

# PBCS

ICAO PBCS Third Workshop

20<sup>th</sup> – 21<sup>st</sup> February 2018, Paris.



***NATS***

# Performance Based Communication and Surveillance (PBCS) Implementation.



## ***NAT SPG Conclusion 52/19 – PBCS Operator Requirements in the NAT Region***

*That, in view of the ICAO amendments on performance-based communications and surveillance (PBCS) and reduced separations with applicability date in November 2016 and ongoing NAT implementations, the ICAO Regional Director, Europe and North Atlantic, urge States of the Operator (or Registry) to take appropriate measures to develop, establish and implement necessary policies and procedures to ensure that their operators conducting flights in the NAT Region can be compliant with PBCS requirements, by 29 March 2018.*

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# Performance Based Communication and Surveillance (PBCS) Implementation.



## *NAT SPG Conclusion 52/19 – PBCS Operator Requirements in the NAT Region*

*The NAT SPG noted that in practical terms, 29<sup>th</sup> of March 2018, would signify the date when the RLatSM and RLongSM would transition from trial status to operational implementation and the existing distance-based separations would be implemented under the newly amended ICAO provisions.*

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# Performance Based Communication and Surveillance (PBCS) Implementation.



## *NAT SPG Conclusion 54/5*

*That the ICAO Regional Director, Europe and North Atlantic, take appropriate measures to publish the approved NAT OPS Bulletin – Implementation of Performance Based Separation Minima.*

## *ICAO Paris Portal*

The image shows the cover of a NAT OPS Bulletin. At the top left is the ICAO logo. To its right is the text 'NAT OPS BULLETIN' in a large, blue, sans-serif font. Below this is a table with two columns: 'Serial Number: 2018\_001' and 'Issued: 06 February 2018'. The second row contains 'Subject: Implementation of Performance Based Separation Minima' and 'Effective: 29 March 2018'. The third row contains 'Originator: NAT SPG'. Below the table is a paragraph of text explaining the purpose of the bulletin. A large, white, tilted banner with the text 'Serial no: 2018\_001' is overlaid on the page. At the bottom, there is a 'NOTICE' section and a footer with the file name '18-0048 AppsA NATOPSBulletin\_PBCS\_2018\_001.docx' and the issued date '06 February 2018'.

# Performance Based Communication and Surveillance (PBCS) Implementation.



## *NAT OPS Bulletin (Serial no: 2018\_001)*

*Section 1 – Purpose*

*Section 2 – Overview (Performance based separation minima)*

*Section 3 – Operator / Aircraft Eligibility*

*Section 4 – Flight Planning Provisions*

*Section 5 – PBCS Monitoring data*



# Shanwick & Gander PBCS Implementation Strategy



*Shanwick and Gander ACCs will transition from the application of the RLatSM and RLongSM trials to the application of PANS-ATM (Doc4444) 42.6km (23NM) lateral separation minimum and 5 minutes same direction longitudinal separation minimum, on the 29th of March 2018.*

*GAATS+ Flight Data Processor (FDP) software in Shanwick and Gander will be updated to replace trial separation algorithms with PANS-ATM (Doc4444) performance based separation minima.*

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# Shanwick & Gander PBCS Implementation Strategy



GAATS+ FDP will permit application of PANS-ATM (Doc4444) separations between suitably FANS 1/A equipped aircraft that have been granted PBCS authorisation as indicated with Flight Plan;

Separation	Communication s (RCP240) Item 10a: <b>P2</b>	Navigation (RNP4/MNPS) Item 18: <b>PBN/L1</b>	Surveillance (RSP180) Item 18: <b>SUR/RSP180</b>	PANS-ATM (Doc4444)	NAT Guidance (NAT Doc008)
42.6km (23 NM) Lateral Separation Minimum	240	4	180	5.4.1.2.1.6.b	A25
5 minutes (same direction) Longitudinal Separation Minimum	240	4	180	5.4.9.2.b	A28

# Shanwick & Gander PBCS Implementation Strategy

## *Organised Track Design (OTS)*



North Atlantic Organised Track (OTS) design is carried out by Shanwick for Westbound OTS and Gander for Eastbound OTS.

Currently OTS are laterally spaced by one degree of latitude (circa 60NM) and 25nm lateral separation minimum (RLatSM), and are designed using whole or half degrees of latitude.

OTS Tracks will continue to be designed using whole or half degrees of latitude following the transition to application of PANS-ATM (Doc4444) 42.6km (23 NM) lateral separation minimum.

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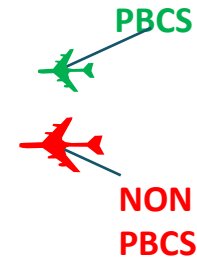


# Shanwick & Gander PBCS Implementation Strategy



## *Organised Track Design (OTS) - Impact*

Low authorisation impact comes in the form of a significant increase in workload to planning controllers and potentially crews particularly when OTS are spaced at less than 60NM, as variances in equipages / authorisations translates to variances in separation standards that can be applied, resulting in a large number of re-clearances to make best use of the airspace.

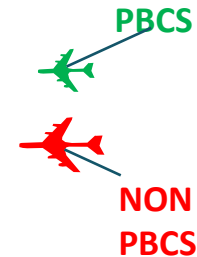
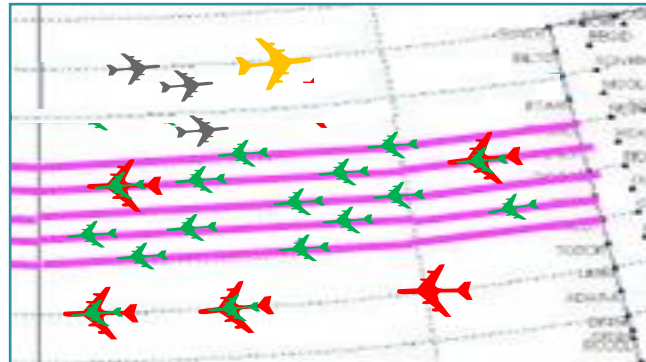


# Shanwick & Gander PBCS Implementation Strategy



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# Shanwick & Gander PBCS Implementation Strategy

## *Organised Track Design (OTS) – IMG/51*



IMG/51 Noted that due to the potential gap between FANS 1/A equipage and NAT airspace users' readiness to get/demonstrate PBCS authorizations, Shanwick and Gander proposed a Transition Period that was planned to last no more than one year from 29 March 2018.

Airspace users' readiness would be reviewed after six months with the intent of revising transition procedures.

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# Shanwick & Gander PBCS Implementation Strategy

## *Organised Track Design (OTS) – IMG/51*



During the transition period, Shanwick and Gander would ensure that the OTS design would take into account the NAT airspace users' PBCS flight plan designator filing, the objectives being to manage the significant workload impact to ATC and potentially to operators of possible low PBCS filing rates.

The number of PBCS tracks during this period would be limited **to a maximum of three tracks** until the filing of PBCS designators would reach the 90% mark or 29th March 2019, whichever comes earlier.

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# Shanwick & Gander PBCS Implementation Strategy

## *Organised Track Design (OTS) – TRANSITION PERIOD*

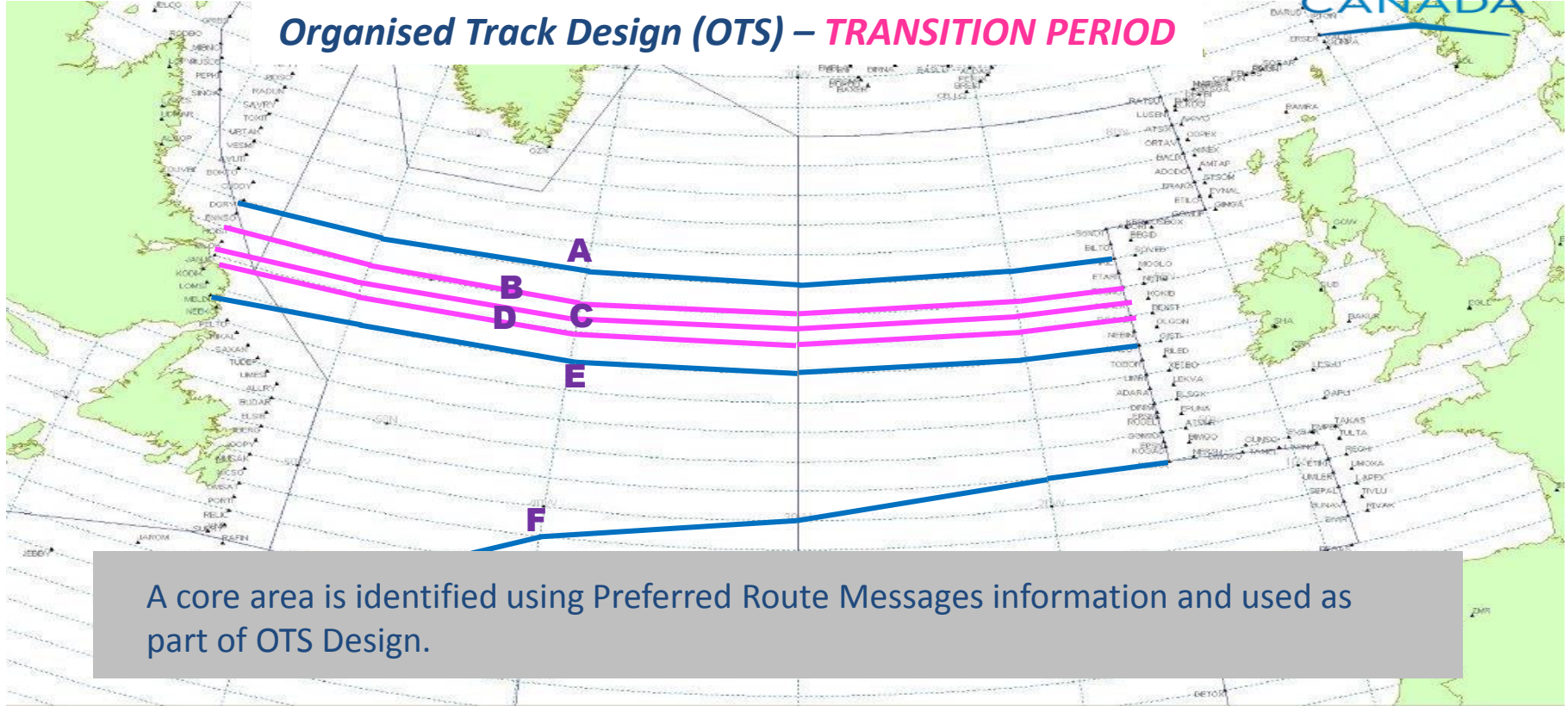


Shanwick and Gander will control the design of OTS Tracks spaced at less than 60 NM and will continue the concept used in the RLatSM trial, whereby OTS tracks spaced at less than 60 NM from an adjacent track will be specified as 'PBCS' tracks and will be notified in OTS Track Message Remark-3.

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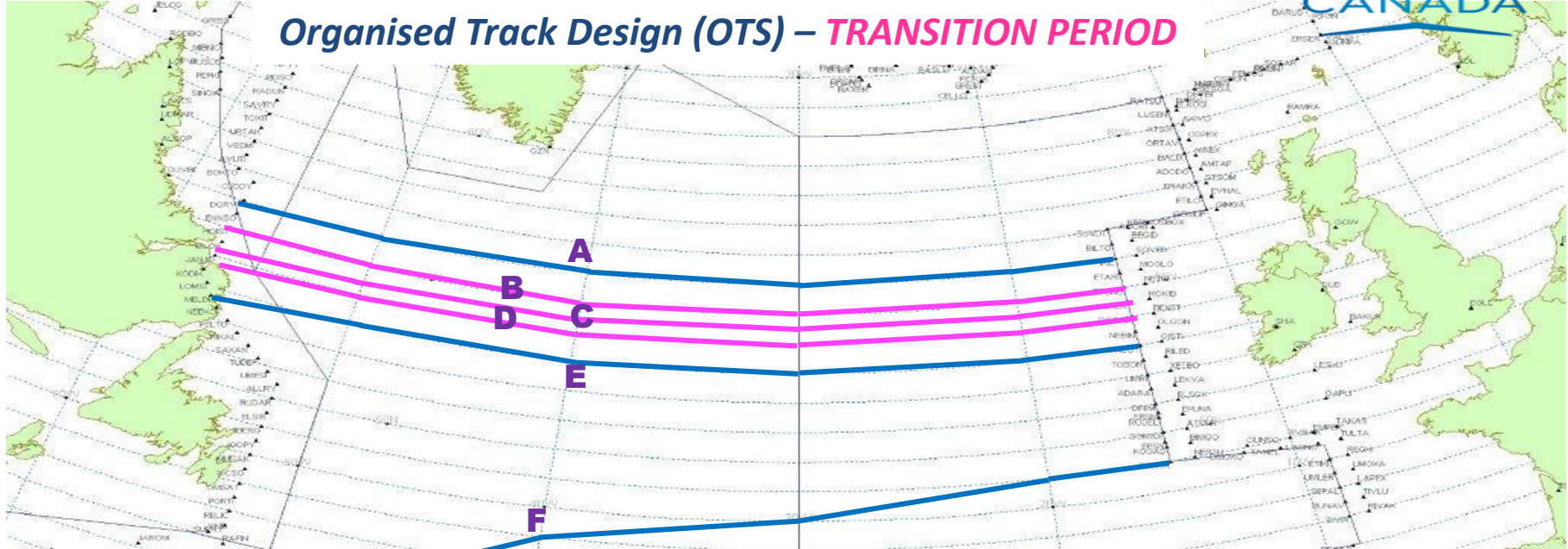
# Shanwick & Gander PBCS Implementation Strategy (OTS)

## Organised Track Design (OTS) – **TRANSITION PERIOD**



# Shanwick & Gander PBCS Implementation Strategy (OTS)

## Organised Track Design (OTS) – **TRANSITION PERIOD**



As per RLatSM, core area will continue to be used to determine which tracks may be laterally spaced at less than 60nm, and defined as **PBCS tracks** in Remark-3 of Track Message.

# Shanwick & Gander PBCS Implementation Strategy (OTS)



## Organised Track Design (OTS) – **TRANSITION PERIOD**

**TMI: 300**

<b>TRACK A</b>	<b>LEVELS:</b>	<b>310 320 330 340 350 360 370 380 390</b>
<b>TRACK B</b>	<b>LEVELS:</b>	<b>350 360 370 380 390</b>
<b>TRACK C</b>	<b>LEVELS:</b>	<b>310 320 330 340 350 360 370 380 390</b>
<b>TRACK D</b>	<b>LEVELS:</b>	<b>350 360 370 380 390</b>
<b>TRACK E</b>	<b>LEVELS:</b>	<b>310 320 330 340 350 360 370 380 390</b>
<b>TRACK F</b>	<b>LEVELS:</b>	<b>310 320 330 340 350 360 370 380 390</b>

Tracks will exclusively be either whole of half degree tracks.



# Shanwick & Gander PBCS Implementation Strategy (OTS)



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**TMI: 300**

<b>TRACK A</b>	<b>LEVELS:</b>	<b>310 320 330 340 350 360 370 380 390</b>
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<b>TRACK F</b>	<b>LEVELS:</b>	<b>310 320 330 340 350 360 370 380 390</b>

Intermediate tracks will only be published at DLM Levels to manage traffic, system will apply separation between suitably equipped and authorised flights.

# Shanwick & Gander PBCS Implementation Strategy (OTS)



## Organised Track Design (OTS) – *TRANSITION PERIOD*

**TMI: 300**

### REMARKS.

1. TMI IS 300 AND OPERATORS ARE REMINDED TO INCLUDE THE TMI NUMBER AS PART OF THE OCEANIC CLEARANCE READ BACK.
2. OPERATORS ARE REMINDED THAT ADS-C AND CPDLC IS MANDATED FOR LEVELS 350-390 IN NAT AIRSPACE.
3. PBCS OTS LEVELS 350-390. PBCS TRACKS AS FOLLOWS  
TRACK B  
TRACK C  
TRACK D  
END OF PBCS OTS
4. 80 PERCENT OF GROSS NAVIGATION ERRORS RESULT FROM POOR COCKPIT PROCEDURES. CONDUCT EFFECTIVE WAYPOINT CHECKS.
5. OPERATORS ARE REMINDED THAT CLEARANCES MAY DIFFER FROM FLIGHT PLAN, FLY THE CLEARANCE.
6. ALL ADSC CPDLC EQUIPPED FLIGHTS NOT LOGGED ON TO A DOMESTIC ATSU PRIOR TO ENTERING THE

Example extract of OTS Track Message

# Shanwick & Gander PBCS Implementation Strategy (OTS)



## NAT OPS BULLETIN

Serial Number: **2018\_001**  
Subject: **Implementation of Performance Based  
Separation Minima**  
Originator: **NAT SPG**

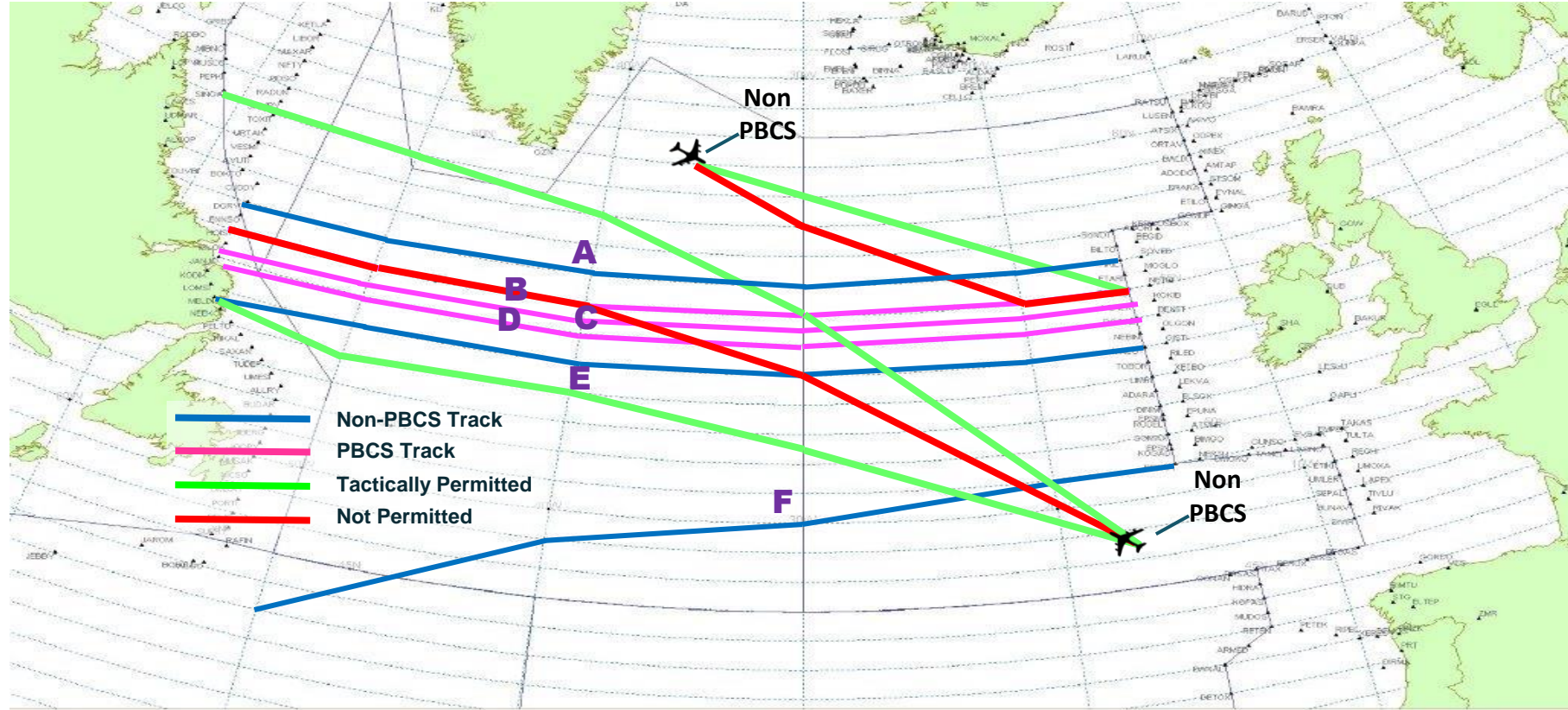
Issued: **06 February 2018**  
Effective: **29 March 2018**

- 3.3 Operators / aircraft not eligible for performance based separation may be permitted to;
- Infringe *PBCS tracks* at FL350 - FL390 inclusive at only one point (including Oceanic Entry / Exit Point) i.e. cross but not join an OTS *PBCS track*, and;
  - Climb or descend through levels FL350 – FL390 on a *PBCS track* provided the climb or descent is continuous.

*Note such clearances will only be permitted on a tactical basis.*

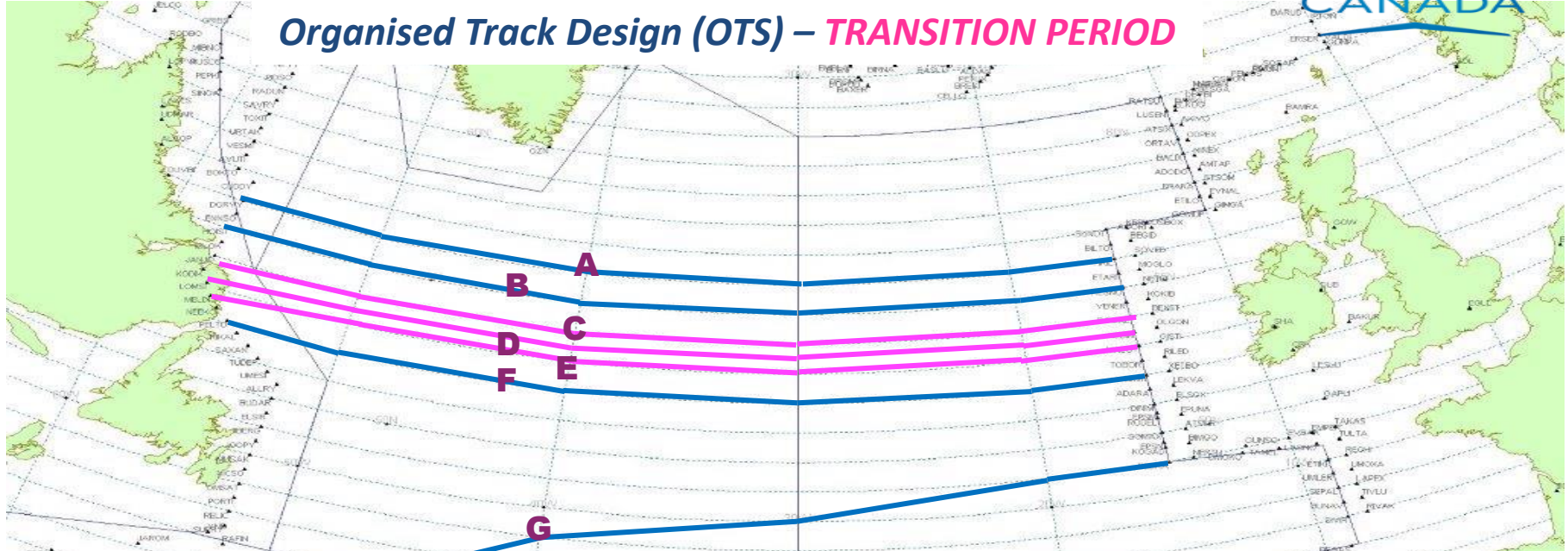
one  
point.

# Shanwick & Gander PBCS Implementation Strategy (OTS)



# Shanwick & Gander PBCS Implementation Strategy (OTS)

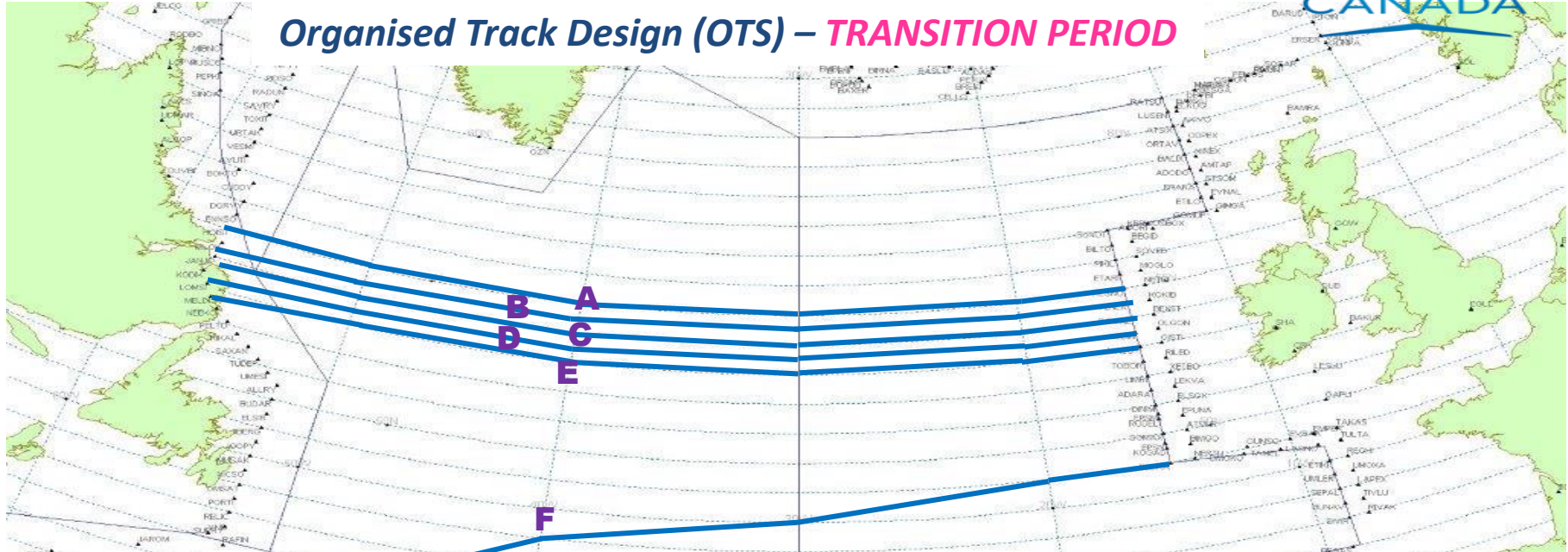
## Organised Track Design (OTS) – **TRANSITION PERIOD**



Only when flight plan indicators show equipage reaching 90%, or one year from 29<sup>th</sup> March 2018 (whichever is the sooner,) will the number of OTS tracks be published utilising performance based lateral separation; end of transition period.

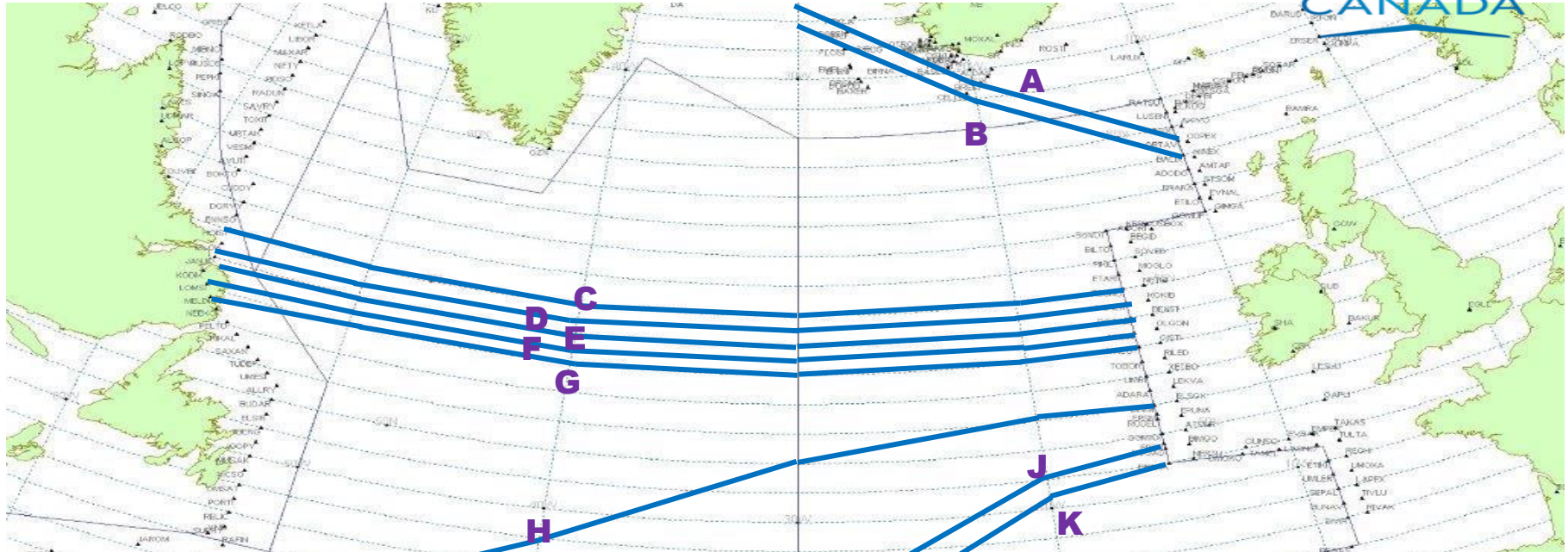
# Shanwick & Gander PBCS Implementation Strategy (OTS)

## Organised Track Design (OTS) – **TRANSITION PERIOD**



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# Shanwick & Gander PBCS Implementation Strategy (OTS)



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# Performance Based Communication and Surveillance (PBCS) Implementation.



The impact comes in the form of a significant increase in workload to planning controllers and potentially crews, as variances in equipages / authorisations translates to variances in separation standards that can be applied, resulting in a large number of re-clearances to make best use of the airspace.

Since the **RLongSM** trial, the North Atlantic has continued to introduce reductions in horizontal separations that has meant more optimal clearances to flights, in a region that has seen significant growth in traffic.

Low equipage or authorisation has significant impact on these benefits.

Operators are strongly urged to reduce the impact by ensuring they are equipped and authorised for reduced horizontal separations as soon as practical.



# Performance Based Communication and Surveillance (PBCS) Implementation.



North Atlantic will transition to application of PBCS Performance Based Separation between suitably equipped flights, on the 29<sup>th</sup> of March 2018.

Application of RLatSM and RLongSM separation minima will cease on the same date.

NAT OTS PBCS Tracks will be published in OTS Remark-3 during Transition Period. Transition Period will be reviewed 6 months after Implementation.

Operational design will dictate which tracks are defined as *'PBCS tracks.'*

Expanded use of half degree spaced OTS Tracks will be when authorisation rates reach 90% of 1 year after 29<sup>th</sup> March 2018.

Performance based tracks will not be a mixture of whole and half degrees.

# Performance Based Communication and Surveillance (PBCS) Implementation.



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