

---

# Minutes of NMB RNN Trial Technical Workshop

Held on 3 May 2019

**Date:** 21 May 2019

**Attendees:** GAL, EasyJet, Virgin Atlantic (Pilot & Navigation Service Officer), TUI, Norwegian, ANS, Trax, NATS, Helios,

**Observers:** NMB Secretary, NMB Chair.

## 1. Introduction

As part of ongoing planning for the Reduced Night Noise (RNN) Trial, a Technical Workshop was held with industry stakeholders to further engage on the trial. The following topics were discussed at the workshop:

- Overview of the trial and activity timescales
- Review of Airline Survey responses
- Proposed trial routes
- Operational procedures (ATC, airline and flight planning) and trial constraints
- IFP validation plan
- Training & system requirements

This information paper summarises the output of the workshop.

## 2. Workshop Discussion

### Overview of the trial and activity timescales

Helios explained that the purpose of the workshop was to discuss technical, procedural and operational aspects of the trial to support continued planning and preparation for implementation in early 2020.

Helios presented the trial objectives and an overview of planned timescales (see Annex A). Virgin enquired if the proposed trial timings (01:30-05:00 local) could be extended to capture more aircraft in the sample. Helios explained that the trial would run during the quietest period in the night when traffic levels are low and can be managed by ATC. With reference to the Gantt chart, NATS stated that no system requirements are necessary for the trial, and as such, less time is required than currently allocated. Helios agreed to update the Gantt chart to reflect the feedback received during the workshop.

**Action 1:** Helios to update, and circulate, the RNN Trial Gantt chart to reflect workshop feedback.

Helios provided an overview of the CAP1616 requirements for airspace trials, noting that the Statement of Need, Trial Plan and subsequent Assessment Meeting had been submitted and undertaken respectively, and that development of a Consultation Strategy was underway. The Technical Meeting would contribute to the CAA submissions and inform the consultation to ensure that the trial is safe and operationally viable; a requirement of CAP 1616.

### Review of Airline Survey Responses

Helios presented the results of the Airline Survey that was distributed to Flight Operations Performance and Safety Committee (FLOPSC) members on 18 April. In total, 6 responses were received from EasyJet, Virgin, TUI, Norwegian, British Airways, and BALPA. The following key points were raised:

#### RNAV, RNP, and RF capability

In total, 100% of survey respondents confirmed that their fleets are both RNAV-1 and RNP-1 capable. Most aircraft are RF Leg capable, but some aircraft operating at Gatwick are not, for example, Virgin's B747-400 fleet.

Virgin, Norwegian and TUI stated that although aircraft may be RF capable aircraft, they may not be operationally ready to use them. Approximately 3-4 months may be required to reach this status. This can be progressed as soon as airlines receive the draft procedure designs for the trial.

### Continuous descent from 6,000ft / 20NM

The group was asked whether a continuous descent procedure designed from 6000ft / 20NM would be considered a low noise arrival, noting that a 1.5NM level segment prior to the FAF is also required to satisfy procedure design requirements. NATS identified that the normal CDA procedure at Gatwick is measured from 6500ft above aerodrome elevation and as such, commencing the procedure 'not below 6000ft' may have an impact on this metric and could actually reduce CDA compliance as currently measured. This would have to be monitored.

In addition, concern was raised over the angle of descent. The routes have been designed to be consistent with the 2006 Industry Code of Practice report<sup>1</sup> which states: "During the night quota period (2330-0600) all inbound to Heathrow, Gatwick and Stansted, irrespective of weight or type of approach, are to be given descent clearance from Minimum Stack level at a distance from touchdown which ensures that inbound are no lower than 6000ft when 20 track miles from touchdown". If a 1.5NM level segment is incorporated into the procedure, this could result in a sub-optimal procedure. The use of 'not below' waypoints at 6000ft should help mitigate this and Trax will investigate with the CAA if the level segment can be removed (see below).

### **Proposed trial routes**

Trax presented the proposed 08R/26L and 08L/26R trial routes to the workshop (see Annex B). Trax explained that the routes were connected from proposed IAFs to the existing FAFs, although there is a disconnect between the end of the STARs and the start of the transitions. Through discussion, it was agreed that the disconnect should be clearly identified in the AIS supplement although the group present did not envisage any planning issues. In order to manage the disconnect and aid descent management, ATC must provide clearance as early as possible to the start of the transition. The supplement will advise which transition crews should expect based on their STAR. In an event where ATC cannot facilitate a clearance onto the RNP transition, crews should expect to be vectored to final approach as with normal operations. The workshop agreed that an ATC instruction should be prepared which identifies a minimum distance from touchdown by which the crew should receive clearance; this would aid continuous descent planning. Norwegian noted that they may require an extra procedure to fly the 'disconnected' routes which may take some time to prepare, however it is possible to achieve. It was noted that the transitions would end at the existing FAF (for the ILS procedures) and IF (for the RNAV ones). The existing ILS and RNAV approaches will not be changed.

The workshop discussed the 1.5NM level segment. Although a PANS-OPS requirement, for some time operators have been querying the need for it in modern Flight Management Computers (FMC) which currently extrapolate the glidepath to achieve a CDA without any level segment. Operators present said that from their perspective it was not required. A suggestion was made that, as this is a trial used to inform future design, we should investigate the omission of the level segment. Trax advised that the level segment is already built into the RNAV arrivals to the northern runway and to avoid re-design it would have to remain for the trial. However, there may be scope for omitting the level segment prior to the FAF on the transitions to the ILS procedures for the main runways. Trax/NATS agreed to prepare a proposal for NATS to present and discuss at the upcoming Lead Operator Group meeting on 21 May 2019.

Trax confirmed that the joining points illustrated on the procedure lie beyond the minimum 10NM night-time joining point<sup>2</sup> as required by the DFT. On comparison of the proposed routes, it was noted that the northern routes are only subtly different to the southern routes. The workshop discussed naming conventions for the waypoints and agreed that one chart of four transitions should be developed for each runway. Further to this, it was agreed that the trial supplement should clearly state that 'clearance on to the transition should not constitute clearance for the final approach'. Trax agreed to investigate suitable 5-letter names for the proposed trial routes.

**Action 2:** *Helios/NATS to develop an ATC instruction identifying a minimum distance from touchdown by which the crew should receive clearance.*

**Action 3:** *Trax to prepare a proposal for removal of the 1.5NM level segment prior to the FAF from the 08R/26L ILS approach procedures. NATS to present this proposal for discussion at the upcoming Lead Operator Group meeting.*

**Action 4:** *Trax to investigate suitable 5-letter names for the proposed trial routes.*

### **Operational procedures and trial constraints**

NATS raised concern over the proposed speed controls. Trax advised that the procedures were able to accommodate the maximum speeds as per the draft charts, but ATC would be expected to instruct crews of any other speeds required for sequencing. The group discussed whether typical ATC speed restrictions (e.g. 180kt on base-leg) should be built into the procedures. Airlines stated that fewer speed restrictions would enable better descent management. Operators and NATS agreed they should not be built in and that crew and ATC would be expected to manage their speed in the most appropriate manner to maintain safety and minimise noise where possible. Trax enquired whether any additional minimum

---

<sup>1</sup> Noise from Arriving Aircraft, An Industry Code of Practice, 2<sup>nd</sup> Edition – November 2006

<sup>2</sup> UK AIP AD 2.EGKK-17 EGKK AD 2.21.14

altitude restrictions were required, to which the group confirmed only altitude restrictions not below 6000ft and 3000ft (until 10 DME) were necessary. Trax agreed to update the procedures, noting that not all transitions have waypoints at 10DME; waypoints just ahead of the 10DME will have altitude restrictions to reflect a profile that will achieve a min 3000ft at 10DME.

The group discussed ATC and Airline feedback procedures to understand how information could be fed back to Gatwick to enable accurate and representative data analysis during the trial. Norwegian confirmed that their crew currently complete a mandatory feedback form for every flight, and that it would be possible to ask the crew to collect feedback for the trial. Airlines supported this proposal and Helios agreed to develop a standard trial feedback form for flight deck crew. This form should be available in time for the planned flight simulator validation sessions.

Helios noted the requirement to define when the trial should be suspended and the process for capturing this information. NATS suggested that ATC assume everyone is participating in the trial unless they are informed by the crew that they are unable to fly the trial procedures. Any deviation from expected participation would be logged on a form, designed to capture individual and complete suspensions (e.g. due to traffic density). In the event that the trial is suspended, vectoring would resume. The group agreed with this proposal.

**Action 5:** Trax to update the procedures to include not below 3000ft (or as close as) altitude restrictions.

**Action 6:** Helios to develop a standard trial feedback form for flight deck crew.

### IFP validation plan

Trax provided an overview of their draft validation plan. In total, the 16 procedures would be validated on two aircraft types with different FMS (Airbus and Boeing) and in a range of met conditions, provisionally endorsed by the airlines subject to closer inspection. Airlines were asked whether they could support the sim validation process and several said that it may be possible. Helios agreed to circulate a list of requirements for sim validation and the draft validation plan prepared by Trax. Airlines will be contacted individually to see if they can support the sim validation.

**Action 7:** Helios to circulate to airlines the draft validation plan and sim validation requirements prepared by Trax.

**Action 8:** Helios to contact airlines individually to see if they can support the sim validation.

### Training & system requirements

NATS confirmed that no system changes (e.g. ExCDS) were necessary for the trial. Simulator training for ATCOs would be required but no issues were envisaged.

## 3. Key Points and Actions

This section summarises the key points and actions which were raised during the Technical Workshop.

### Key Points

Subject	Description
RF Leg capability	Some operators have aircraft capable of RF legs but do not have operational readiness 3-4 months is required for individual airlines to achieve the required status.
Procedure design	Transitions are connected from IAFs to the existing FAF, however there is a disconnect between the end of the STAR and the start of the transition.
Procedure design	The procedures designs will include not below 3000ft and 6000ft altitude restrictions.
Procedure design	The procedure designs will include maximum speeds only. ATC will instruct crews of any other speeds required for sequencing, safety and to minimise noise where possible.
Procedure operation	ATC must provide a clearance as early as possible to aid continuous descent management. An instruction will be developed identifying a minimum distance from touchdown by which the crew should receive clearance.
IFP Validation	The 16 procedures should be validated on two aircraft types with different FMS (Airbus and Boeing), in a range of met conditions.
AIS supplement	The AIS supplement will advise which transition crews should expect based on their STAR. One chart showing the four transitions should be developed for each runway.

Trial participation	ATC will assume that everyone is participating in the trial unless they are informed by the crew that they are unable to fly the procedure. In the event ATC cannot facilitate descent and/or direct routings, vectoring would resume.
Trial monitoring	Airlines will complete a trial feedback form for every flight participating in the trial. ATC will record any flight which does not participate in the trial.
System requirements	NATS confirmed that no system changes are required.

## Actions

Action	Owner
<b>Action 1:</b> Helios to update the RNN Trial Gantt chart to reflect the workshop feedback.	Helios
<b>Action 2:</b> Helios/NATS to develop an ATC instruction identifying a minimum distance from touchdown by which the crew should receive clearance.	Helios / NATS
<b>Action 3:</b> Trax to prepare a proposal for removal of the 1.5NM level segment prior to the FAF from the 08R/26L ILS approach procedures. NATS to present this proposal to the CAA at the upcoming Lead Operator Group meeting.	Trax / NATS
<b>Action 4:</b> Trax to investigate a suitable 5-letter naming convention for the proposed trial routes.	Trax
<b>Action 5:</b> Trax to update the procedures to include not below 3000ft altitude restrictions.	Trax
<b>Action 6:</b> Helios to develop a standard trial feedback form for flight deck crew.	Helios
<b>Action 7:</b> Helios to circulate to airlines the draft validation plan and sim validation requirements prepared by Trax.	Helios / Trax
<b>Action 8:</b> Helios to contact airlines individually to see if they can support the sim validation.	Helios

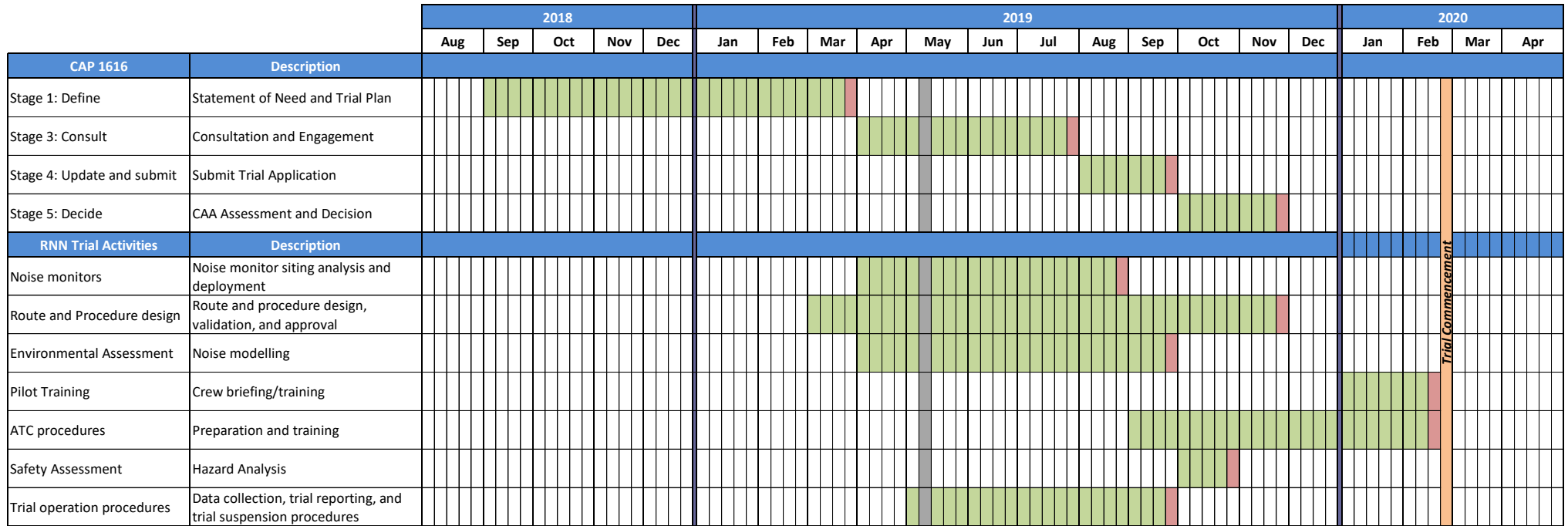
## 4. Next Steps

Output from the RNN Technical workshop will be used to develop the procedure design and support continued planning and preparation for the RNN trial.

Post meeting note – the formal Consultation with airlines is expected to be ‘launched’ at FLOPSC on 29<sup>th</sup> May for a period of 4 weeks. A consultation document will be circulated to industry stakeholders.

## Annex A

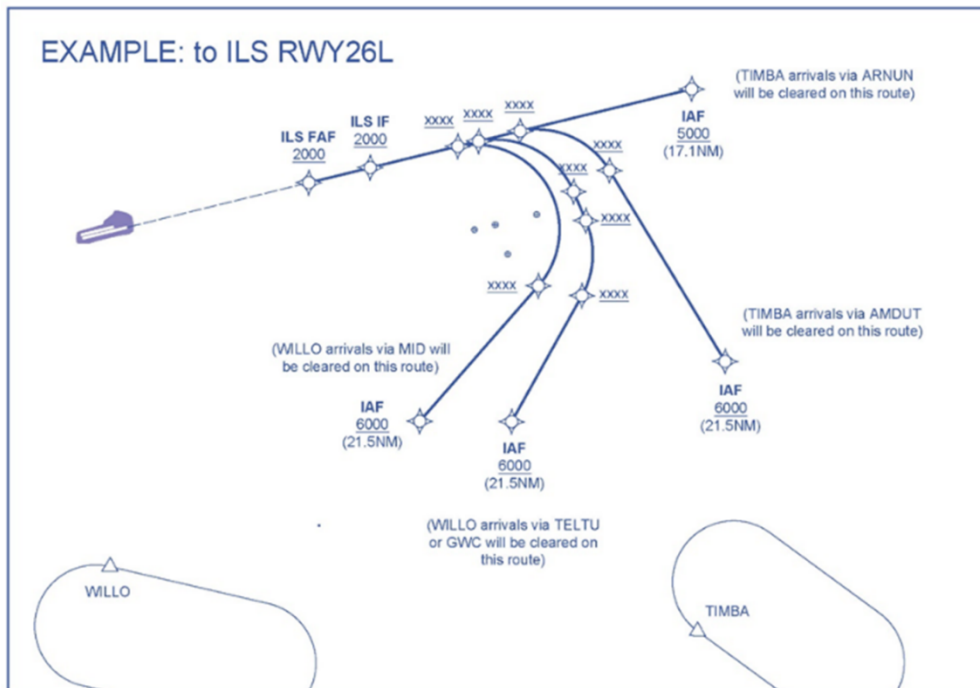
Below is a simplified Activity Gantt Chart illustrating planned activities through 2019. A detailed Gantt Chart was provided as a handout to the workshop for discussion. Note that these timescales are subject to change.



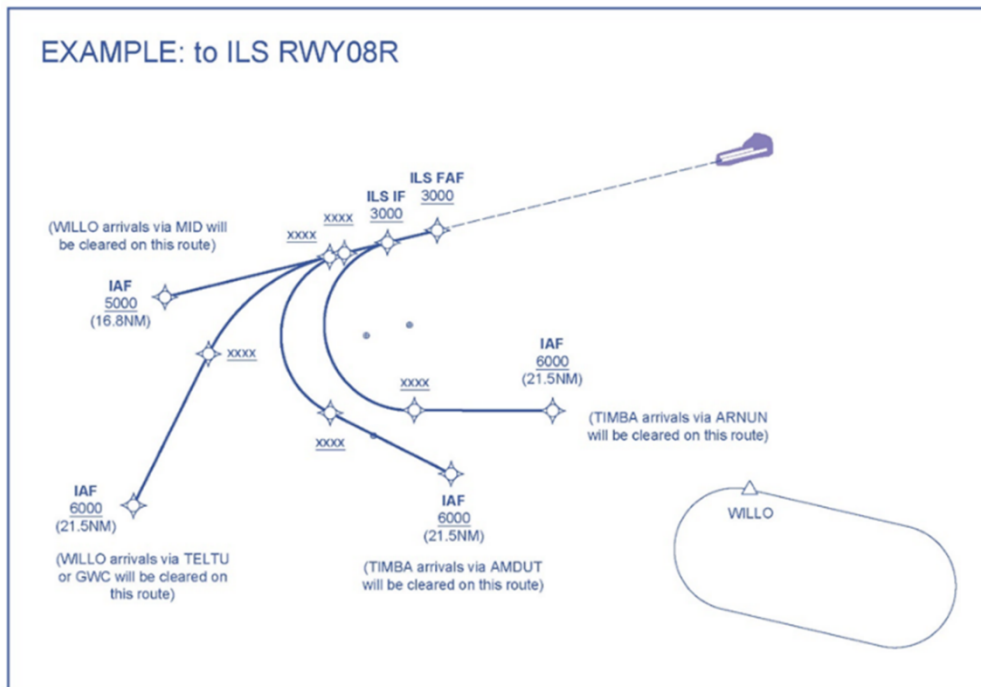
## Annex B

Below are trial concept examples to both 08R/26L and 08L/26R.

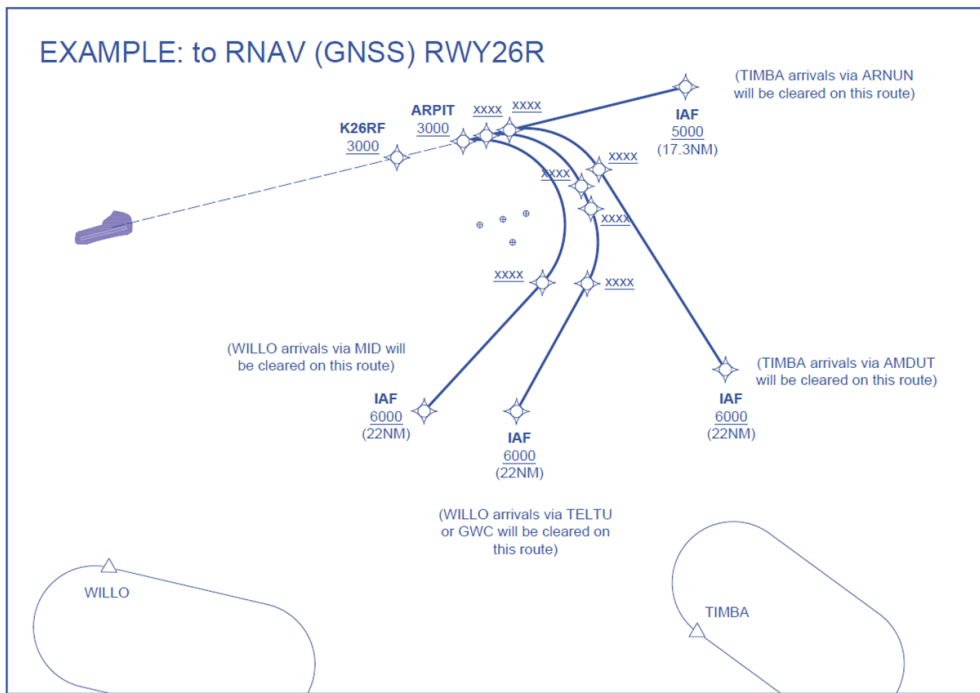
Post-meeting note: Updates have been made to 26L/R charts since this workshop.



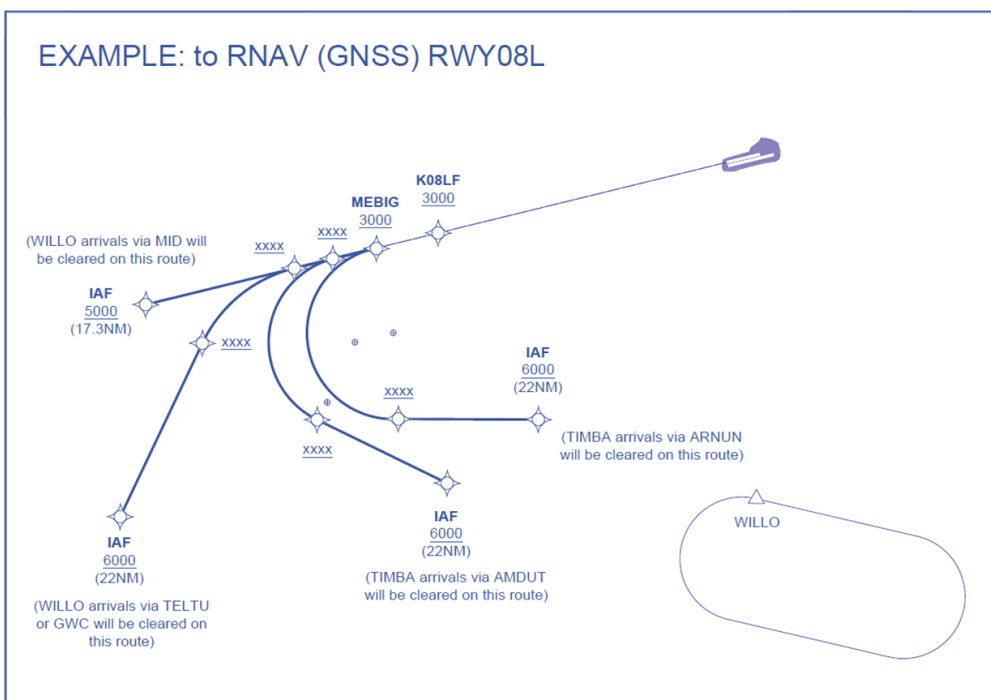
**Figure 2** Trial concept example for 26L ILS Arrivals



**Figure 1** Trial concept example for 08R ILS Arrivals



**Figure 3** Trial concept example for 26R GNSS Approach



**Figure 4** Trial concept example for 08L GNSS Approach