Visual Guided Approach / RNAV VISUAL

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Introduction

What is VGA / Rnav Vis?

✓ Definition

✓ Existing published procedures.

Analysis

Do we need it?

✓ VGA within the framework of PBN & RNP AR Design

Recommendations

Way forward

✓ Existing guidelines and open questions.

✓ Conclusion and Recommended action by the meeting.

Introduction

➤ Advanced aircraft avionics integrating technologies such as GNSS & Baro Vnav that led to a significant improvement in lateral and vertical accuracy was the foundation for the PBN concept.

➤ PBN has significantly improved Instrument Approach Procedure design. What about visual approach procedures?

➤ ICAO guidlines on visual approach procedures (doc 8168 part II APP. chap 7 VPT+ doc 4444) remained unchanged.

➤ Why not take advantage and make smart use of modern jets PBN capabilities in good weather conditions?

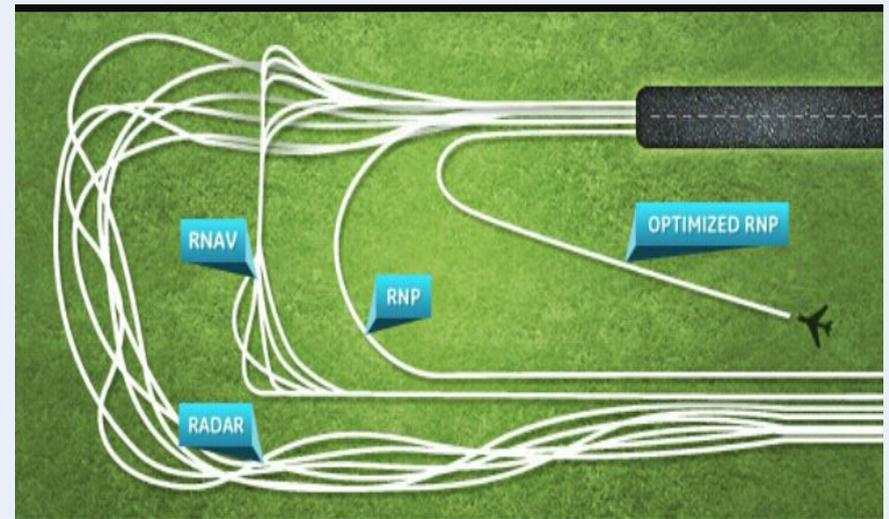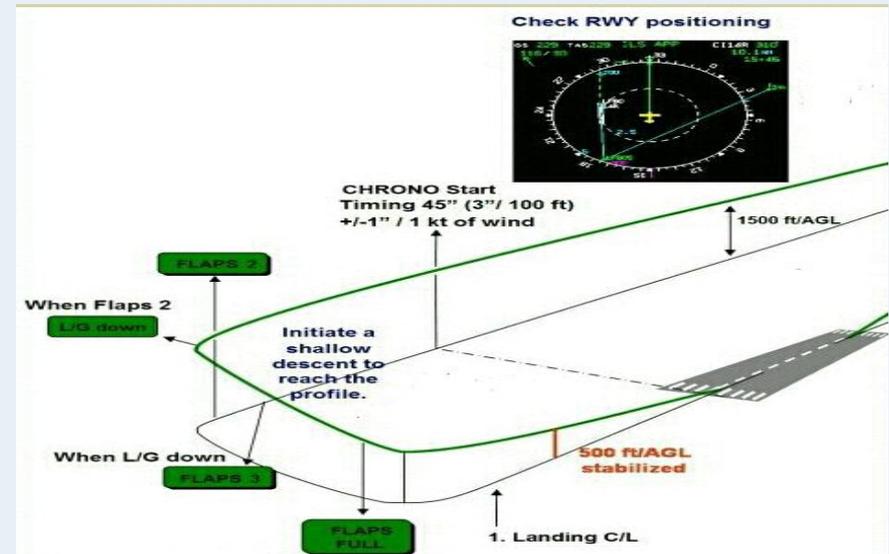# Why fly Visual

Visual Approach benefits

- Typical Vis. Pattern: 3nm final
- Efficient for operators and from ATM perspective
- Encouraged by many Airlines
- Requirements for manual flying;

FAA SAFO 13002

EASA SIB No: 2013-05

Risks due to lack of guidance

- Unstablized approach
- ATM perspective; Unpredictable flight path

Definitions

- ✓ **Visual approach.** An approach by an IFR flight when either part or all of an instrument approach procedure is not completed and the approach is executed in visual reference to terrain.
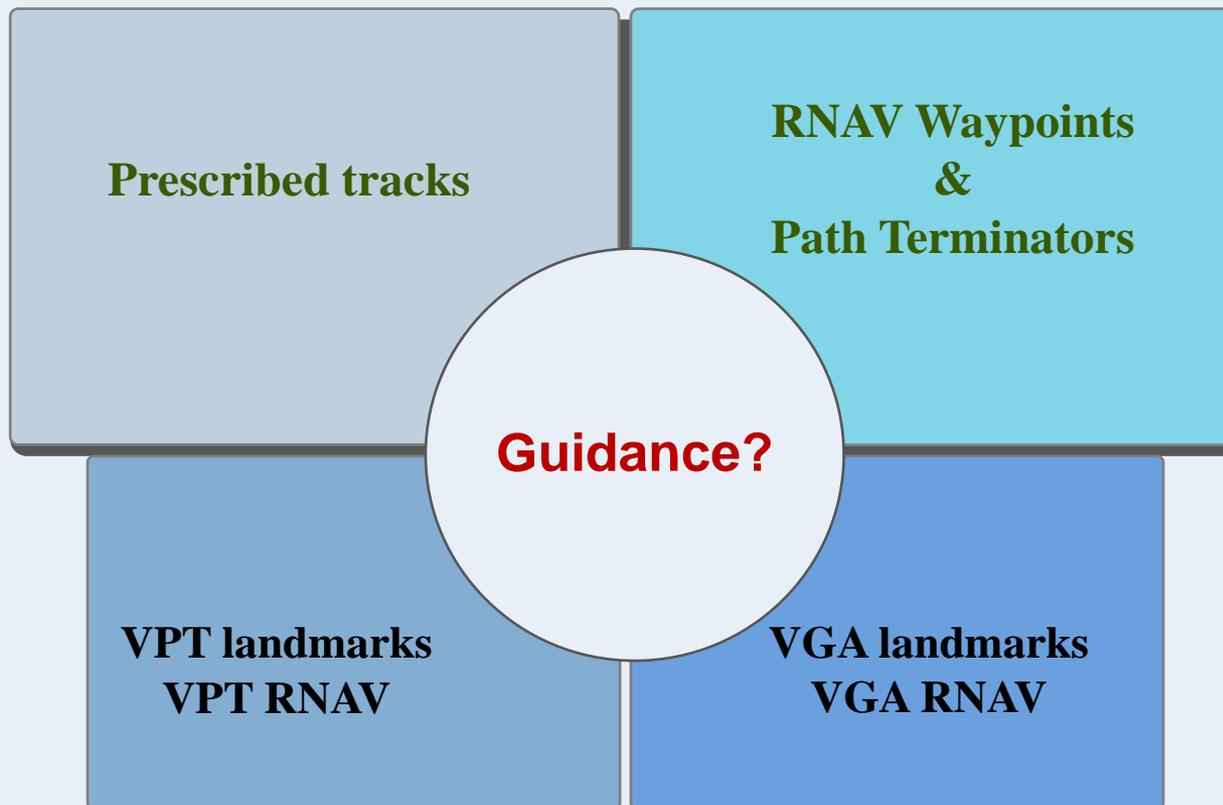
  <div align="right">PANS-ATM, Doc 4444</div>

- ✓ **Visual approach procedure**. A series of predetermined manoeuvres by visual reference, from the initial approach fix, or where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and thereafter, if a landing is not completed, a go-around procedure can be carried out. .

  <div align="right">Annex 4</div>

- ✓ Visual **Guided** Approach. A charted approach procedure requiring meteorological conditions as published on the chart to continue the approach after a published position. They are established at specific aerodromes for environmental/noise considerations or when necessary for safety and efficiency.

  <div align="right">Proposed definition</div>

Prescribed tracks

**RNAV Waypoints
&
Path Terminators**

Guidance?

**VPT landmarks
VPT RNAV**

**VGA landmarks
VGA RNAV**

VGA RNAV; A VGA approach procedure charted using area navigation waypoints and path terminators to 102 describe the arrival route

Published Procedures
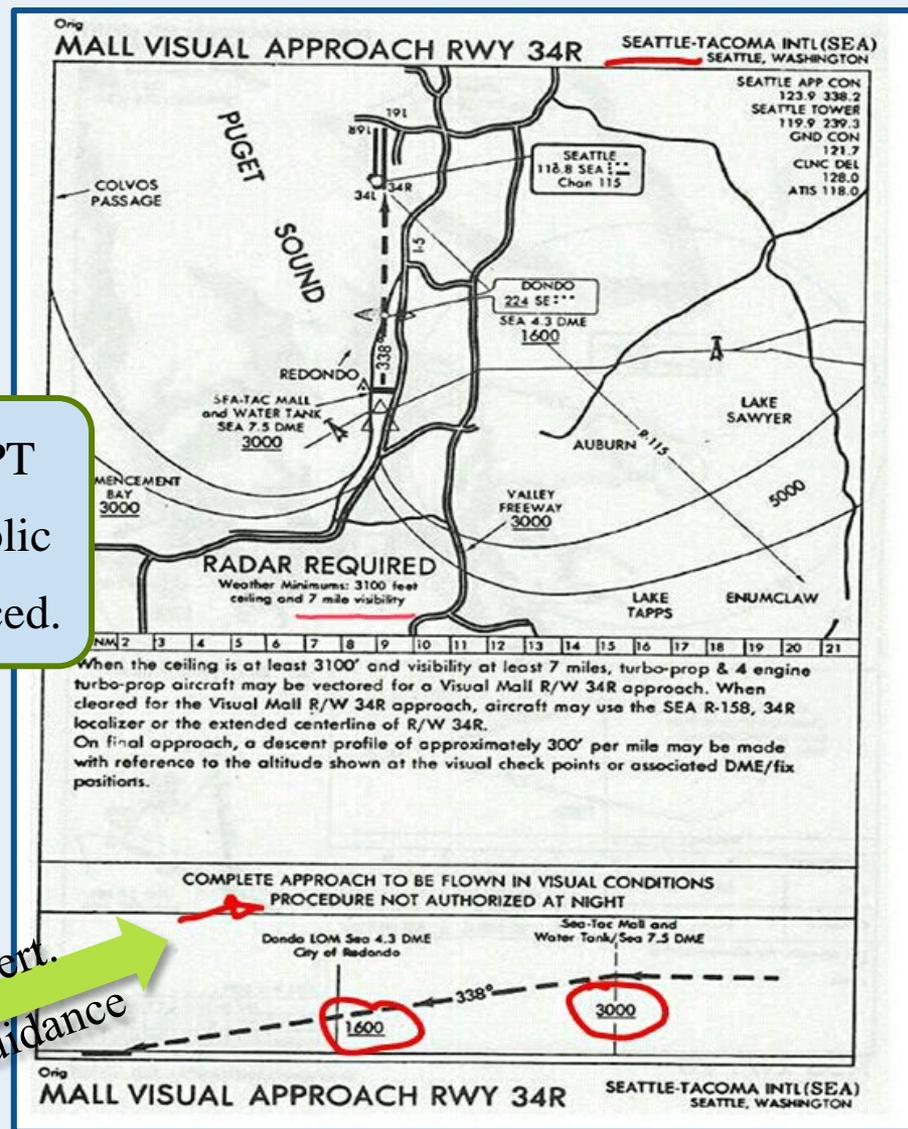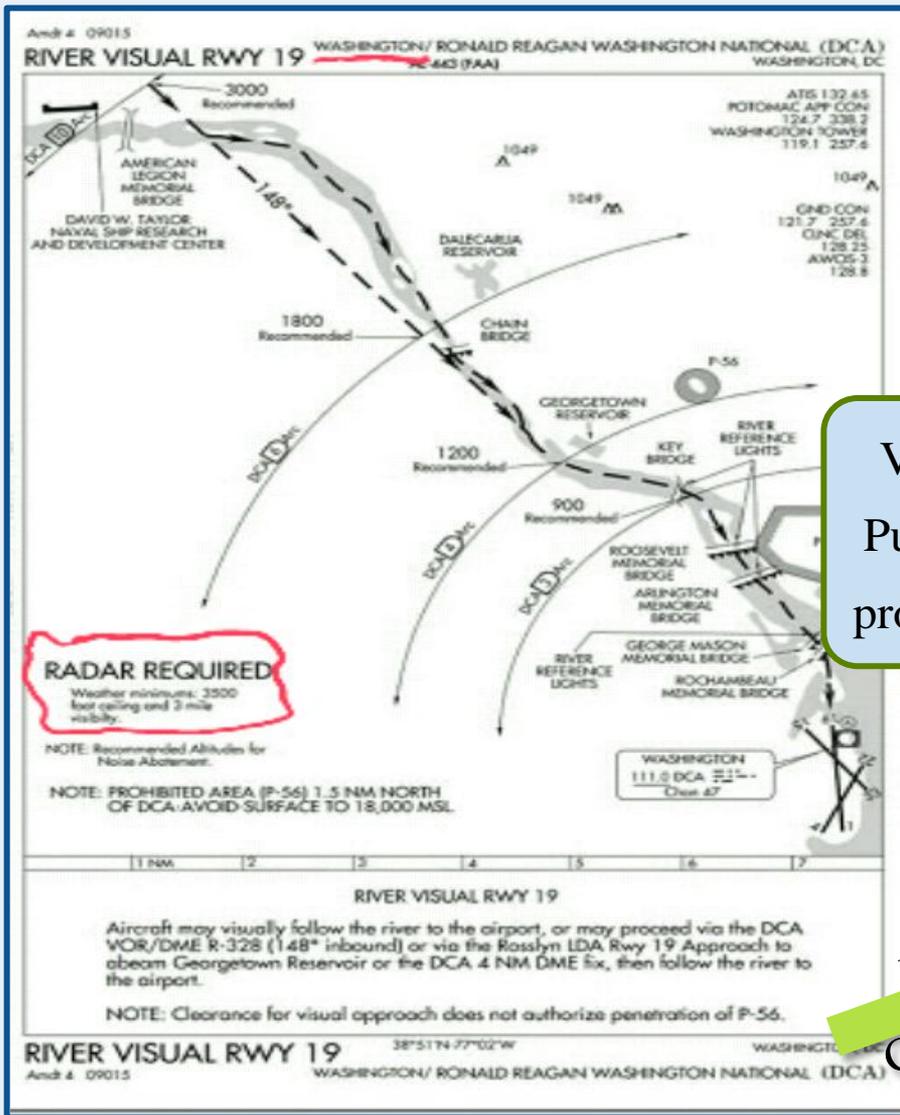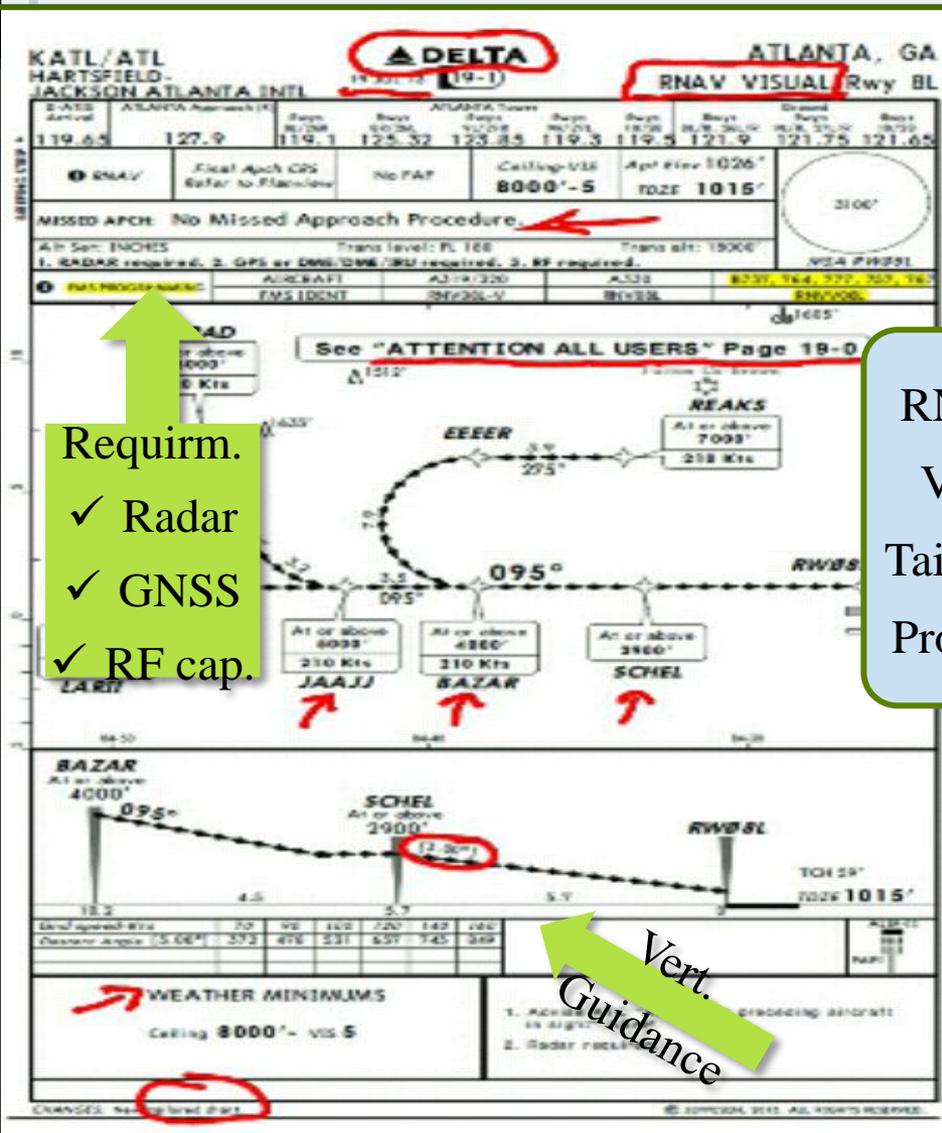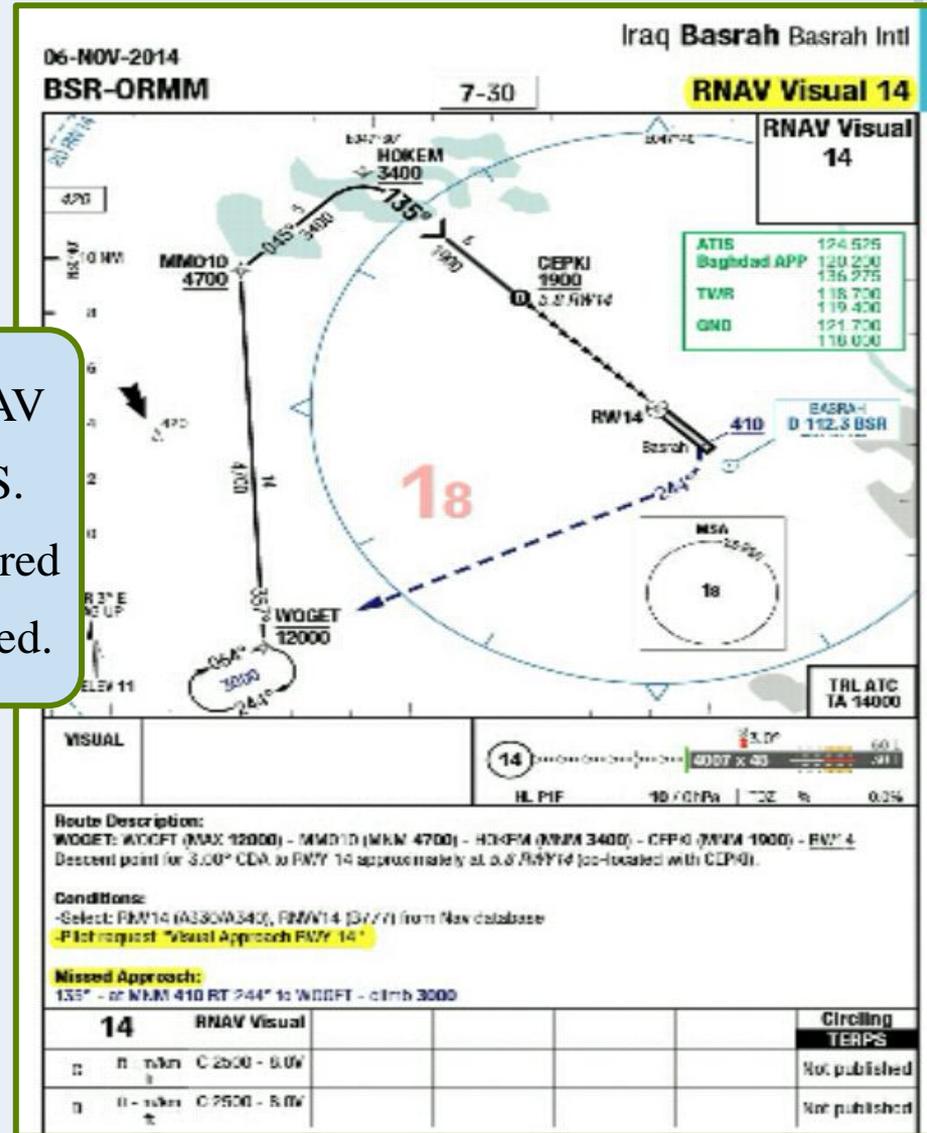

VPT Public proced.
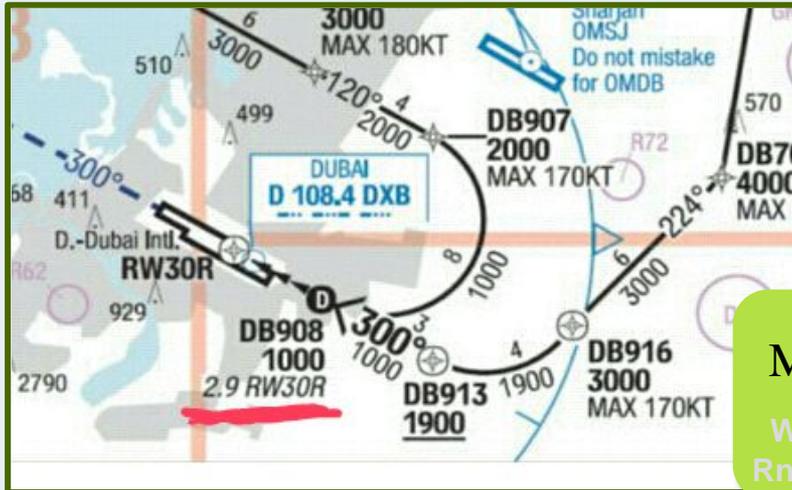
Vert. Guidance

Published Procedures

RNAV
VIS.
Tailored
Proced.

Requirm.
- ✓ Radar
- ✓ GNSS
- ✓ RF cap.

Vert. Guidance

Published Procedures
Details

Min. Track miles

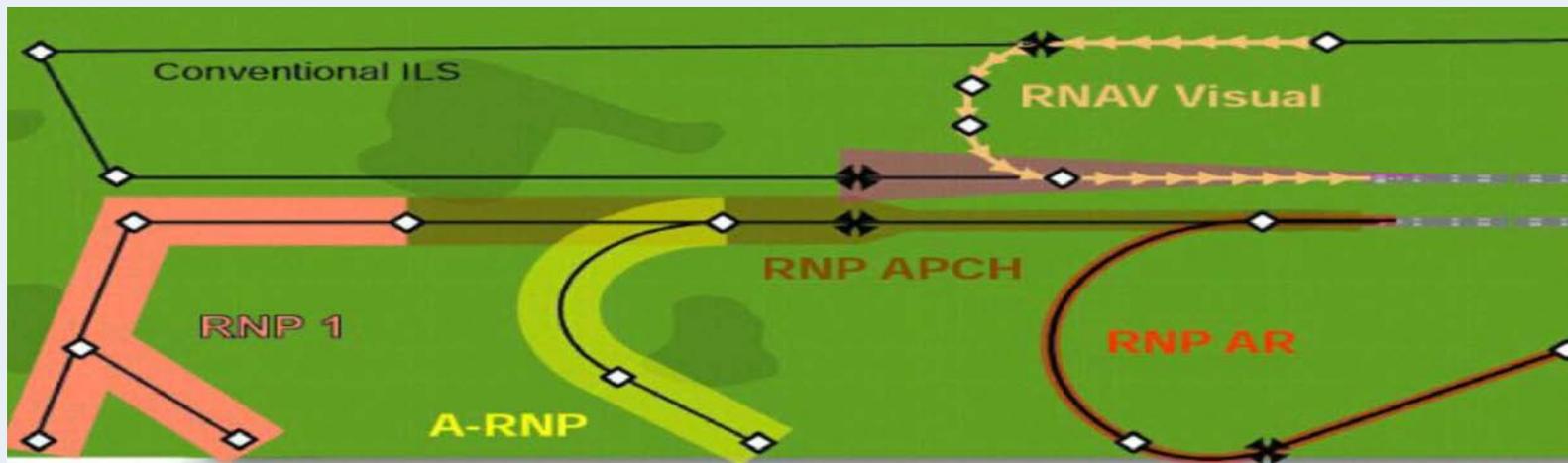What is VGA / Rnav Vis.

Vert. Guidance
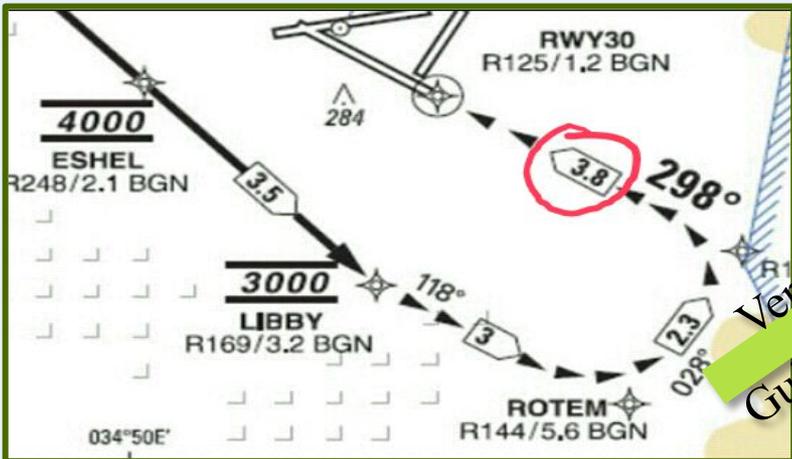
Do we need it ??

PBN Merits;

✓ Better use of airspace.
✓ All what follows; route placement, fuel, environment, noise, etc..

RNP AR, the summit of PBN, can facilitate advances in ATM and can provide significant operational and safety benefits.
But what about the **COST?**
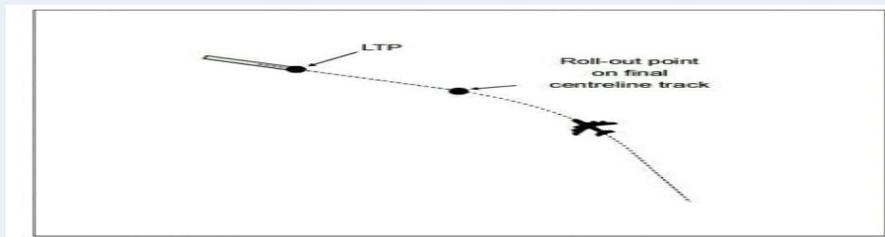**Implementation complexities?**

IAP FAS Design

➢ **Doc 8168**

- FAF Optimum length 5NM
- Other than 5NM, Alignment, Dimensions and MOC will vary.
- Specific criteria for each type of approach.
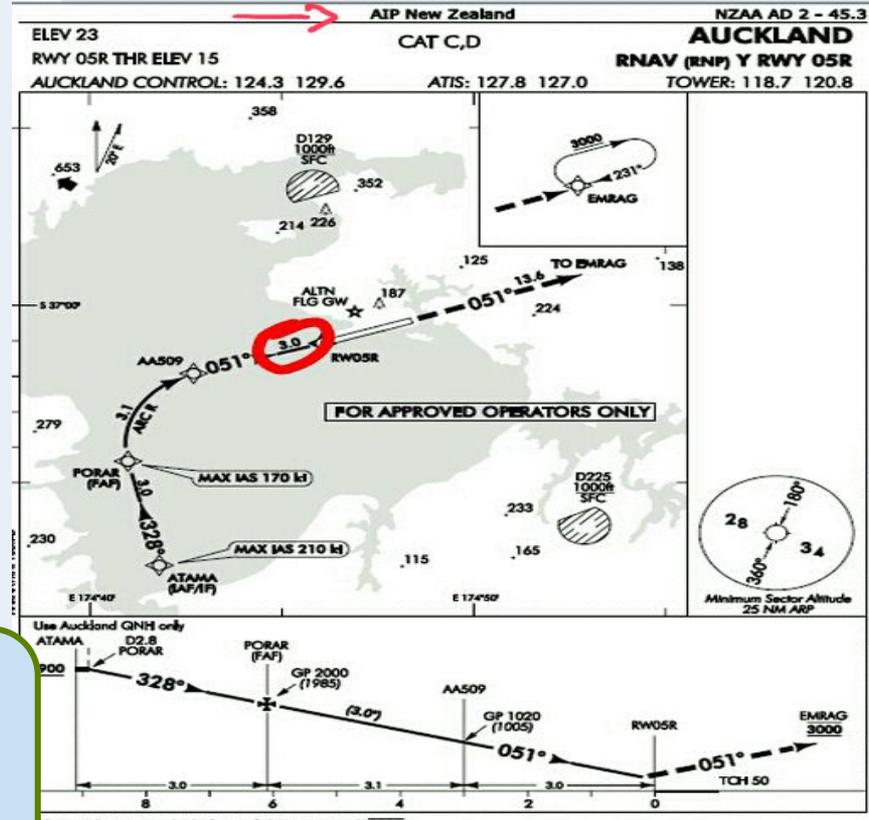- RNAV Y or T FAS segment 5NM

➢ **RNP AR Design**

- FAS Alignment criteria including RF legs with FROP.
- FROP min straight segment to LTP/FTP; the greater of 492ft or a min dist. to be calculated

Do we need it.

Examples VGA vs RNP AR

VGA can simply be a shotcut from an existing instrument appch

No vert. guid. No missed appch

VGA / RNAV Vis.
Existing Regulatory Guidlines

Scope of existing guidelines and open questions

Efforts for a broad concept definition in terms of;

- Process of Development and Operational Approval
- Design Considerations
- Operational Considerations
- Equipment Requirements & Procedure Flyability/Validation
- Wx Requirements (Visibility &Ceiling)
- Charting and Naming
- Database and Waypoints

Guidance Documents
- FAA order 8260.55 3/8/2010
- ICAO OPSP/WG-WHL/16 WP/19 Montreal, 9 to 13 Dec 2013
- ICAO FLTOPSP/WG/2-WP18 ROME, 4 to 8 May 2015
- FLTOPSP/2-WP/10 Draft for Visual Guided Approaches and Manoeuvring with Prescribed Track CONOPS 2016

Conclusion

✓ Visual Approach is commonly used at many international airports.

✓ Operators & States are developing and publishing visual approach procedures supported by RNAV.

✓ VGA/ RNAV Vis. Improves the effeciency, predictability, repeatability and safety of these operations.

✓ Efforts to define and standardise the concept and it's use.

✓ **VGA/ RNAV VIS can be defined as a new concept in between RNP AR and Visual approach in good WX.**

✓ **It is an effective cheap transition to RNP AR (Pilots&ATC training, local procedure design)**

Action by the meeting

1. **The meeting to get an update on the VGA work and time line from the concerned ICAO WG.**

2. **ICAO MID to adopt the concept and proceed in parallel to the concerned WG in order to use and integrate the ideas available in the guidance materials.**

Thank you