

PBN Transition plan for ICELAND

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1. Introduction

Purpose of this document is to provide a general plan for implementation of performance-based navigation within the airspace of Reykjavik FIR. This document is subject to consultation of all stakeholders involved in implementation of PBN concept in Reykjavik FIR.

According to EU Reg. 2018/1048, tasks Isavia ANS to develop PBN implementation/transition plan to ensure regulatory compliance and to meet airspace users demands, without impacting on the safety or capacity of the airspace whilst in support of national environmental commitments.

This implementation plan has clearly defined transition plan with timescales. The plan will be updated at least yearly.

2. Abbreviations

ACC:	Area Control Centre
ADS-B:	Automatic Dependent Surveillance Broadcast
AIP:	Aeronautical information publication
ANS:	Air Navigation Service
APCH:	Approach
ATC:	Air Traffic Control
ATM:	Air traffic management
ATS:	Air Traffic Service
BIRD:	Reykjavik FIR, OAC, ACC, FIC
CAT:	Category
CTA:	Control Area
DME:	Distance Measuring Equipment
FIC:	Flight Information Centre
EGNOS:	European Geostationary Navigation Overlay Service
FIR:	Flight Information Region
GNSS:	Global Navigation Satellite System
ICAO:	International Civil Aviation Organization
ICETRA:	Icelandic Transport Authority (The Civil aviation authority in Iceland)
IFR:	Instrument Flight Rules
ILS:	Instrument Landing System
LNAV:	Lateral Navigation
LPV:	Localiser Performance with Vertical guidance.
MLAT:	Multilateration
MNPS:	Minimum navigation performance specifications
NAT:	North Atlantic
NAVAID:	Navigation aid
NDB:	Non-directional Radio Beacon
OAC:	Oceanic Area Control
PBN:	Performance Based Navigation
RF:	Radius to Fix
RNAV:	Area navigation
RNP:	Required Navigation Performance
SBAS:	Satellite -based Augmentation System
SID:	Standard Instrument Departure
STAR:	Standard instrument Arrival
VNAV:	Vertical Navigation
VOR:	VHF Omnidirectional Radio range

3. Definitions

Area navigation: A method of navigation which permits aircraft operations on any desired flight path within the coverage of ground- or space-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

Area navigation route: An ATS route established for the use of aircraft capable of employing area navigation.

Lateral Navigation: A method of navigation which permits aircraft operation on a horizontal plane using radio navigation signals, other positioning sources, external flight path references, or a combination of these.

Navigation aid: Any visual or electronic device, ground or space based, that provides point-to-point guidance information or position data to aircraft in flight.

Navigation specification: A set of aircraft and flight crew requirements needed to support performance-based navigation operations within a defined airspace. There are two kinds of navigation specifications:

Required navigation performance (RNP) specification A navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH.

Area navigation (RNAV) specification. A navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1

Performance-based navigation: Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.

Standard instrument departure: A designated instrument flight rule (IFR) arrival route linking a significant point, normally on an ATS route, with a point from which a published instrument approach procedure can be commenced.

Standard instrument arrival: A designated instrument flight rule (IFR) departure route linking the aerodrome or a specified runway of the aerodrome with a specified significant point, normally on a designated ATS route, at which the en-route phase of a flight commences.

4. Reference documents

- A. Icelandic Regulation 444/2020 of 13th May 2020 laying down airspace usage requirements and operating procedures concerning performance-based navigation and implementing COMMISSION IMPLEMENTING REGULATION (EU) No 2018/1048 of 18 July 2018 laying down airspace usage requirements and operating procedures concerning performance-based navigation.
- B. Icelandic Regulation 787/2010 of 4th of October 2010, Procedures for Air Navigation Services.
- C. COMMISSION IMPLEMENTING REGULATION (EU) No 716/2014 of 27 June 2014 on the establishment of the Pilot Common Project supporting the implementation of the European Air Traffic Management Master Plan
- D. Regulation (EC) N° 550/2004 of the European Parliament and of the Council of 10 March 2004 on the provision of air navigation services in the single European sky (the service provision Regulation).
- E. Icelandic Regulation 237/2014 implementing Commission Regulation (EU) No 965/2012 of 5 October 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council.
- F. Commission Regulation (EU) No 139/2014 of 12 February 2014 laying down requirements and administrative procedures related to aerodromes pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council Text with EEA relevance
- G. Icelandic Regulation 773/2010 on charts.
- H. ICAO ANNEX 10, Aeronautical Telecommunications, Volume I, Radio Navigation Aids.
- I. ICAO ANNEX 11, Air Traffic Services.
- J. ICAO Doc 4444 PANS-ATM Procedures for Air Navigation Services, Air Traffic Management.
- K. ICAO Doc 8168 PANS-OPS vol. I and vol. II.
- L. ICAO Doc 9613 Performance Based Navigation (PBN) Manual
- M. ICAO Doc 9750, 2020-2030 Global Air Navigation Plan
- N. ICAO Doc 9854, Global ATM Operational Concept
- O. ICAO Doc 9958, Assembly Resolutions in Force
- P. ICAO NAT Region MNPS to PBN Transition Plan

5. Requirements for PBN implementation plan

According to IR 2018/1048, providers of ATM/ANS are required to take the necessary measures to ensure a smooth and safe transition to the provision of their services using performance-based navigation in accordance with Article 3, of COMMISSION IMPLEMENTING REGULATION (EU) 2018/1048.

Being part of the ICAO NAT Region, Isavia ANS has implemented MNPS to PBN Transition Plan for the oceanic area.

Isavia ANS followed the existing regulation requirements for the territory of Iceland, best practices during the preparation for transition to PBN operations, including:

- Icelandic Regulation 787/2010 of 4th of October 2010, Procedures for Air Navigation Services.
- COMMISSION IMPLEMENTING REGULATION (EU) 2018/1048. Airspace usage requirements and operating procedures concerning performance -based navigation

As required by IR 2018/1048, Isavia ANS has consulted all the following parties on the transition plan and the draft of any significant updates thereof and take account of their views where appropriate:

- a. aerodrome operators, airspace users and representative organizations of such airspace users affected by the provision of their services;
- b. the Network Manager,
- c. providers of ATM/ANS that provide their services in adjacent airspace blocks

6. PBN implementation plan in accordance with Part 3 of IR2018/1048.

Regulation timeline	Regulation articles/sub-articles	Isavia ANS Compliance
03-12-2020	For ATS routes above FL 150 - RNAV 5	22-04-2021
25-01-2024	For instrument runway ends served by precision approach procedures at other aerodromes	25-01-2024
	For all instrument runway ends, point AUR.PBN.2005(4) of the Annex of IR2018/1048 shall apply with respect to one SID or STAR route established	25-01-2024
	For ATS routes below FL 150 - RNAV 5	25-01-2024
06-06-2030	For all instrument runway ends, point AUR.PBN.2005(4) of the Annex of IR2018/1048 shall apply with respect to all SID or STAR routes established	06-06-2030
	Without prejudice to Article 6 and to the possibility of providers of ATM/ANS to provide their services using landing systems enabling CAT II, CAT IIIA or CAT IIIB operations within the meaning of points 14, 15 and 16, respectively, of Annex I to Regulation (EU) No 965/2012.	06-06-2030
	Providers of ATM/ANS shall not provide their services using conventional navigation procedures or using performance-based navigation which is not in accordance with the requirements of point AUR.PBN.2005 of the Annex.	06-06-2030

7. Operational requirements and PBN implementation objectives

A. *Transition plan*

As part of the preparation for the transition to fully performance-based navigation (PBN), the operational environment that is expected to exist at the time when the PBN routes and procedures are to be implemented will be evaluated.

The purpose of the evaluation of the operational environment is to:

- ensure that measures are taken, and appropriate information is made available to the ATS units in order to facilitate mixed operations, i.e. operations of PBN capable and non-PBN capable aircraft;
- underpin the transition plan and help to describe the introduction of the new PBN routes and procedures in detail, i.e. the transition along the different stages until the end-state is eventually implemented;
- consider both normal operations as well as contingencies, and therefore, be used to define the contingency measures, which are expected to evolve and adapt to the different stages of the implementation.

When implementing the required routes and procedures, there is an opportunity to optimise the overall safety, capacity, and efficiency of flight operations.

The complexity of the airspace structures and traffic flows as well as the specificities of the traffic operating at the affected aerodromes will be considered. Aircraft operational capability expected in the affected airspace will be evaluated, with the purpose of estimating the number of aircraft unable to perform the envisaged PBN operations.

A general plan to gradually withdraw NDB stations is to be prepared, considering the progress of PBN operations and the necessity for radio navigation aids after consultation with stakeholders. Withdrawal of NDB stations will be fully completed 2030 except for SB and TN NDB that will remain for contingency. No changes are planned regarding VOR, DME, ILS systems, H-radar stations, MLAT, ADS-B and communications infrastructure.

B. Implementation of exclusive use of PBN 1

1. Providers of ATM/ANS shall not provide their services using conventional navigation procedures or using performance-based navigation which is not in accordance with the requirements of point AUR.PBN.2005 of the Annex.	
AUR.PBN.2005	Transition plan
(1) Providers of ATM/ANS shall implement, at all instrument runway ends, approach procedures in accordance with the requirements of the RNP approach (RNP APCH) specification, including LNAV, LNAV/VNAV and LPV minima and, where required due to traffic density or traffic complexity, radius to fix (RF) legs.	See table 7.C.
(2) By way of derogation from point (1), at instrument runway ends where, due to terrain, obstacles or air traffic separation conditions, the implementation of 3D approach procedures is excessively difficult, providers of ATM/ANS shall implement 2D approach procedures in accordance with the requirements of the RNP approach (RNP APCH) specification. In that case, they may also, in addition to the implementation of those 2D approach procedures, implement 3D approach procedures in accordance with the requirements of the RNP authorisation required (RNP AR APCH) specification.	See table 7.C.
(3) By way of derogation from point (1) at instrument runway ends without an appropriate SBAS coverage, providers of ATM/ANS shall implement RNP APCH procedures, including LNAV and LNAV/VNAV minima. Providers of ATM/ANS shall also implement LPV minima at those instrument runway ends, no later than 18 months from the date at which such appropriate SBAS coverage is available.	SBAS approach is not allowed west of 19W due limitation on EGNOS coverage. See table 7.C.
(4) Where providers of ATM/ANS have established SID routes or STAR routes, they shall implement those routes in accordance with the requirements of RNAV 1 specification.	SID and STAR with RNAV 1 have been implemented within CTA where surveillance is provided. See table 7. D.
(5) By way of derogation from point (4), where providers of ATM/ANS have established SID routes or STAR routes and where higher performance requirements than those referred to in that point are required in order to maintain air traffic capacity and safety in environments with high traffic density, traffic complexity or terrain features, they shall implement those routes in accordance with the requirements of the RNP 1 specification, including one or more of the following additional navigation functionalities: (a) operations along a vertical path and between two fixes and with the use of: (i) an 'AT' altitude constraint; (ii) an 'AT OR ABOVE' altitude constraint; (iii) an 'AT OR BELOW' altitude constraint; (iv) a 'WINDOW' constraint; (b) the radius to fix (RF) leg.	SID and STAR with RNP 1 have been implemented where terrain and/or lack of surveillance require. See table 7.D.
(6) Where providers of ATM/ANS have established ATS routes for en route operations, they shall implement those routes in accordance with the requirements of the RNAV 5 specification	RNAV 5 routes in BIRD FIR will be based on GNSS only.



<p>(7) By way of derogation from points (4) and (6), where providers of ATM/ANS have established ATS routes, SID routes or STAR routes for rotorcraft operations, they shall implement those routes in accordance with the requirements of the RNP 0.3, RNAV 1 or RNP 1 specifications. In that case, they shall be entitled to decide which of those three sets of requirements they comply with.</p>	<p>No routes for rotorcraft operations have been established in BIRD FIR.</p>
<p>2.Paragraph 1 shall be without prejudice to Article 6 and to the possibility of providers of ATM/ANS to provide their services using landing systems enabling CAT II, CAT IIIA or CAT IIIB operations within the meaning of points 14, 15 and 16, respectively, of Annex I to Regulation (EU) No 965/2012.</p>	<p>CAT I approaches are only based on ILS as SBAS coverage currently does not allow CAT I RNP approaches. No plans are for implementing GBAS. See chapter 10, Contingency measures.</p>

C. Implementation of RNP approach based on GNSS only.

ICAO CODE	Airport name	IFR RWY	LNAV	LNAV/VNAV	LPV	RNP AR	REMARKS
BIAR	AKUREYRI	01	-	-	-	Planned	Not possible due terrain. Candidate for RNP AR
		19 ¹	Implemented	Implemented	Implemented		
BIEG	EGILSSTADIR	03	Implemented	Planned	Planned		
		21	Implemented	Implemented	Planned		
		22	Planned	Planned	-		Outside EGNOS range
BIGR	GRIMSEY	17	Planned	Planned	Planned		
		35	Implemented	Implemented	Implemented		
BIHU	HUSAVIK	02	Implemented	Implemented	Implemented		
		20	Planned	Planned	Planned		
BIHN	HOFN	18	Implemented	-	-		Not suitable for LNAV/VNAV/LPV
		36	Implemented	-	Planned		Not suitable for LNAV/VNAV
BIKF	KEFLAVIK	01	Implemented	Implemented	-		Outside EGNOS range
		10	Implemented	Implemented	-		Outside EGNOS range
		19	Implemented	Implemented	-		Outside EGNOS range
		28	Implemented	Implemented	-		Outside EGNOS range
BIRK	REYKJAVIK	01	Implemented	Implemented	-		Outside EGNOS range
		19	Implemented	Implemented	-		Outside EGNOS range
		13	Implemented	Implemented	-		Outside EGNOS range
		31	Implemented	-	-		Outside EGNOS range LNAV/VNAV not possible due high VPA
BIKR	SAUDAR- KROKUR	18	Planned	Planned	-		Outside EGNOS range
		36	Implemented	Implemented	-		Outside EGNOS range
BITN	THORSHOFN	01	Implemented	Planned	Planned		
		19	Implemented	Planned	Planned		
BIVM	VESTMANNA- EYJAR	03	Implemented	Implemented	-		Outside EGNOS range
		12	Implemented	Implemented	-		Outside EGNOS range
		21	-	-	-		Not suitable for LNAV/ LNAV/VNAV Outside EGNOS range
		30	Planned	Planned	-		Outside EGNOS range
BIVO	VOPNA- FJORDUR	04	Implemented	Implemented	Implemented		
		22	Planned	Planned	Planned		
BIBL	BLONDUOS	03	Implemented	-	-		Outside EGNOS range No AFIS for LNAV/VNAV
		21	Planned	-	-		Outside EGNOS range No AFIS for LNAV/VNAV

D. Implementation of SID and STAR procedures based on GNSS only.

ICAO CODE	Airport name	IFR RW Y	SID		STAR		REMARKS
			RNAV 1	RNP 1	RNAV 1	RNP 1	
BIAR	AKUREYRI	01	-	Implemented	-	Planned	
		19	-	Implemented	-	Implemented	
BIEG	EGILSSTADIR	03	-	Implemented	-	Planned	
		21	-	Planned	-	Planned	
BIGR	GRIMSEY	17	-	Planned	-	-	
		35	-	Planned	-	-	
BIHU	HUSAVIK	02	-	Implemented	-	Planned	
		20	-	Planned	-	-	
BIHN	HOFN	18	-	Planned	-	-	
		36	-	Planned	-	-	
BIKF	KEFLAVIK	01	Implemented	-	Implemented	-	
		10	Implemented	-	Implemented	-	
		19	Implemented	-	Implemented	-	
		28	Implemented	-	Implemented	-	
BIRK	REYKJAVIK	01	Planned	-	Planned	-	
		19	Planned	-	Planned	-	
		13	Planned	-	Planned	-	
		31	Planned	-	Planned	-	
BIKR	SAUDAR-KROKUR	18	-	Planned	-	-	
		36	-	Planned	-	-	
BITN	THORSHOFN	01	-	Planned	-	-	
		19	-	Planned	-	-	
BIVM	VESTMANNA-EYJAR	03	-	-	-	-	Not possible due terrain
		12	-	Planned	-	-	
		21	-	Planned	-	-	
		30	-	Planned	-	-	
BIVO	VOPNA-FJORDUR	04	-	Planned	-	-	
		22	-	Planned	-	-	
BIBL	BLONDUOS	03	-	Planned	-	-	
		21	-	Planned	-	-	
		26	-	-	-	-	Not possible due terrain

E. Implementation of Radius to fix.

Radius to fix (RF) turn have been implemented for one airport (BIAR) and is planned for another (BIEG) mainly for domestic traffic, see table B above. As aircraft fleet capabilities to fly RF turns increases, RF might be implemented at more airports.

8. Mixed mode operations and VFR until 06.06.2030

By implementing SID and STAR procedures with PBN specification, some NDB based SID and STAR procedures will be withdrawn.

There are no PBN rotorcraft routes in Iceland. If established, it will be done in accordance with EU Regulation 2018/1048.

Some conventional NAV AID structure procedures will be updated for non PBN equipped aircraft as necessary.

VFR operations will remain unchanged.

The following measures, will be used to ensure operations of non-capable aircraft:

- a. vectoring of controlled aircraft based on the use of an ATS surveillance system;
- b. conventional navigation procedures;
- c. use of any other existing PBN application; and
- d. procedural control.

9. Transition plan

A. Rationalisation of ground based NAVAIDs

Isavia ANS will accommodate plans by Regulation (EU) 2018/1048 to accomplish required navigational service to aircraft before PBN IR targeted full implementation date 06.06.2030.

Ground based NDB's used for en-route and approaches, will be phased out gradually in coordination with stakeholders. The decommission will start with the enroute NDBs and the ones that do not support approach procedure.

From Regulation (EU) 2018/1048 Articles 5 & 6 the following is derived:

Except for operations depending on ILS CAT-II/III, conventional navigational aids will as of 06.06.2030 not have any purpose, except for the event of failure in PBN-components; either in the space segment, with signal propagation, or in the aircraft.

This implies unless a contingency situation is present, the use of conventional procedures is prohibited. In the case of a contingency situation, the aircraft is expected to:

- if the destination is an airport with conventional nav-aids: continue to destination
- if the airport is a "GNSS-only"-airport: divert to an aerodrome with conventional nav-aids.

Rationalisation of ground based NAVAIDs

ICAO CODE	Airport Name	SYSTEM	ID	USAGE	Contingency use ref. EU 1048/2018, Art 6.	DECOMMISSIONED (Planned)	DECOMMISSIONING YEAR (Planned)
BIAR	Akureyri	VOR/DME	AKI	Enroute	X		
BIAR	Akureyri	NDB	AR			X	2030
BIAR	Akureyri	L	HJ			X	2030
BIAR	Akureyri	LOC	IAL		X		
BIAR	Akureyri	GP	IAL		X		
BIAR	Akureyri	DME	IAL		X		
BIAR	Akureyri	LOC	IAL		X		
BIAR	Akureyri	GP	IAR		X		
BIAR	Akureyri	DME	IAR		X		
BIAR	Akureyri	Marker	IEY			X	2030
BIAR	Akureyri	LOC	IEY		X		
BIAR	Akureyri	DME	IEY		X		
BIAR	Akureyri	L	KN			X	2030
BIAR	Akureyri	TACAN	MOB	Military	X		
BIAR	Akureyri	NDB	NB			X	2030
BIAR	Akureyri	L	OE		X		
BIAR	Akureyri	L	TO			X	2030
BIBD	Bildudalur	NDB/MKR	SB	Contingency	X		
BIEG	Egilsstaðir	NDB	ES			X	2030
BIEG	Egilsstaðir	LOC	IES		X		
BIEG	Egilsstaðir	GP	IES		X		
BIEG	Egilsstaðir	DME	IES		X		
BIEG	Egilsstaðir	L	MN			X	2030
BIEG	Egilsstaðir	NDB	VA			X	2022
BIBL	Blonduos	NDB/MKR	BL			X	2022
BIGJ	Gjogur	NDB/MKR	GJ			X	2030
BIHU	Husavik	NDB	GA			X	2025
BIHU	Husavik	NDB/MKR	HSEYK			X	2025



BIHN	Hofn	NDB	HN			X	2027
BIHN	Hofn	MKR	HN			X	2027
BIIS	Isafjordur	NDB	IS			X	2028
BIIS	Isafjordur	L	OG			X	2030
BIIS	Isafjordur	DME	OG		X		
BIIS	Isafjordur	NDB	RE			X	2030
BIKF	Keflavik	LOC	IKF		X		
BIKF	Keflavik	GP	IKF		X		
BIKF	Keflavik	DME	IKF		X		
BIKF	Keflavik	LOC	IKN		X		
BIKF	Keflavik	GP	IKN		X		
BIKF	Keflavik	DME	IKN		X		
BIKF	Keflavik	LOC	IKO		X		
BIKF	Keflavik	GP	IKO		X		
BIKF	Keflavik	DME	IKO		X		
BIKF	Keflavik	LOC	IKW		X		
BIKF	Keflavik	GP	IKW		X		
BIKF	Keflavik	DME	IKW		X		
BIKF	Keflavik	NDB	KF			X	2027
BIKF	Keflavik	VOR/TACAN	KFV	Enroute/Military	X		
BIRK	Reykjavik	NDB	EL			X	2028
BIRK	Reykjavik	LOC	IRE		X		
BIRK	Reykjavik	DME	IRE		X		
BIRK	Reykjavik	LOC	IRK		X		
BIRK	Reykjavik	GP	IRK		X		
BIRK	Reykjavik	DME	IRK		X		
BIRK	Reykjavik	NDB	RK			X	2030
BIVM	Vestmannaeyjar	L	HL			X	2027
BIVM	Vestmannaeyjar	DME	HL		X		
BIVM	Vestmannaeyjar	NDB	VM			X	2030
BIVO	Vopnafjordur	NDB	HA			X	2030
BIVO	Vopnafjordur	L	VP			X	2030
BITN	Thorshofn	NDB	TN	Contingency	X		
		VOR/DME	ING	Enroute	X		
		NDB	RH			X	2024
		NDB	HE			X	2024
		NDB	LA			X	2024
		NDB	RF			X	2030
		NDB	SE			X	2024

B. Rationalisation of ATS routes

Aircraft that are equipped only with short-range navigation equipment (VOR, DME, ADF) may operate through the NAT HLA along G3. Therefore, the ATS route G3 will remain after 2030 as part of Contingency defined by the NAT Air Navigation Plan, see chapter 10.

During the user consultation only one stakeholder, the Icelandic Aviation Academy, recommended that conventional ATS routes over Iceland would be reverted to RNAV 5.

Based on that Isavia ANS carried out an analysis of the usage of conventional ATS routes:

Year	B1	B2	G1	G2	G4	R2	R5
2011	44	0	18	29	12	4	2
2012	30	1	19	12	18	5	4
2013	22	2	19	7	13	5	1
2014	27	2	9	19	13	5	0
2015	29	4	11	17	5	5	0
2016	27	12	8	17	11	4	0
2017	27	3	9	18	8	5	1
2018	39	13	29	16	23	3	0
2019	83	11	38	41	35	11	0
2020	125	28	65	54	64	7	0
2021	88	27	111	18	135	12	1

Based on those results B1, G1 and G4 will be converted to RNAV 5 before 25.01.2024 and the remaining decommissioned.

10. Contingency measures- retained ground-based NAVAIDs for conventional navigation

The demand for service in case of total GNSS failure has been assessed with the airspace users. The conclusion is that ATC will vector aircraft into ILS or LOC approaches with DME at all 4 international airports (BIKF, BIRK, BIAR, BIEG). Due to the limitations of the radar coverage the finals for the approach into RWYs at BIAR and BIEG will be extended before 06.06.2030 to ensure that ATC can vector aircraft into the final.

The Icelandic Coast Guard has requested that a beacon is maintained on every corner of Iceland. This is for contingency, to make it easier for the helicopters to navigate after a rescue mission over the sea. KFV and ING VOR will remain after 2030 and will serve as beacon on the southwest and southeast corners. TN NDB and SB NDB will remain in use after 2030 for this purpose.

3 VOR's with DME (ING, KFV, AKI) will be available within terminal and en-route airspace.

Aircraft that are equipped only with short-range navigation equipment (VOR, DME, ADF) may operate through the NAT HLA along G3. Therefore, the ATS route G3 will remain after 2030 as part of Contingency.

Additionally, tactical vectors using the available ATS Surveillance and the notification of traffic restrictions.

Communication equipment will not be affected by GNSS failure.