
# PBN for EMS Helicopters

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APPROACH19

Australasian PBN Forum

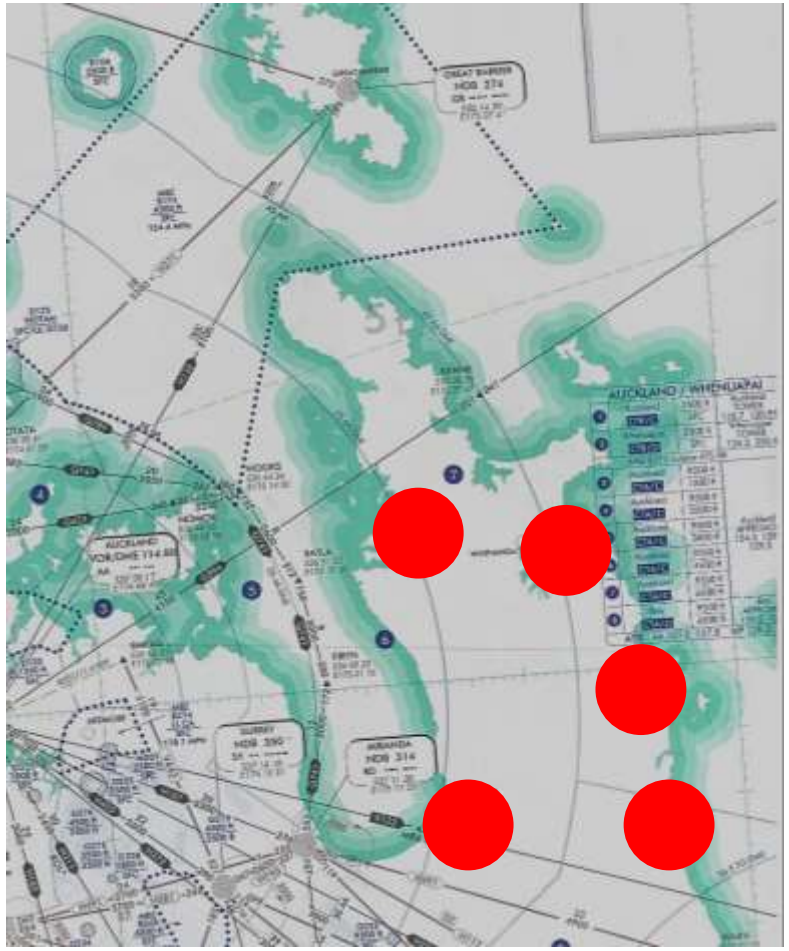
BENEFITS NOW

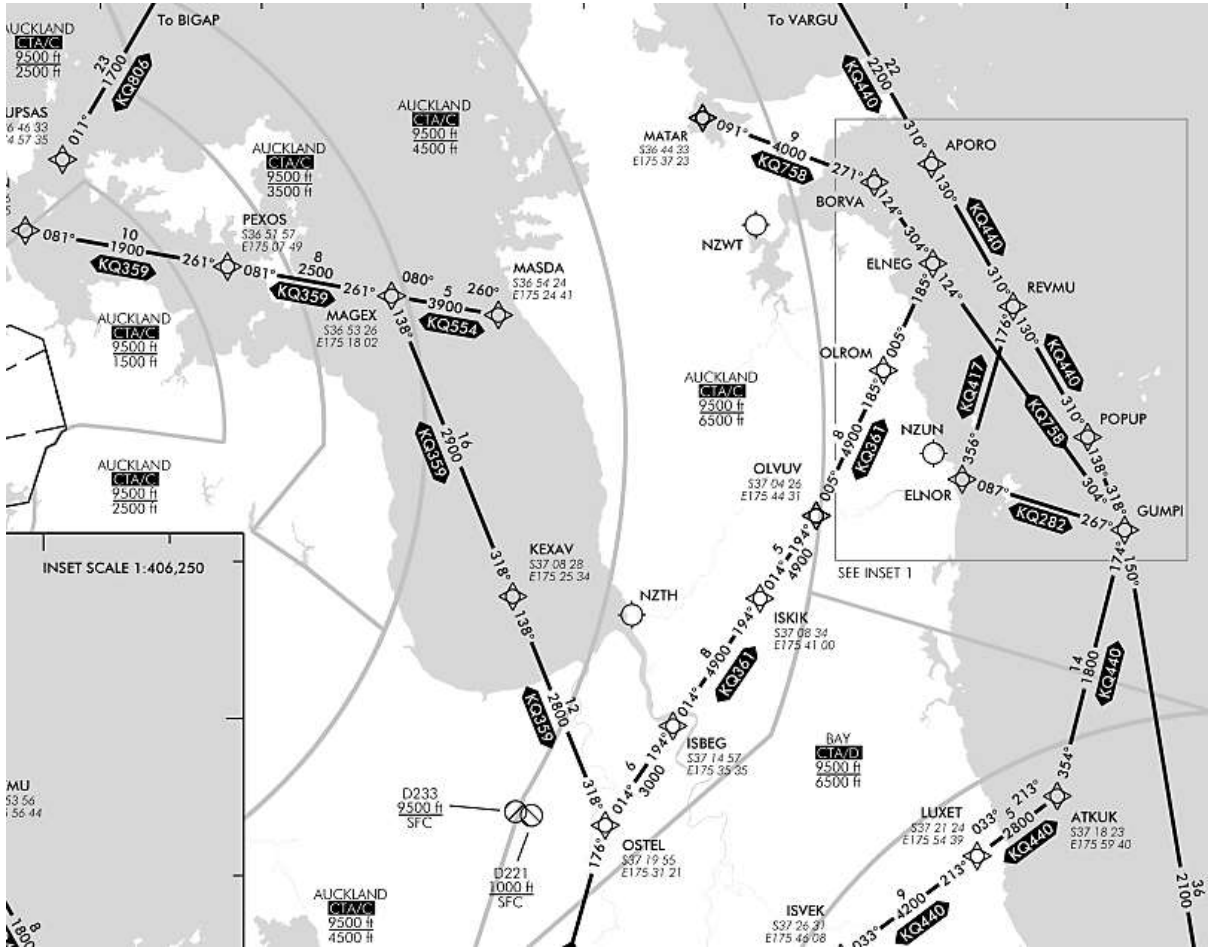
LESSONS LEARNT

FUTURE ENABLERS

# BENEFITS NOW

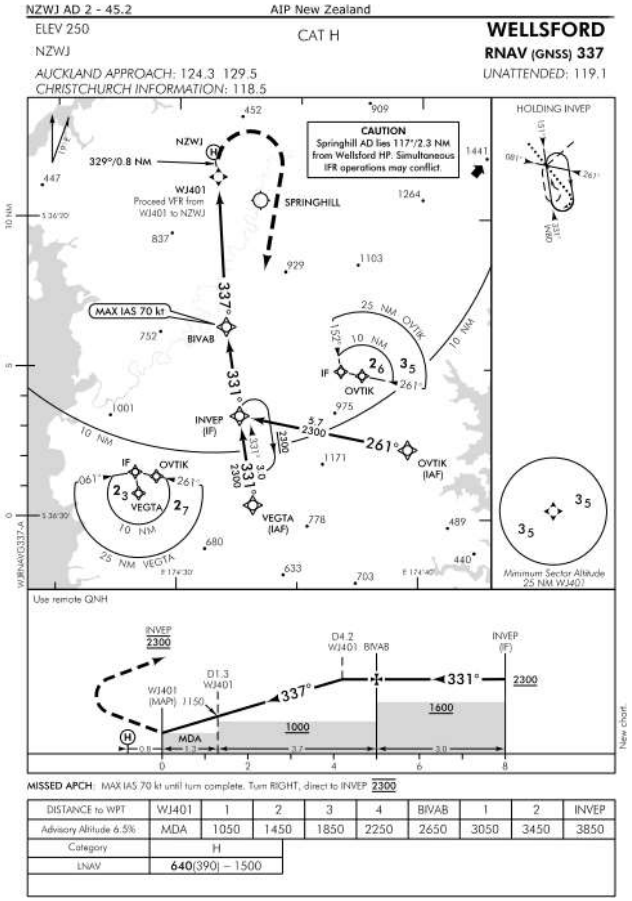
## Access to remote area patients





# BENEFITS NOW

## IFR as quick as VFR? Yes

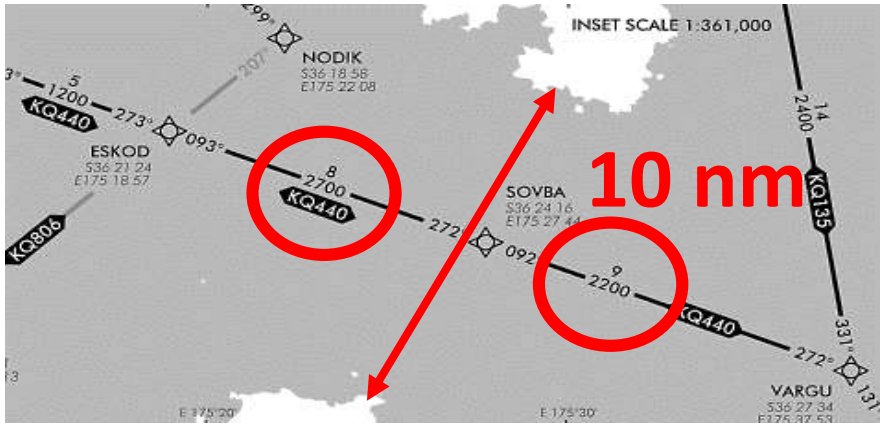



# LESSONS LEARNT

## Legacy GNSS vs RNP1

Should have just upgraded aircraft HSI to EHSI for ~$25k, huge regrets that ARHT didn't get RNP1 certified before the route structure was developed at great time/cost in Legacy GNSS spec


# LESSONS LEARNT




Legacy GNSS vs RNP1

Mistaken belief by former management that all the Legacy GNSS route structure leg MSA could just be ‘dropped down’ when later changing aircraft to RNP1 SID/STAR capable. Strong advice from procedure designers that this isn’t possible was ignored. Go for the nav spec (present and future) best suited for the route’s needs and listen to the experts.

# LESSONS LEARNT

## Route Structure

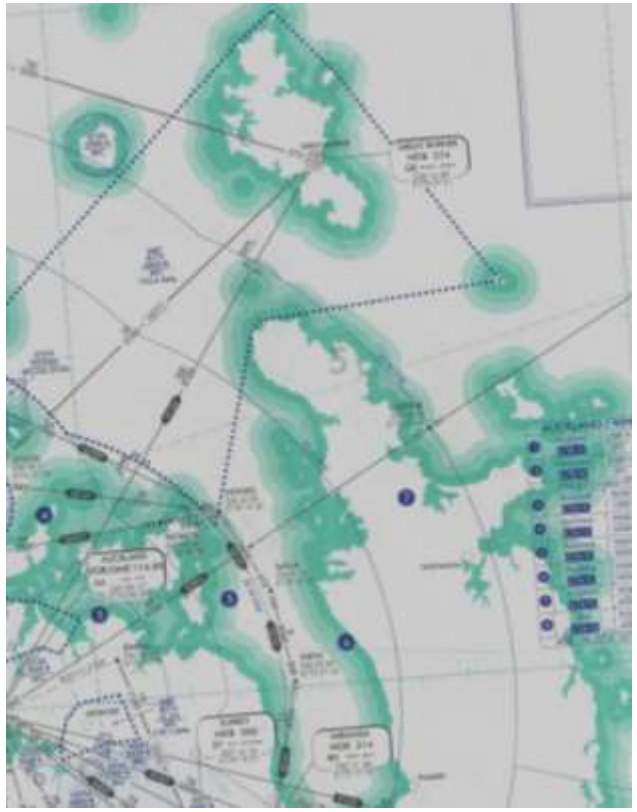
- Who pays for it / who owns it / who should pay for it? Approaches where the money comes from - not where they're needed first.
- Avoiding Controlled Airspace (>track nm vs. <time)
- Structure based around a hub – what if you move base like NZMB to NZAR? Which other operators (now/future) to link with the route structure? Future proofing.

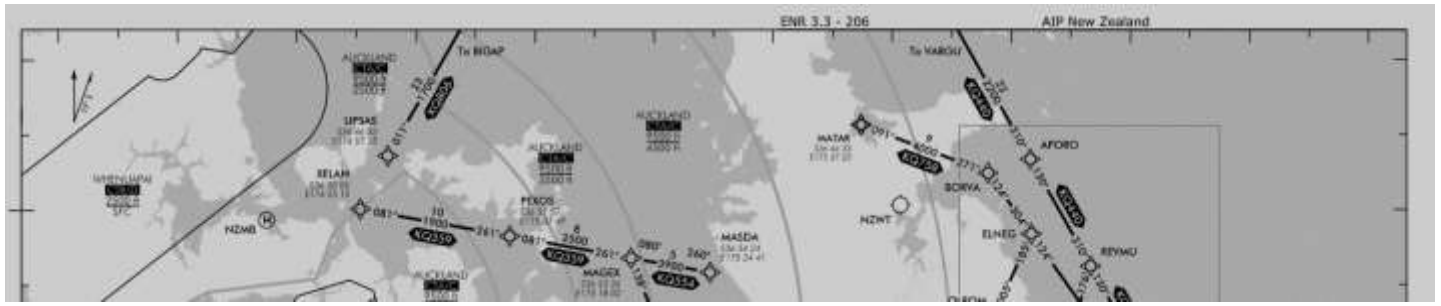
# FUTURE ENABLERS

**Charting.** Too many disjointed documents for the pilot to refer to.

Maybe the ERC's need to be changed to an ERC High and ERC Low?

ERC Low for helicopters / GA / small airlines / etc.



# FUTURE ENABLERS

## Regulatory:

- Sole means (Australia different why?)
- Non-GBNA Alternates (Australia RPT with 2 x TSO145/146 only requires a GNSS alternate. FAA allowing GNSS alternate)
- Contingency ‘emergency’ use of DR WXRDR IRU. Canada up to 100nm DR for contingency loss of GNSS to reach a GBNA. FAA AC has been available for decades to do wx radar IFR descent over water. IRU coming in future (Rega Switzerland AW169).
- RNP0.3 Enroute. Needs SBAS which might still be a few years away, or enroute RAIM which is available free from FAA in USA. How large are the existing NZ aerodrome RAIM ‘circles’ given via IFIS Airways? Can the circles be linked together along a route?

# FUTURE ENABLERS

Navigation Technology:

- APV (SBAS vs non-SBAS)
- RF Legs. Reduce track miles in terminal airspace reduces time to the patient. Enables shallower descents via curved lower terrain paths.
- RNP-AR. Rega Switzerland tested in A109 with add-on IRU allows RF along FAS and RNP0.1 due confined terrain Samedan airport.

# FUTURE ENABLERS

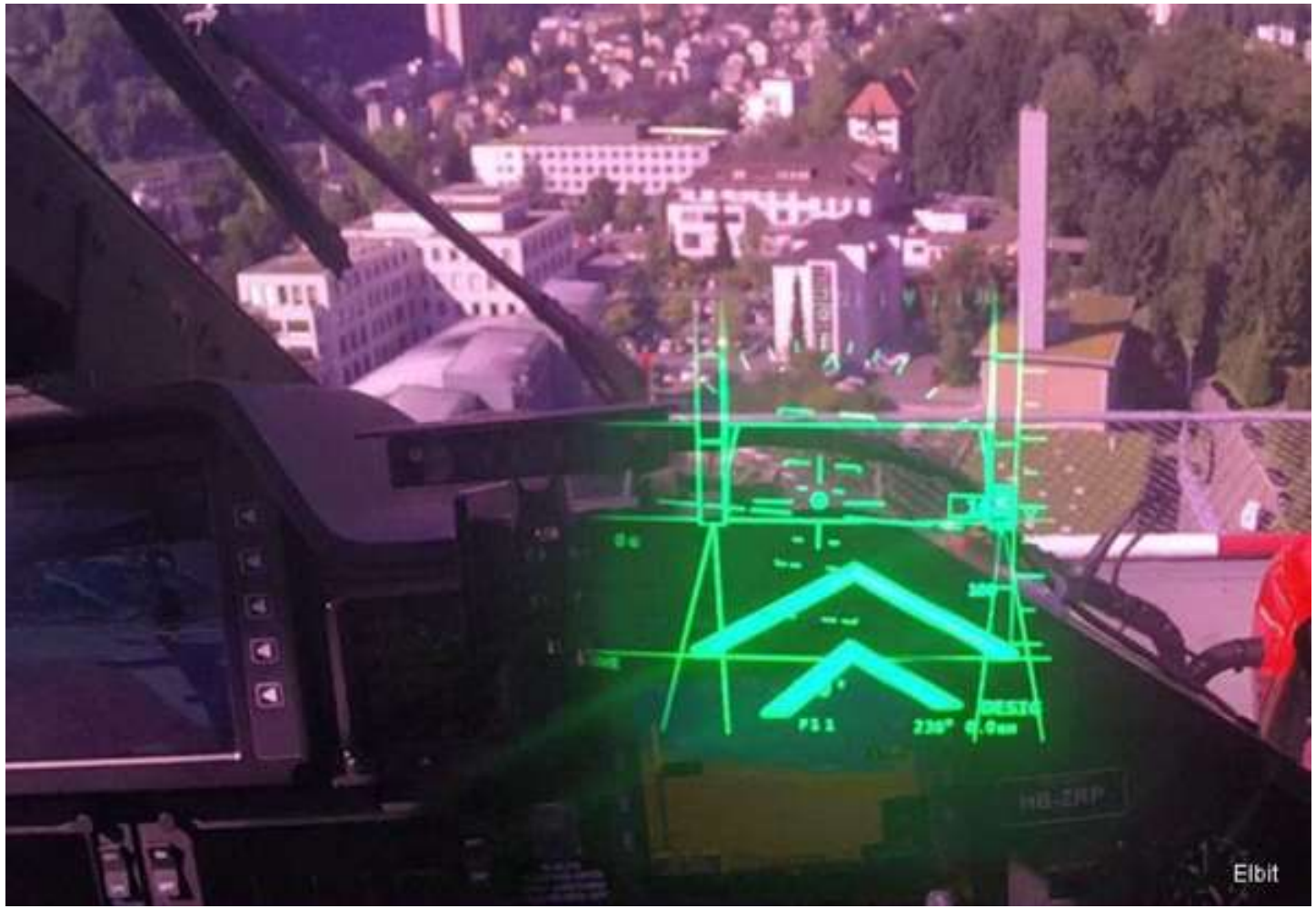
## Remote Weather Station Network

- Cloud / Vis / QNH
- Steerable webcams (synthesised with outline of terrain to help interpret picture)
- Integrated with rest of country and Metservice and able to be transmitted into cockpit when airborne

# FUTURE ENABLERS

Aircraft Technology:

- Icing
- Obstacles (database vs real-time)
- IFP design in real-time
- EVS
- Piloting HUD

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# QUESTIONS?