRSPACE

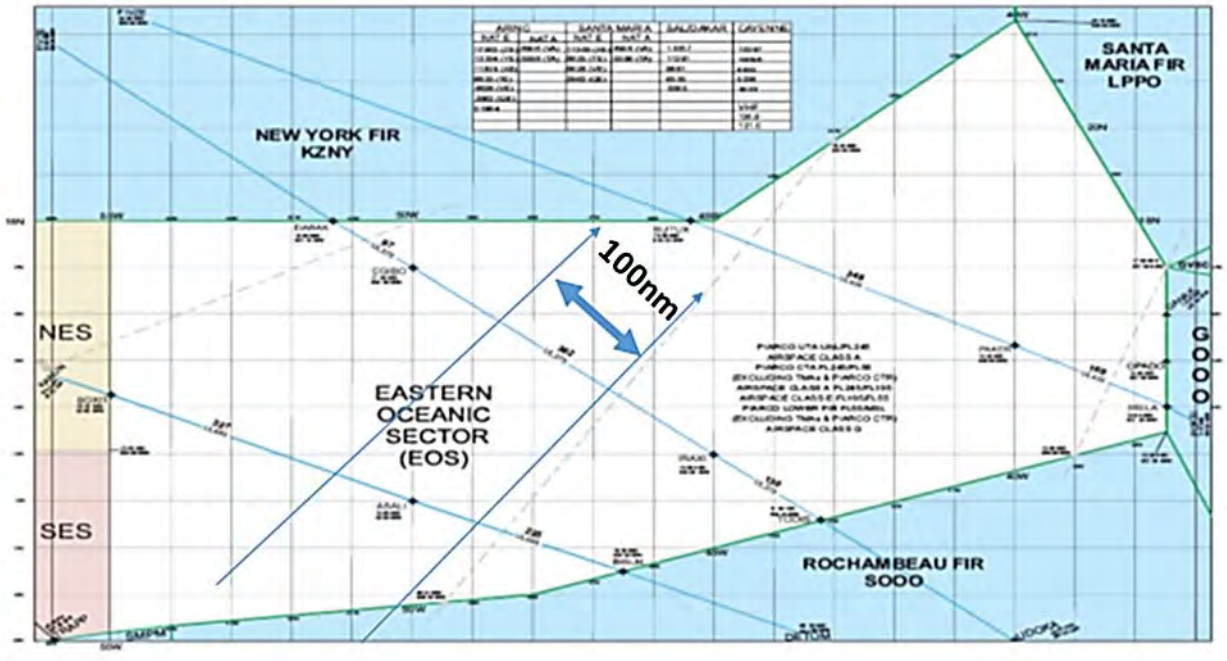
- ALL ROUTES CONVERGE OVERHEAD POS VOR.
- HIGH CONTROLLER WORKLOAD DURING BUSY PERIODS DUE TO LACK OF CCOs AND CDOs.
- AIRCRAFT VECTORED UNTO FINAL APPROACH.
- DEPARTING AIRCRAFT VECTORED TO JOIN ENROUTE AIRWAYS.

PIARCO CONTINENTAL AIRSPACE



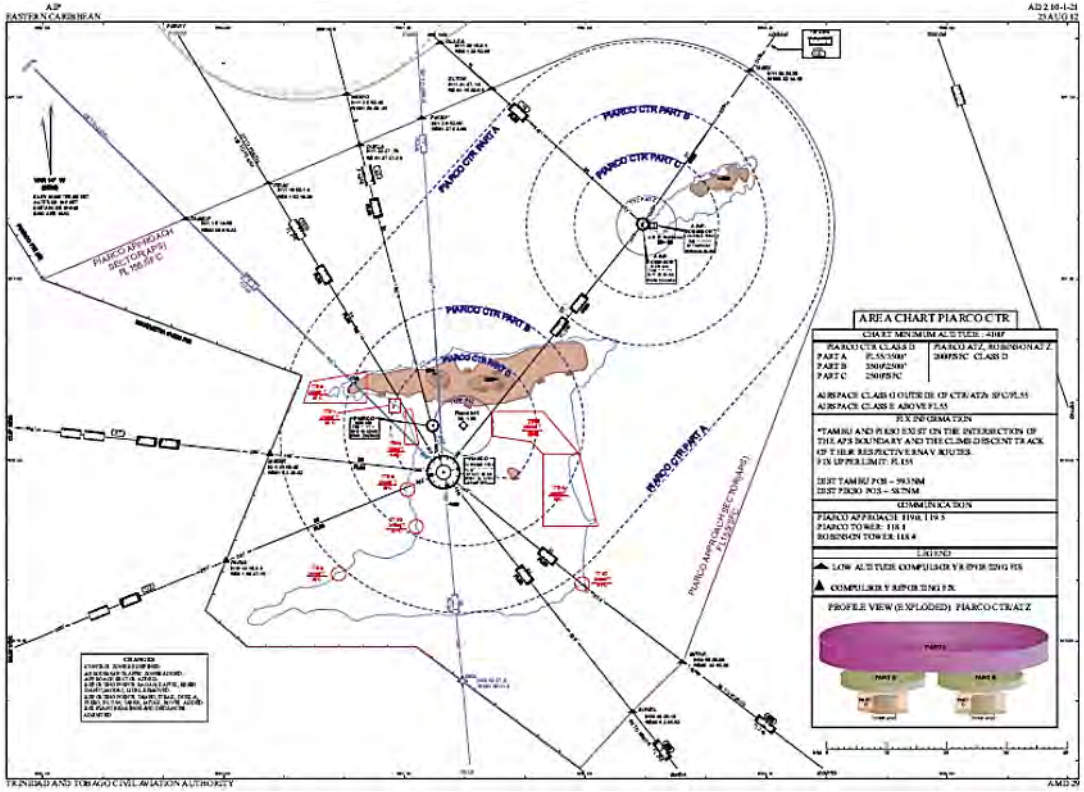
MAJOR CONGESTION POINT

PRESENT PIARCO EOS



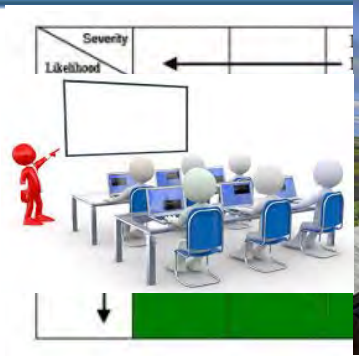
CURRENTLY 100NM LATERAL SEPARATION

PRESENT PIARCO APPROACH



PBN Implementation Tasks

Developing/modifying an airspace concept
Electronic DATA collection /analysis /distribution
Collaboration with stakeholders
Developing/modifying regulatory framework
Conducting cost benefit analyses
Conducting safety assessments
Developing/conducting training in PBN matters



ANSP
Air Navigation Service Provider

Piarco FIR Airspace Concept

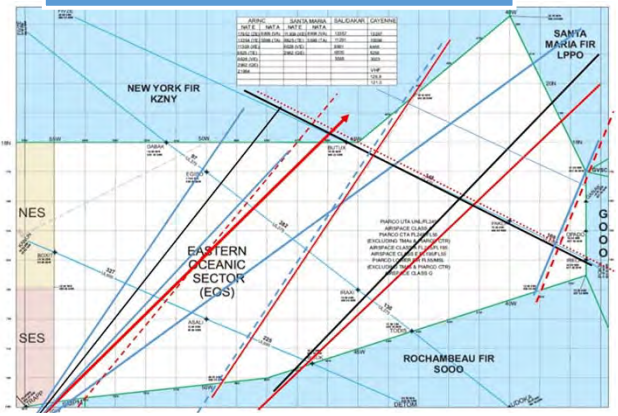
Piarco FIR Continental Sector

RNAV 5 routes – more direct, less route spacing, increased capacity

Congested, inefficient, high controller workload

Piarco Oceanic Sector

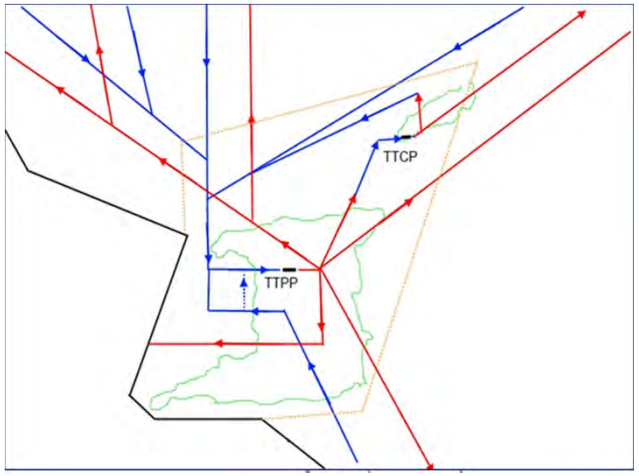
Currently 100 NM Separation



RNAV 10 application – 50 NM

Use of CPDLC & ADSC – 30 NM

Piarco Terminal Area (APP)



RNA

Red

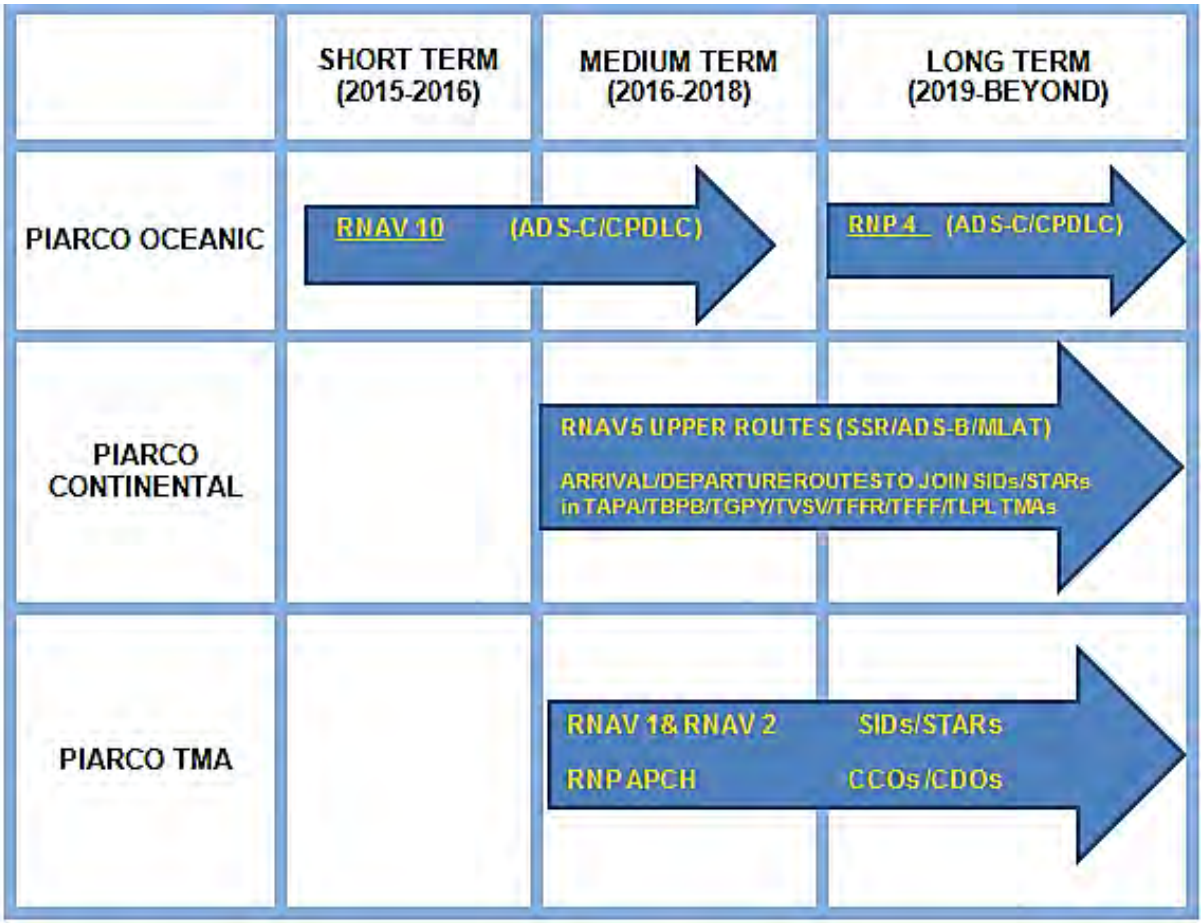
Congested, inefficient, high controller workload

CCOs and CDOs

Connecting Upper RNAV route with all TMAs within ECAR Region

ANSP
Air Navigation Service Provider

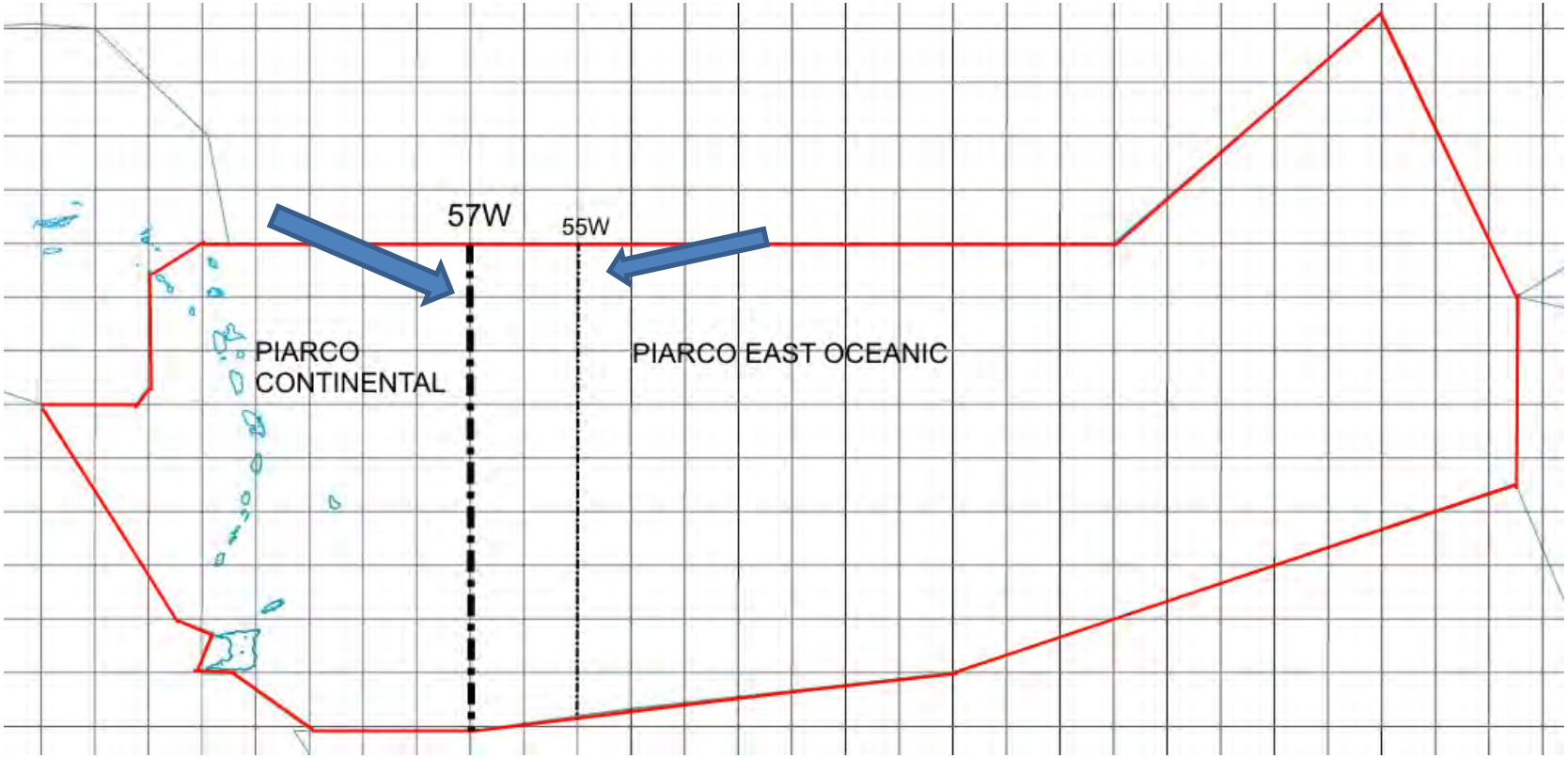
PIARCO FIR PBN AIRSPACE RE-DESIGN CONCEPT



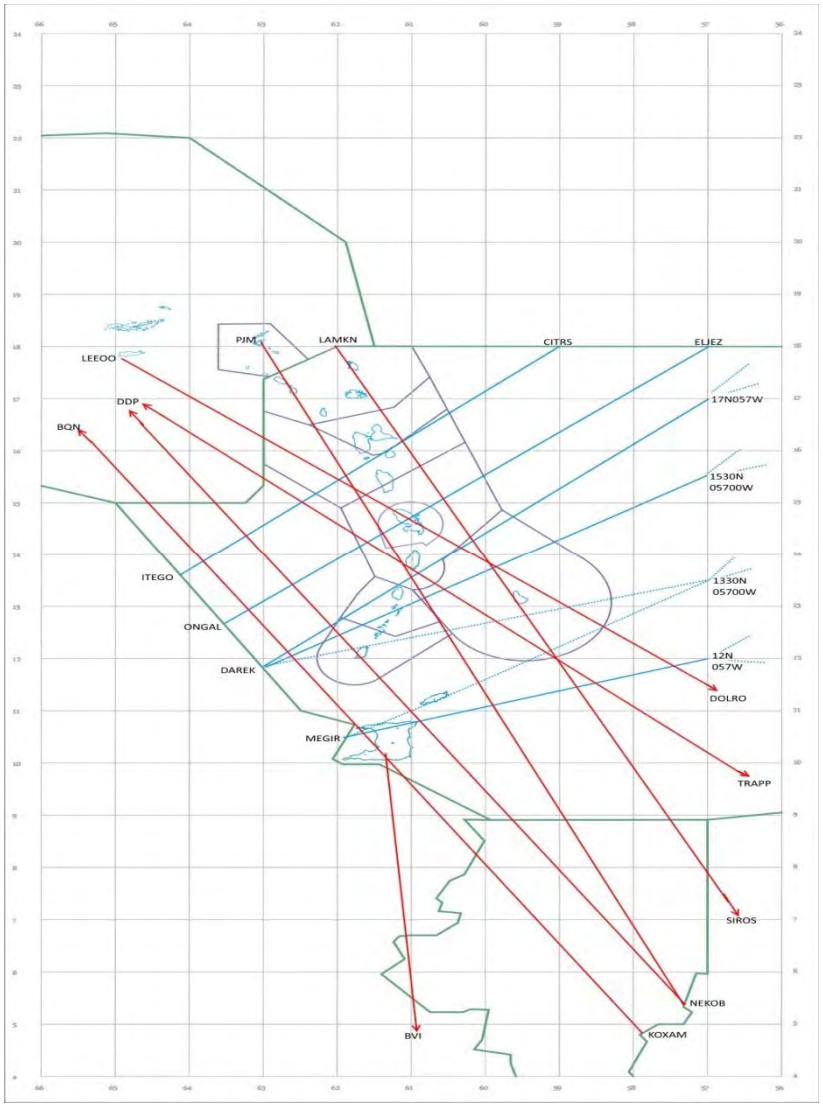
PIARCO FIR PBN AIRSPACE RE-DESIGN SUMMARY

REDESIGN OF PIARCO FIR

PIARCO CONTINENTAL AIRSPACE



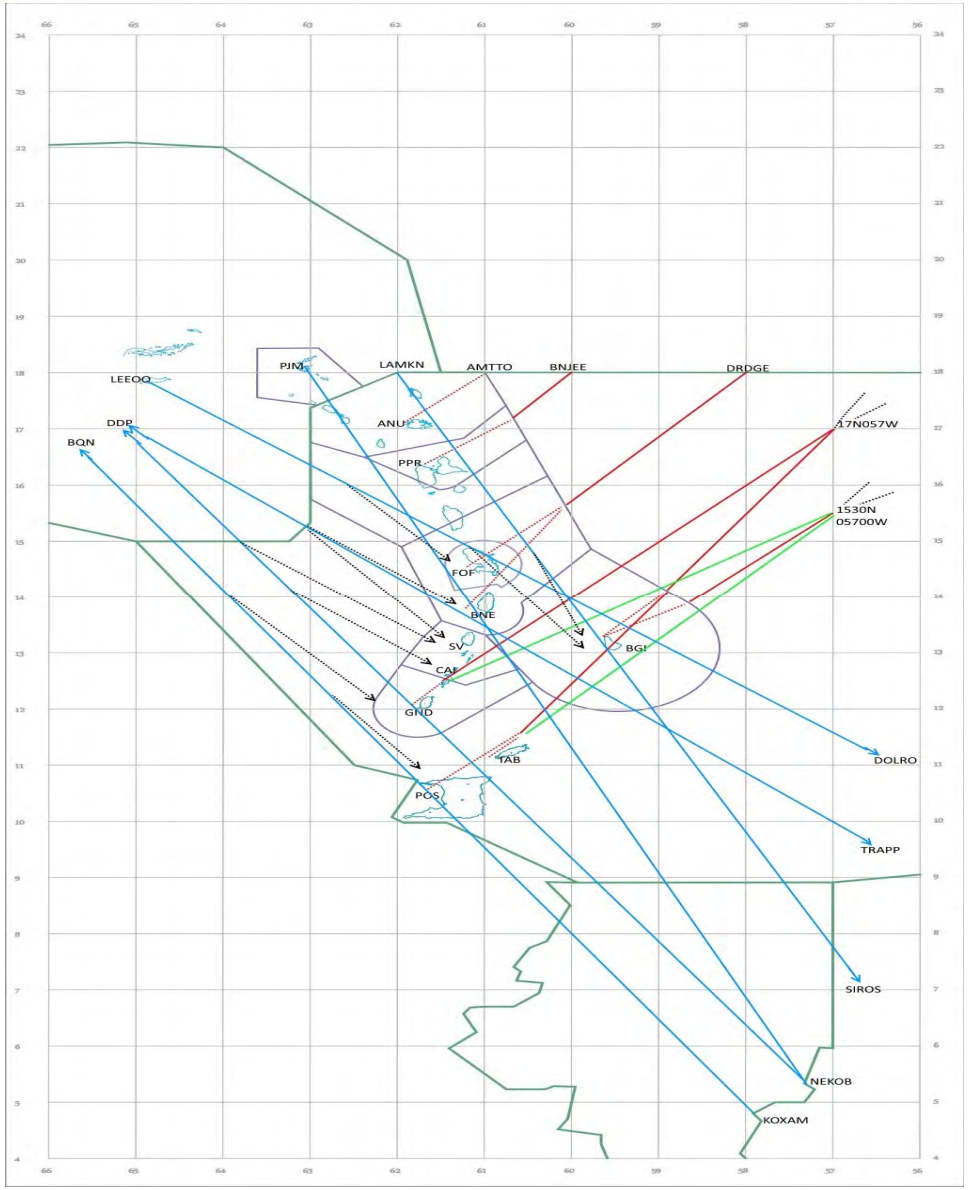
REDESIGN PIARCO CONTINENTAL AIRSPACE



OVERFLIGHTS

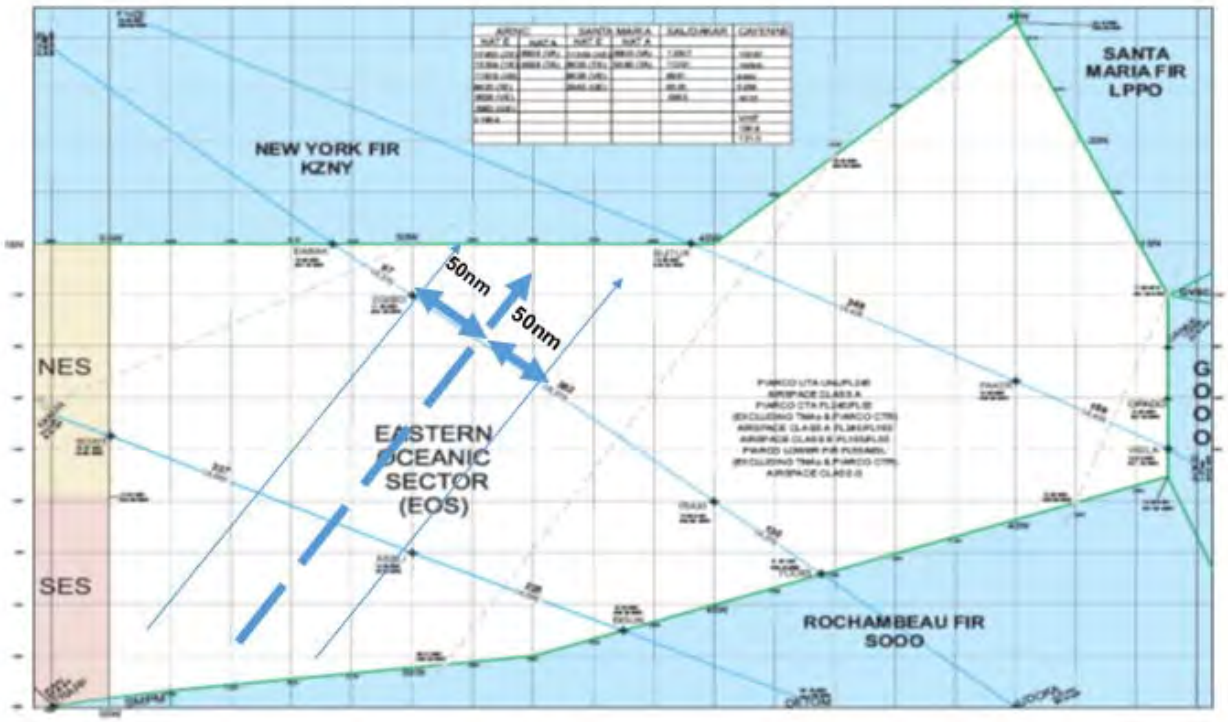
- RNAV 5 Routes within Piarco Continental Airspace. This will assist in air traffic congestion at the TTZP/SYGC FIR boundary. The separation will be **30NM** lateral spacing

REDESIGN PIARCO CONTINENTAL AIRSPACE



ARRIVAL/DEPARTURE ROUTES
TO BE IMPLEMENTED

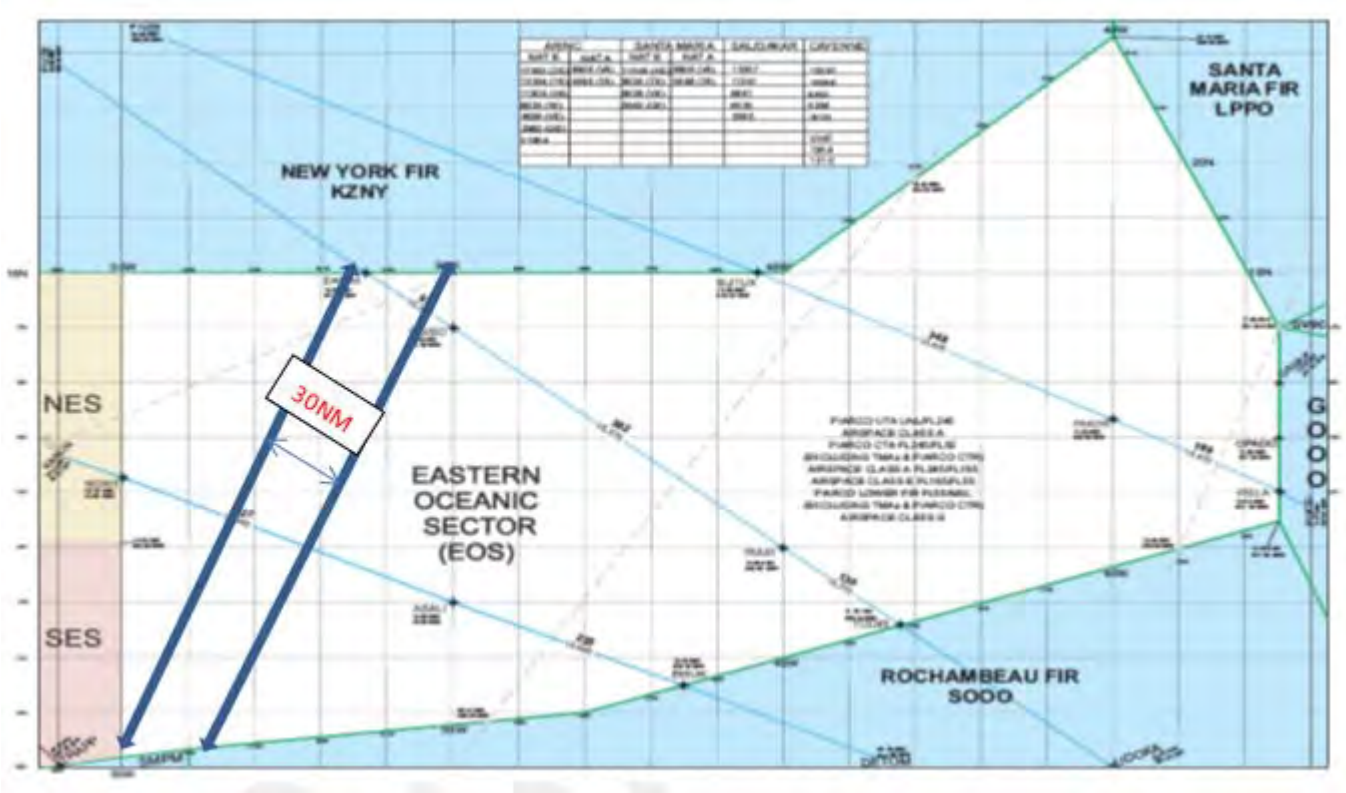
THE REDESIGN OF THE PIARCO OCEANIC AIRSPACE TO ACCOMMODATE FLIGHTS UTILIZING RNAV 10 SEPARATION STANDARD (50NM LATERAL SEPARATION)



RNAV 10 will enable a reduction from 100nm to 50nm lateral separation *(short term)*

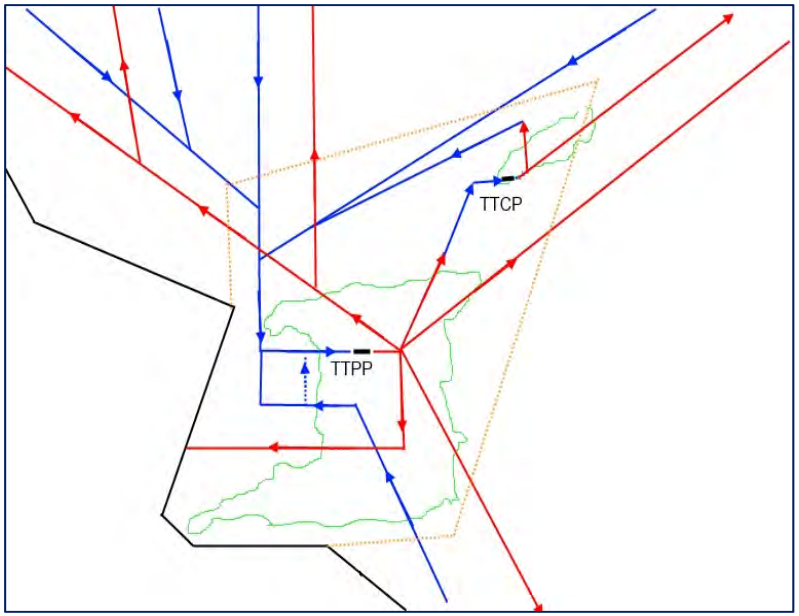
Longitudinal separation shall be:
Fifteen (15) minutes , or
The application of Mach number technique based on time. (ICAO DOC 4444 Section 5.4.2.4).

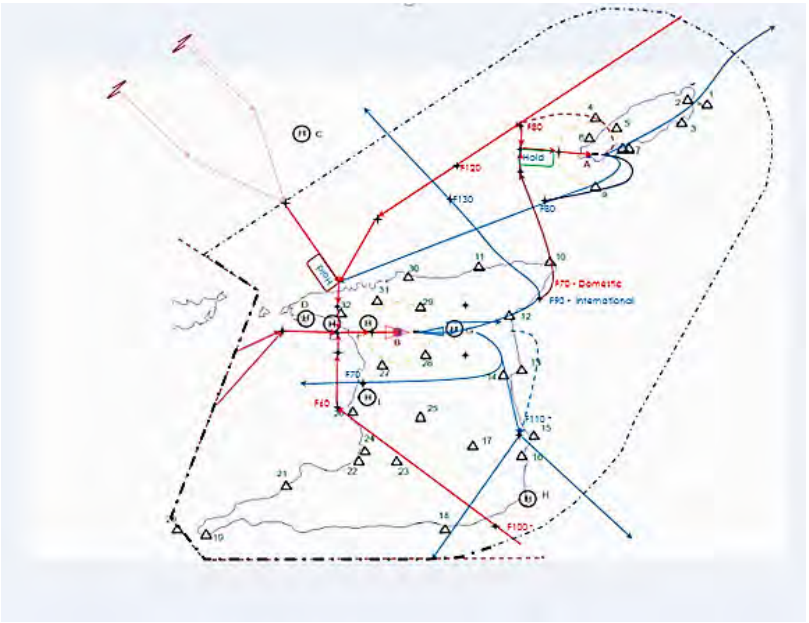
THE REDESIGN OF THE PIARCO OCEANIC AIRSPACE TO ACCOMMODATE FLIGHTS UTILIZING RNP 4 SEPARATION STANDARD (30NM LATERAL/LONGITUDINAL) AND ADS-C /CPDLC



RNP 4 WILL ENABLE A REDUCTION FROM ***50NM TO 30NM*** LATERAL SEPARATION and ***30NM*** LONGITUDINAL SEPARATION MINIMA

REDESIGN OF PIARCO TERMINAL AIRSPACE





IMPROVEMENTS WITH NEW PIARCO TMA CONCEPT:

- Routes re-structured.
- SIDs and STARs implemented utilizing RNAV 1 and RNAV 2 RNP APCH BARO VNAV.
- CDOs and CCOs facilitated.
- TMA size reduced.

OVERALL OBJECTIVES OF THE PIARCO FIR PBN AIRSPACE REDESIGN

- Improve aviation operational safety.
- Improve operational benefits.
- Improve airspace and airport capacity.
- Promote Greener operations in all phases of flight.
- Achieve harmonization with global standards.

GRACIAS POR SU ATENCIÓN

THANK YOU FOR YOUR ATTENTION