HAWKE'S BAY PBN CONSULTATION - NZNR

November 2022

Tim Brazier
Phil Rakena

3 November 2022

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Hawke's Bay PBN - History

- PBN Implementation Project commenced in 2009 with NZQN
- Then rolled out to the international aerodromes (AA, WN, CH) over
- Regional aerodromes implementation started with HN, TG and RO in 2016
- The final regional aerodrome implementation was NS in 2018

WHAT ABOUT NAPIER AND GISBORNE?

- Originally scheduled alongside NS
- Delayed in 2018 due to resourcing (NS, NR and GS too much at once)
- Delayed in 2019 due to NR Tower staffing
- Delayed in 2020 due to the first COVID lockdown
- Delayed in 2021 due to the ongoing COVID impact on the aviation industry

Hawke's Bay PBN - ConOps

CONCEPT OF OPERATIONS

Nav Specification

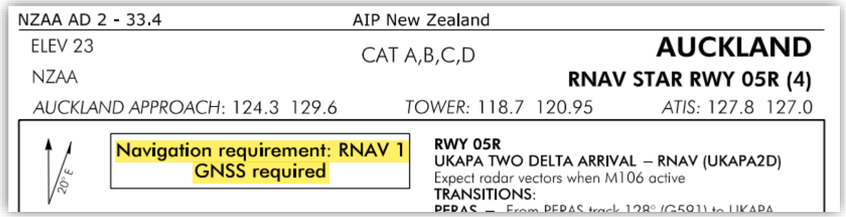
- Enroute RNAV2, with surveillance
- SIDs/STARs RNP1 Regional / RNAV1 International (due 24/7 ATC surveillance)

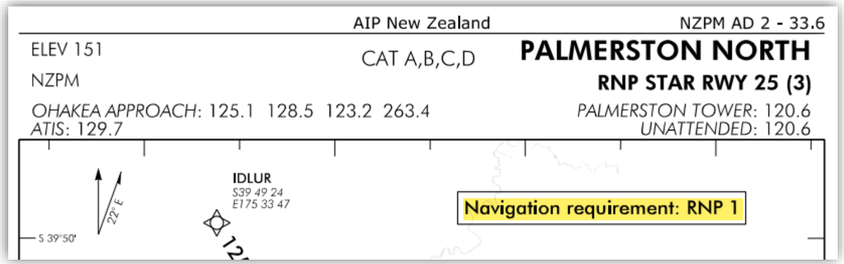
Routes – separated city-pairs and, where possible, SIDs/STARs

Limited NDB/VOR routing retained for non-certified/contingencies

Priority to PBN traffic

SIDs and STARs issued early – pilots can plan ahead and optimise profiles





10.3 Granting of Priorities

10.3.1 Priority will be given to the aircraft first able to use the airspace or manoeuvring area; **except**:

(a) where a more orderly flow or a significant economic benefit for a number of other aircraft would result by deferring this priority;

(b) where a significantly greater economic penalty to another aircraft would result e.g. by permitting a light aircraft to operate ahead of a large jet aircraft;

(c) aircraft operating in the normal pattern will be given priority over aircraft desiring to operate in conflicting patterns;

(d) where a training instrument approach has been approved, normal priority will be given to the aircraft from the time it commences final approach; and

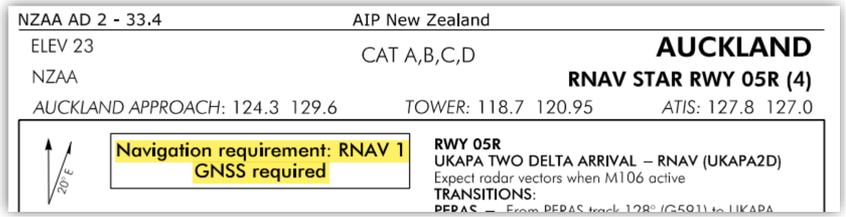
(e) where prior arrangement has been made for flight inspection checks and a priority has been predetermined.

(f) where PBN has been implemented, priority may be given to PBN operations over non-PBN operations.

Hawke's Bay PBN - ConOps

BENEFITS & DOWNSIDES

- Reduce delays, improve capacity and increase or maintain safety
- Separated inbounds/outbounds
- Consistent and predictable
- But:
  - Flexibility reduces, for less complex, simpler, safer IFPS
  - Mixed-mode RNP vs VOR-based IFPs adds complexity
  - Track miles *may* increase


NZAA AD 2 - 33.4 AIP New Zealand

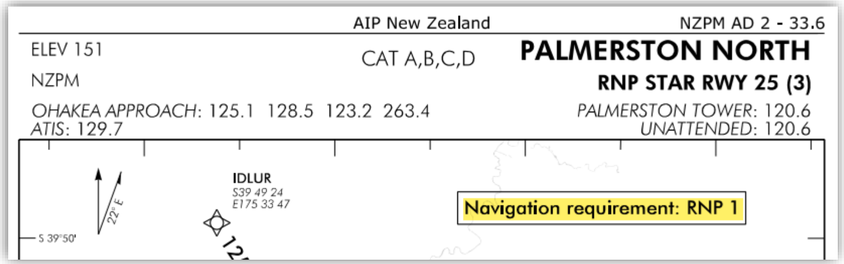
ELEV 23 CAT A,B,C,D **AUCKLAND**

NZAA **RNAV STAR RWY 05R (4)**

AUCKLAND APPROACH: 124.3 129.6 *TOWER*: 118.7 120.95 *ATIS*: 127.8 127.0

Navigation requirement: RNAV 1
GNSS required

RWY 05R
UKAPA TWO DELTA ARRIVAL – RNAV (UKAPA2D)
Expect radar vectors when M106 active
TRANSITIONS:


AIP New Zealand NZPM AD 2 - 33.6

ELEV 151 CAT A,B,C,D **PALMERSTON NORTH**

NZPM **RNP STAR RWY 25 (3)**

OHAKEA APPROACH: 125.1 128.5 123.2 263.4 *PALMERSTON TOWER*: 120.6
ATIS: 129.7 *UNATTENDED*: 120.6

IDLUR
S39 49 24
E175 33 47

Navigation requirement: RNP 1

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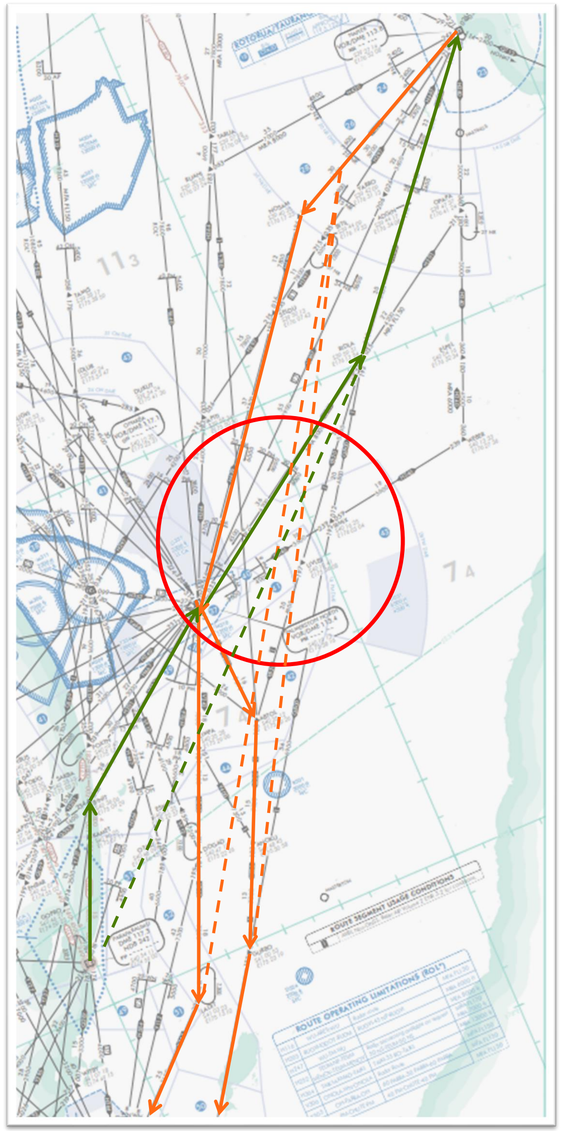
Hawke's Bay PBN – Napier Flow Reversal

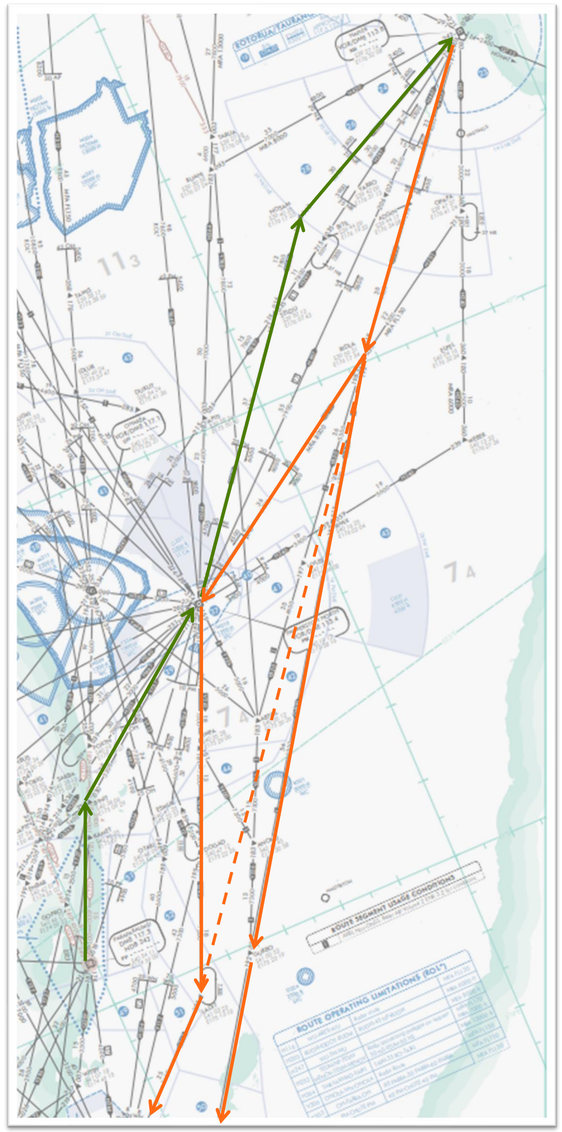


CURRENT

- Outbound (NZWN & NZCH) and inbound traffic cross in Ohakea airspace (regardless of direct tracking)
- Most often while aircraft are in climb/descent

PROPOSED

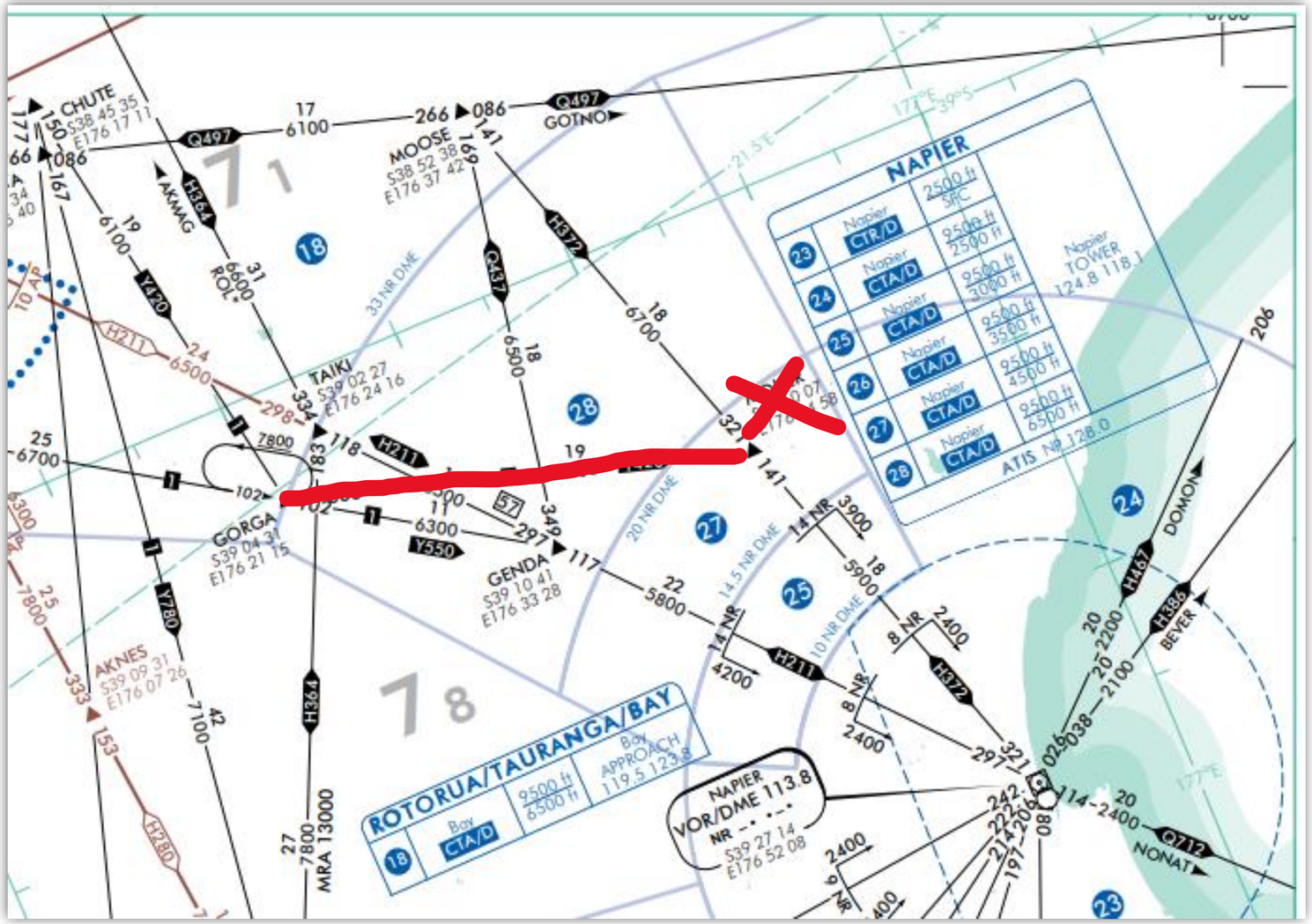
- Only NZWN outbounds conflict with inbounds, if left on track
- With direct tracking outbound and inbound traffic do not cross at all
- Uninterrupted climb/descent



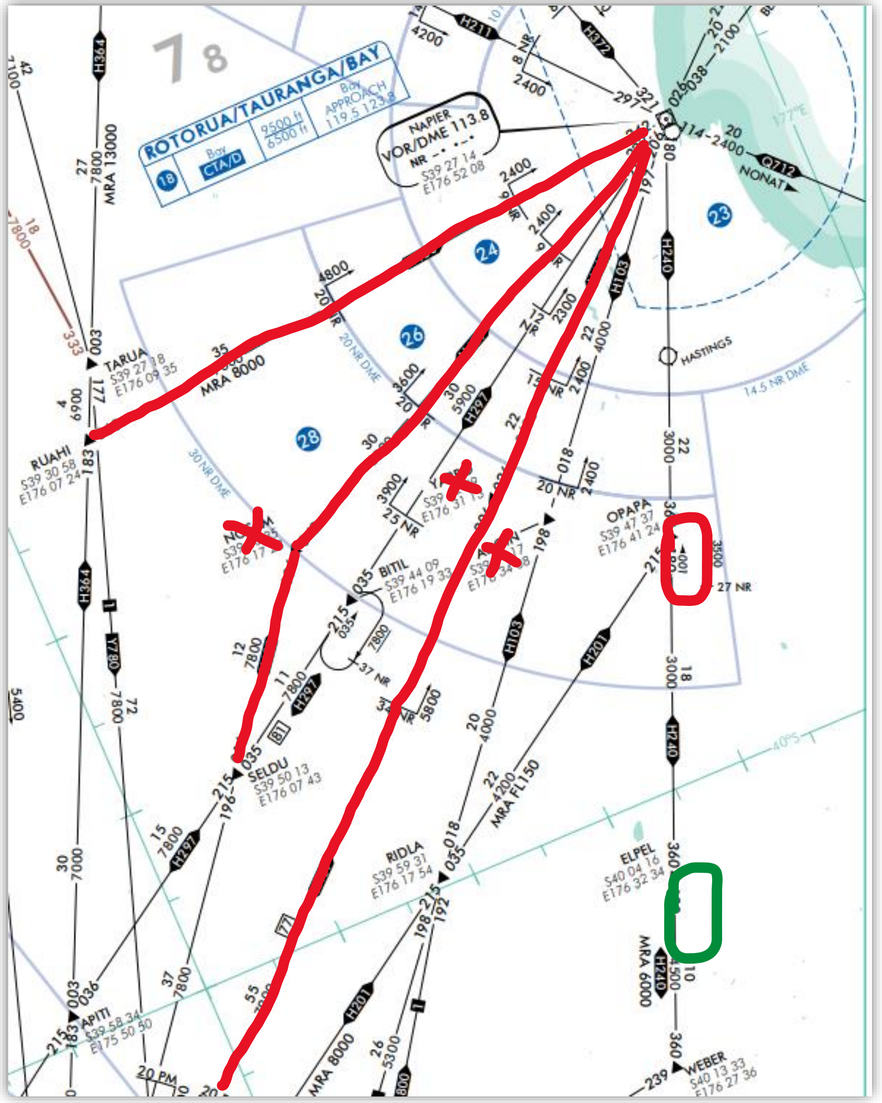
Hawke's Bay PBN – Napier Routes (North)

ASSUMPTIONS
- H103 WPT ADGIN removed
- H372 WPT MOKER removed
- H429 NR VOR-NOSAM-SELDU removed
- H430 NR VOR-RUAHI removed
- H467 PM VOR-YARRO-NR VOR removed
- OPAPA hold removed
- Q800 removed south of IRMIX
- Y420 GORGA-MOKER removed
- VOR/DME APCH AKINA and AROPA holds disestablished

- Y420 added in 2016 when flow was reversed for PBN into Bay Sector – not deemed necessary now
- MOKER will be replaced by a new WPT to comply with 30NM rule (from HS – see SIDs on later slide)



Hawke's Bay PBN – Napier Routes (South)



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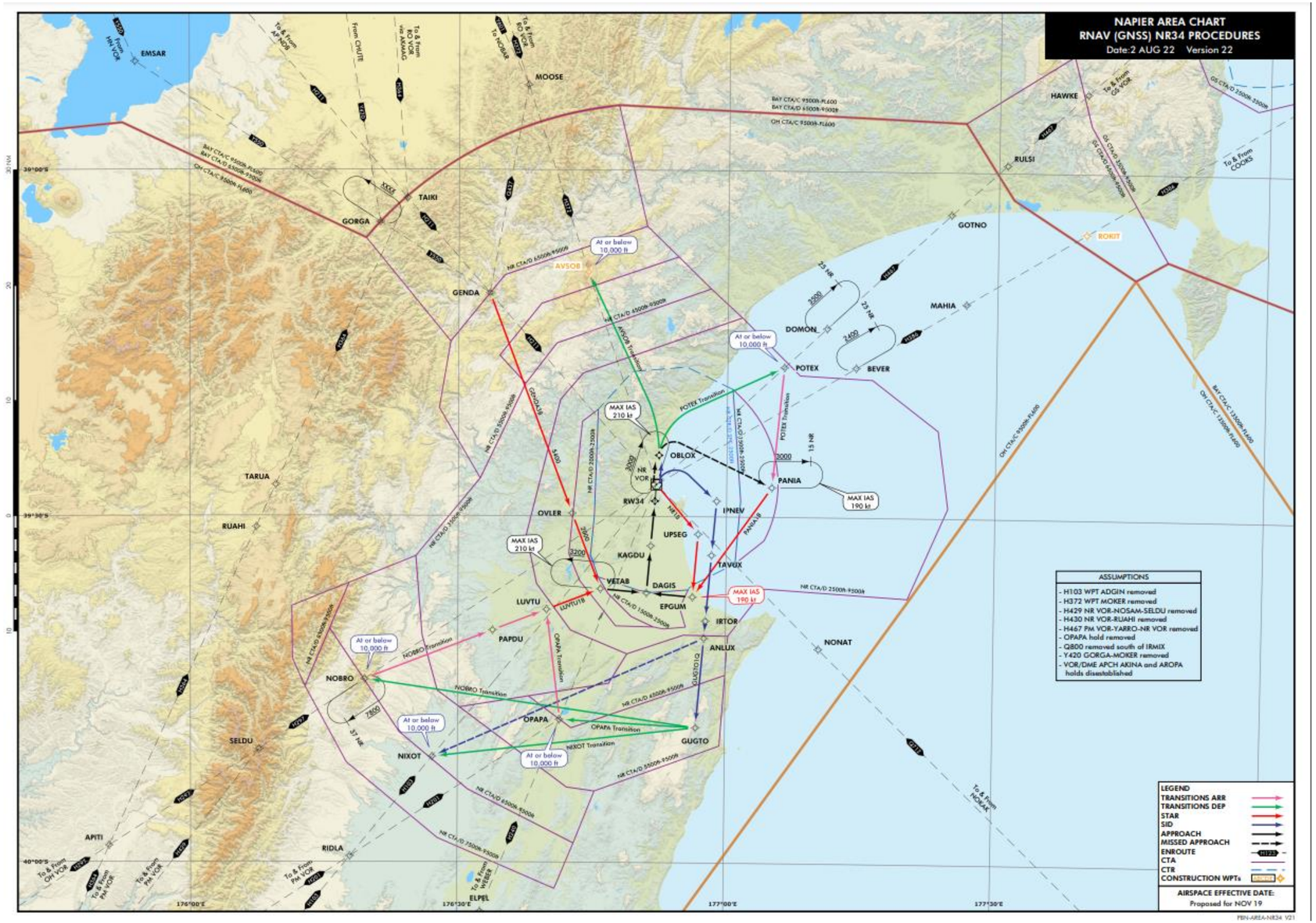
- H467 PM VOR-YARRO-NR VOR removed
- OPAPA hold removed
- Q800 removed south of IRMIX
- Y420 GORGA-MOKER removed
- VOR/DME APCH AKINA and AROPA holds disestablished

- ADGIN replaced by new WPT at 30NM (end of SID)
- H429 to SELDU unnecessary
- H430 very rarely used, can reduce airspace by removing
- H467 PM-NR direct track removed – troublesome to separate against
- OPAPA enroute hold replaced by new one at ELPEL (to south) to reduce airspace required

Hawke's Bay PBN – Napier RW34



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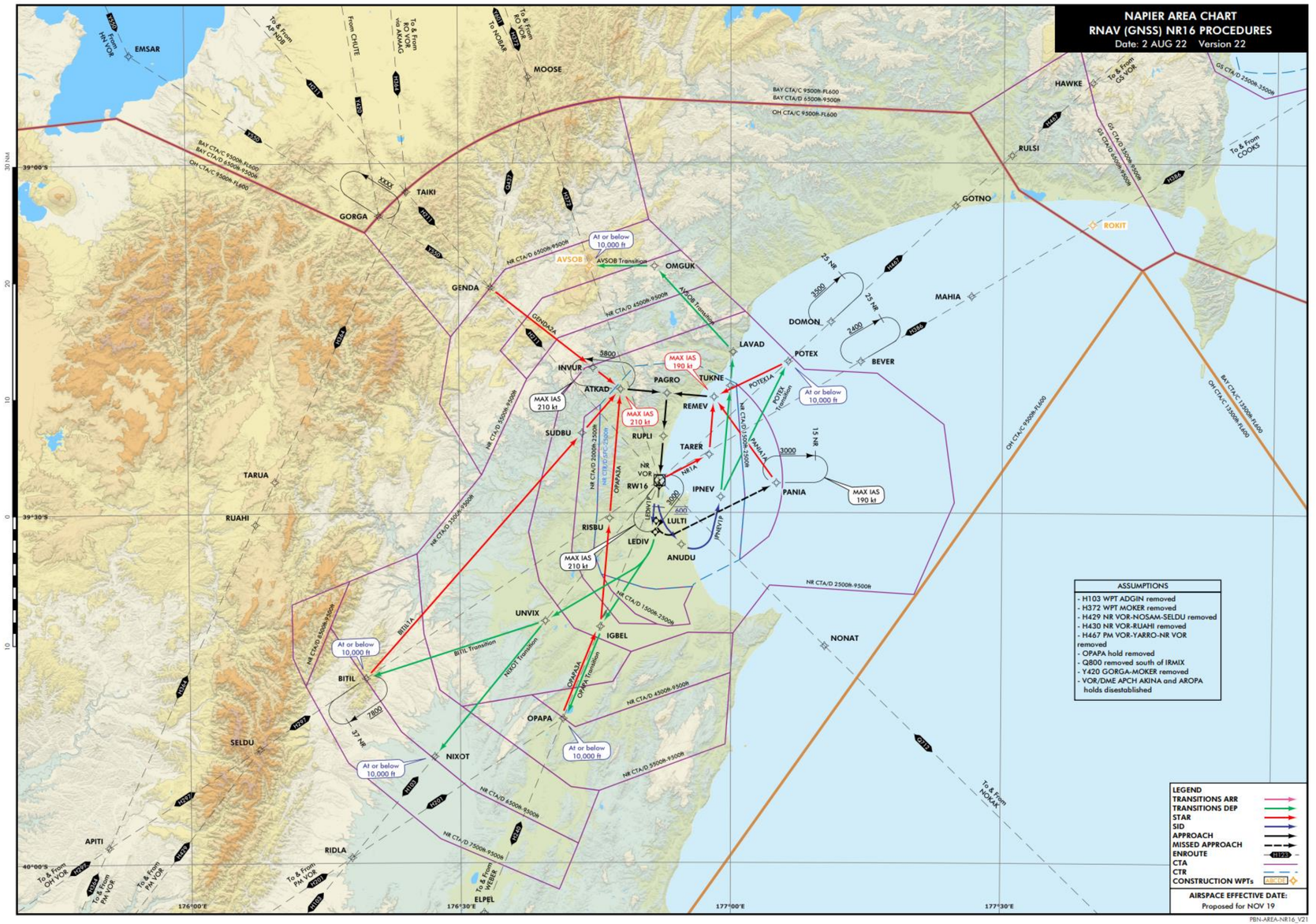
Hawke's Bay PBN – Napier RW16



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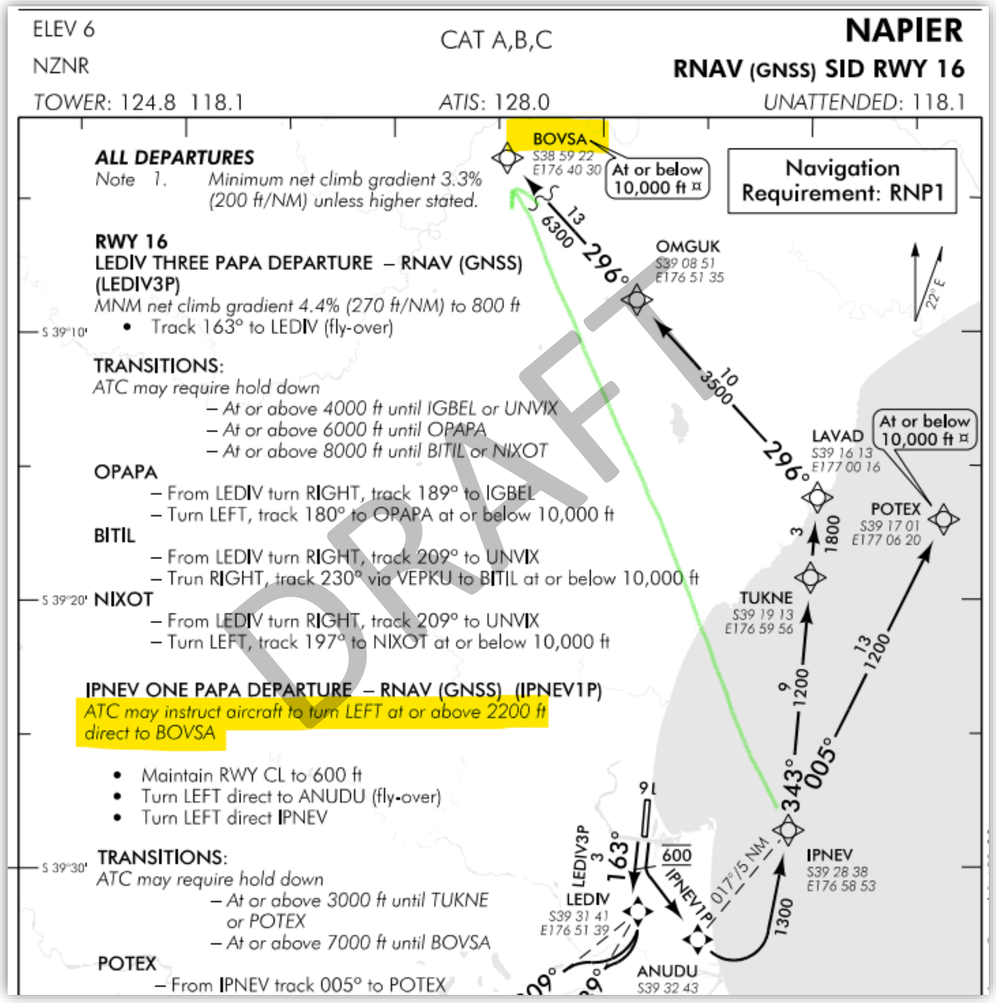
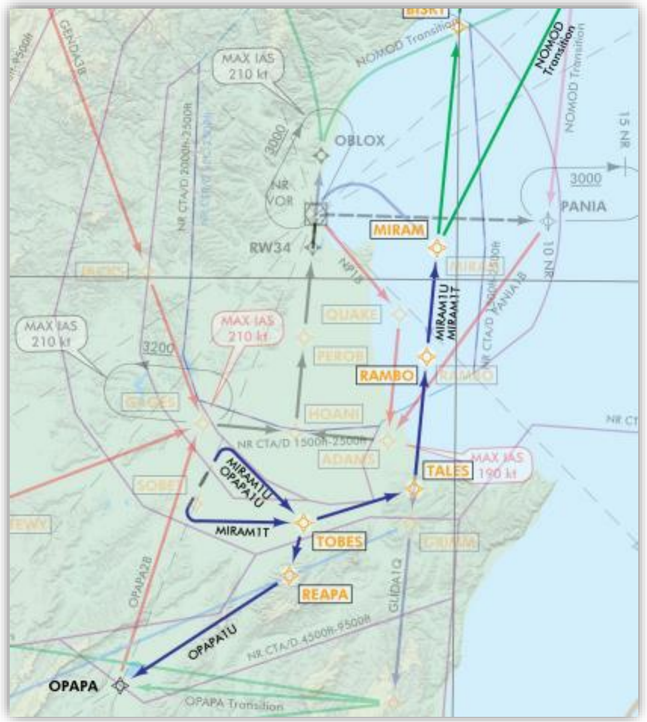
Hawke's Bay PBN – Napier SID Direct tracking

- Where deemed advantageous, direct tracking will be built into SIDs
- Allows ATC to shorten track miles when a conflict is resolved e.g. once vertical separation is in place
- Direct tracking has been assessed for both airspace containment and obstacles
- Retains consistency and predictability

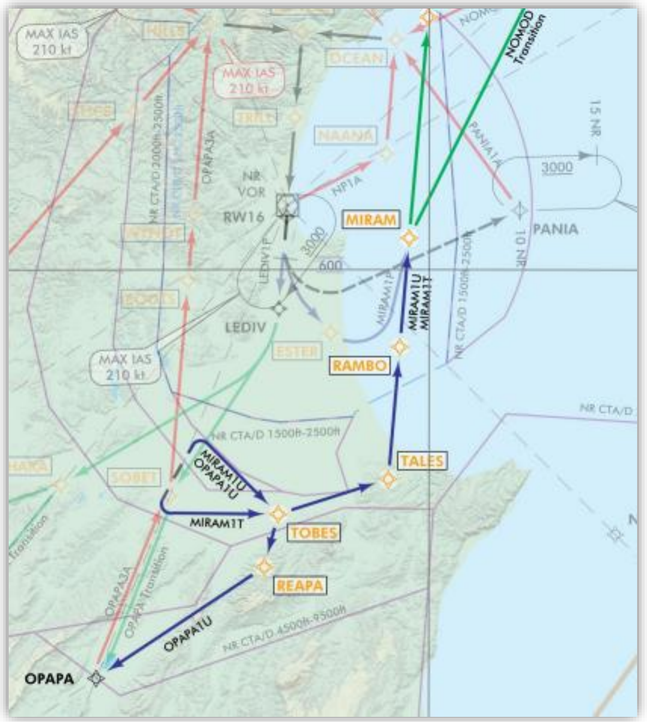


Hawke's Bay PBN – Hastings SIDs

- RNP1 SIDs added at NZHS
- Existing IFPs remain
- SIDs designed to track as quickly as possible to a separated point, then join the same tracking as SIDs from NR
- Due to proximity to NR, there will still be times where ground delays are necessary



NZHS SIDs vs NZNR RW34 IFPs



NZHS SIDs vs NZNR RW16 IFPs

Hawke's Bay PBN – Napier IFPs removed

AIRWAYS

A. PROCEDURES

A.1. Delete the following IFPs:

a. OPAPA ONE CHARLIE arrival

b. NAPIER TWO CHARLIE arrival

c. NAPIER TWO BRAVO arrival

d. 16 LIMA THREE departure

e. 34 LIMA THREE departure

f. AKINA hold (VOR/DME RWY16 x2)

g. AROPA holds (VOR/DME RWY34)

A.2. Amend the following IFPs:

a. NR VOR overhead holds (assess/publish for airspace contain

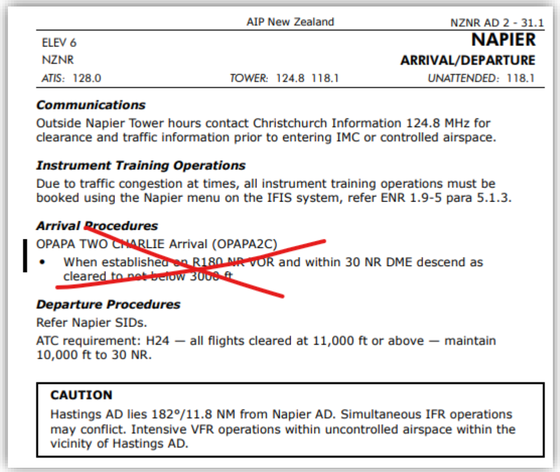
b. 16 MIKE THREE departure (assess/publish for airspace conta

c. 34 MIKE THREE departure (assess/publish for airspace conta

d. 34 NOVEMBER THREE departure (assess/publish for airspace

e. Evaluated Climb Sector (R005-R200) (assess/publish for airs

Proposing the removal of a few current IFPs, and amendments to others (if required for airspace containment)



AIP New Zealand NZNR AD 2 - 31.1

ELEV 6 **NAPIER**

NZNR **ARRIVAL/DEPARTURE**

ATIS: 128.0 TOWER: 124.8 118.1 UNATTENDED: 118.1

Communications

Outside Napier Tower hours contact Christchurch Information 124.8 MHz for clearance and traffic information prior to entering IMC or controlled airspace.

Instrument Training Operations

Due to traffic congestion at times, all instrument training operations must be booked using the Napier menu on the IFIS system, refer ENR 1.9-5 para 5.1.3.

Arrival Procedures

OPAPA TWO CHARLIE Arrival (OPAPA2C)

- When established on R180 NR VOR and within 30 NR DME descend as cleared to not below 3000 ft

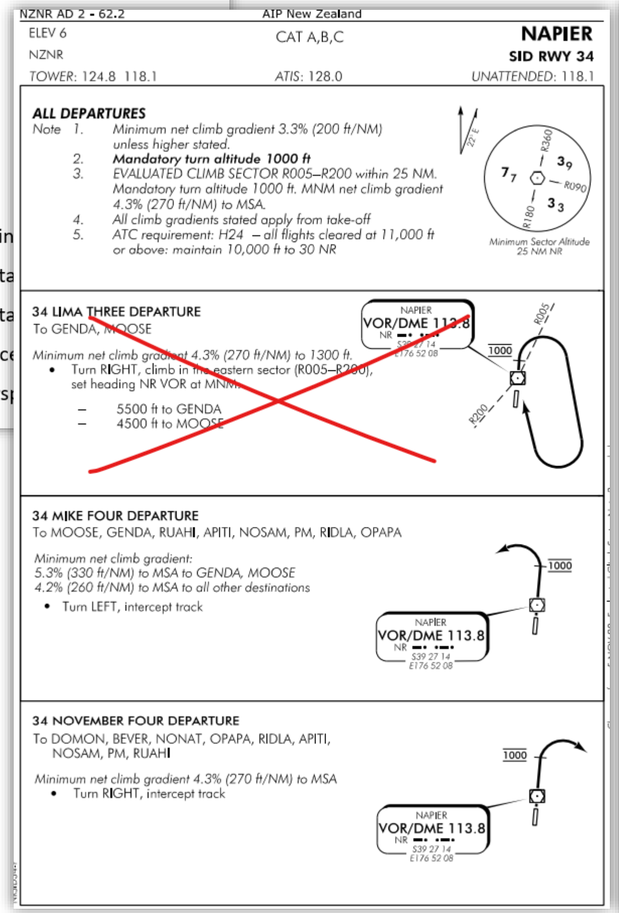
Departure Procedures

Refer Napier SIDs.

ATC requirement: H24 — all flights cleared at 11,000 ft or above — maintain 10,000 ft to 30 NR.

CAUTION

Hastings AD lies 182°/11.8 NM from Napier AD. Simultaneous IFR operations may conflict. Intensive VFR operations within uncontrolled airspace within the vicinity of Hastings AD.



NZNR AD 2 - 62.2 AIP New Zealand

ELEV 6 CAT A,B,C **NAPIER**

NZNR **SID RWY 34**

TOWER: 124.8 118.1 ATIS: 128.0 UNATTENDED: 118.1

ALL DEPARTURES

Note 1. *Minimum net climb gradient 3.3% (200 ft/NM) unless higher stated.*

2. ***Mandatory turn altitude 1000 ft***

3. *EVALUATED CLIMB SECTOR R005–R200 within 25 NM. Mandatory turn altitude 1000 ft. MNM net climb gradient 4.3% (270 ft/NM) to MSA.*

4. *All climb gradients stated apply from take-off*

5. *ATC requirement: H24 — all flights cleared at 11,000 ft or above: maintain 10,000 ft to 30 NR*

Minimum Sector Altitude 25 NM NR

34 LIMA THREE DEPARTURE

To GENDA, MOOSE

Minimum net climb gradient 4.3% (270 ft/NM) to 1300 ft.

- Turn RIGHT, climb in the eastern sector (R005–R200), set heading NR VOR at MNM:
  - 5500 ft to GENDA
  - 4500 ft to MOOSE

NAPIER VOR/DME 113.8 NR S39 27 14 E176 52 08

34 MIKE FOUR DEPARTURE

To MOOSE, GENDA, RUAHI, APITI, NOSAM, PM, RIDLA, OPAPA

Minimum net climb gradient:
5.3% (330 ft/NM) to MSA to GENDA, MOOSE
4.2% (260 ft/NM) to MSA to all other destinations

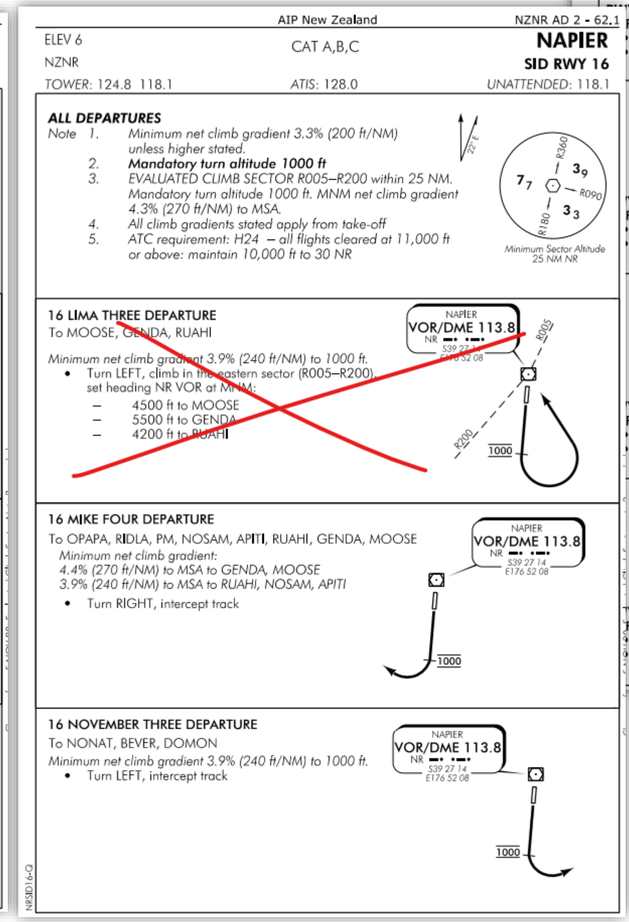
- Turn LEFT, intercept track

34 NOVEMBER FOUR DEPARTURE

To DOMON, BEVER, NONAT, OPAPA, RIDLA, APITI, NOSAM, PM, RUAHI

Minimum net climb gradient 4.3% (270 ft/NM) to MSA

- Turn RIGHT, intercept track



AIP New Zealand NZNR AD 2 - 62.1

ELEV 6 CAT A,B,C **NAPIER**

NZNR **SID RWY 16**

TOWER: 124.8 118.1 ATIS: 128.0 UNATTENDED: 118.1

ALL DEPARTURES

Note 1. *Minimum net climb gradient 3.3% (200 ft/NM) unless higher stated.*

2. ***Mandatory turn altitude 1000 ft***

3. *EVALUATED CLIMB SECTOR R005–R200 within 25 NM. Mandatory turn altitude 1000 ft. MNM net climb gradient 4.3% (270 ft/NM) to MSA.*

4. *All climb gradients stated apply from take-off*

5. *ATC requirement: H24 — all flights cleared at 11,000 ft or above: maintain 10,000 ft to 30 NR*

Minimum Sector Altitude 25 NM NR

16 LIMA THREE DEPARTURE

To MOOSE, GENDA, RUAHI

Minimum net climb gradient 3.9% (240 ft/NM) to 1000 ft.

- Turn LEFT, climb in the eastern sector (R005–R200), set heading NR VOR at MNM:
  - 4500 ft to MOOSE
  - 5500 ft to GENDA
  - 4200 ft to RUAHI

NAPIER VOR/DME 113.8 NR S39 27 14 E176 52 08

16 MIKE FOUR DEPARTURE

To OPAPA, RIDLA, PM, NOSAM, APITI, RUAHI, GENDA, MOOSE

Minimum net climb gradient:
4.4% (270 ft/NM) to MSA to GENDA, MOOSE
3.9% (240 ft/NM) to MSA to RUAHI, NOSAM, APITI

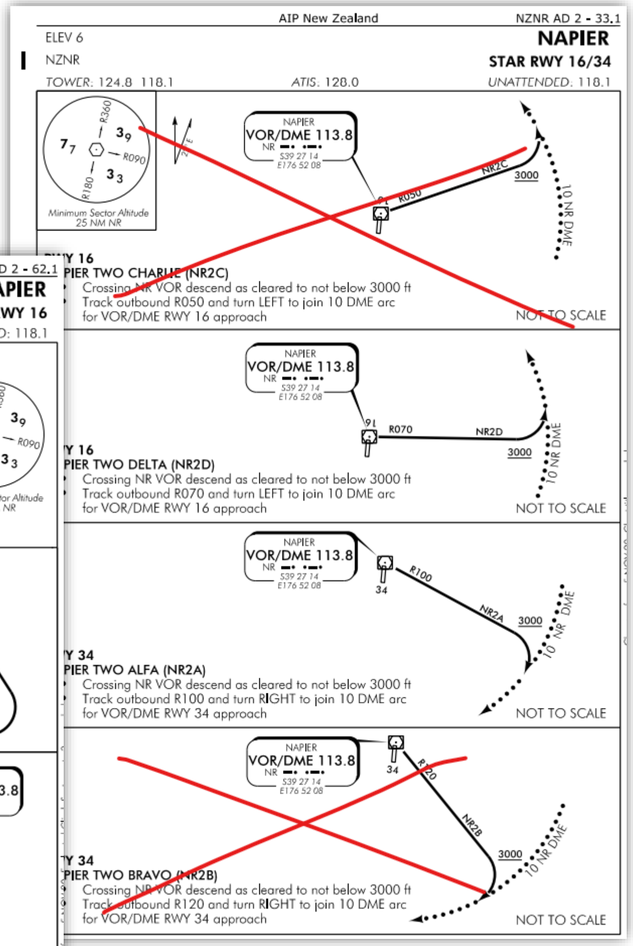
- Turn RIGHT, intercept track

16 NOVEMBER THREE DEPARTURE

To NONAT, BEVER, DOMON

Minimum net climb gradient 3.9% (240 ft/NM) to 1000 ft.

- Turn LEFT, intercept track



AIP New Zealand NZNR AD 2 - 33.1

ELEV 6 **NAPIER**

NZNR **STAR RWY 16/34**

TOWER: 124.8 118.1 ATIS: 128.0 UNATTENDED: 118.1

Minimum Sector Altitude 25 NM NR

NAPIER VOR/DME 113.8 NR S39 27 14 E176 52 08

Y 16
PIER TWO CHARLIE (NR2C)
Crossing NR VOR descend as cleared to not below 3000 ft
Track outbound R050 and turn LEFT to join 10 DME arc for VOR/DME RWY 16 approach
NOT TO SCALE

Y 16
PIER TWO DELTA (NR2D)
Crossing NR VOR descend as cleared to not below 3000 ft
Track outbound R070 and turn LEFT to join 10 DME arc for VOR/DME RWY 16 approach
NOT TO SCALE

Y 34
PIER TWO ALFA (NR2A)
Crossing NR VOR descend as cleared to not below 3000 ft
Track outbound R100 and turn RIGHT to join 10 DME arc for VOR/DME RWY 34 approach
NOT TO SCALE

Y 34
PIER TWO BRAVO (NR2B)
Crossing NR VOR descend as cleared to not below 3000 ft
Track outbound R120 and turn RIGHT to join 10 DME arc for VOR/DME RWY 34 approach
NOT TO SCALE

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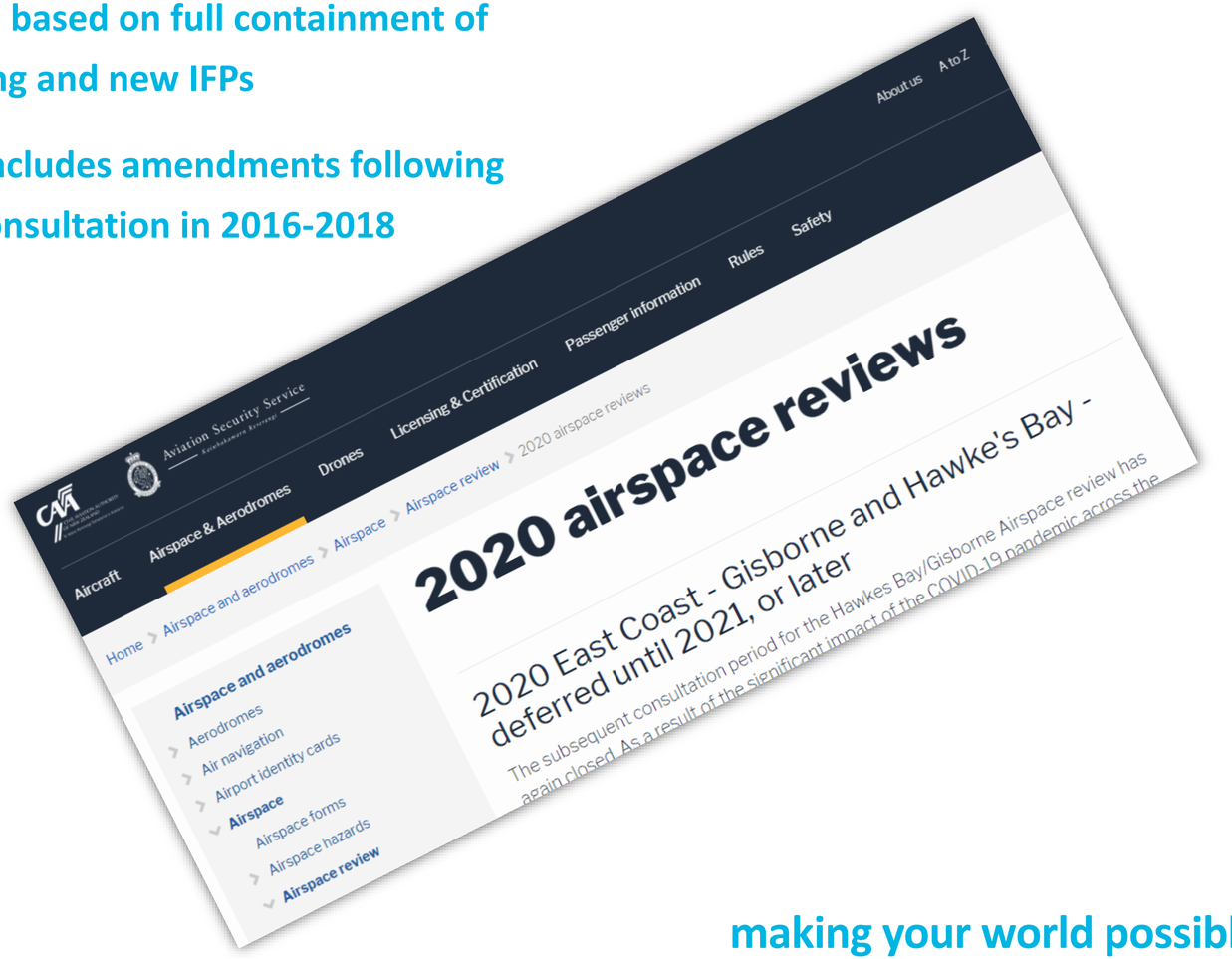
Hawke's Bay PBN – Napier Airspace

NR Airspace Amend v5 25 November 2018

- Airways will make a submission to CAA following the consultation meetings
- Submission based on full containment of both existing and new IFPs
- Version 5 includes amendments following previous consultation in 2016-2018



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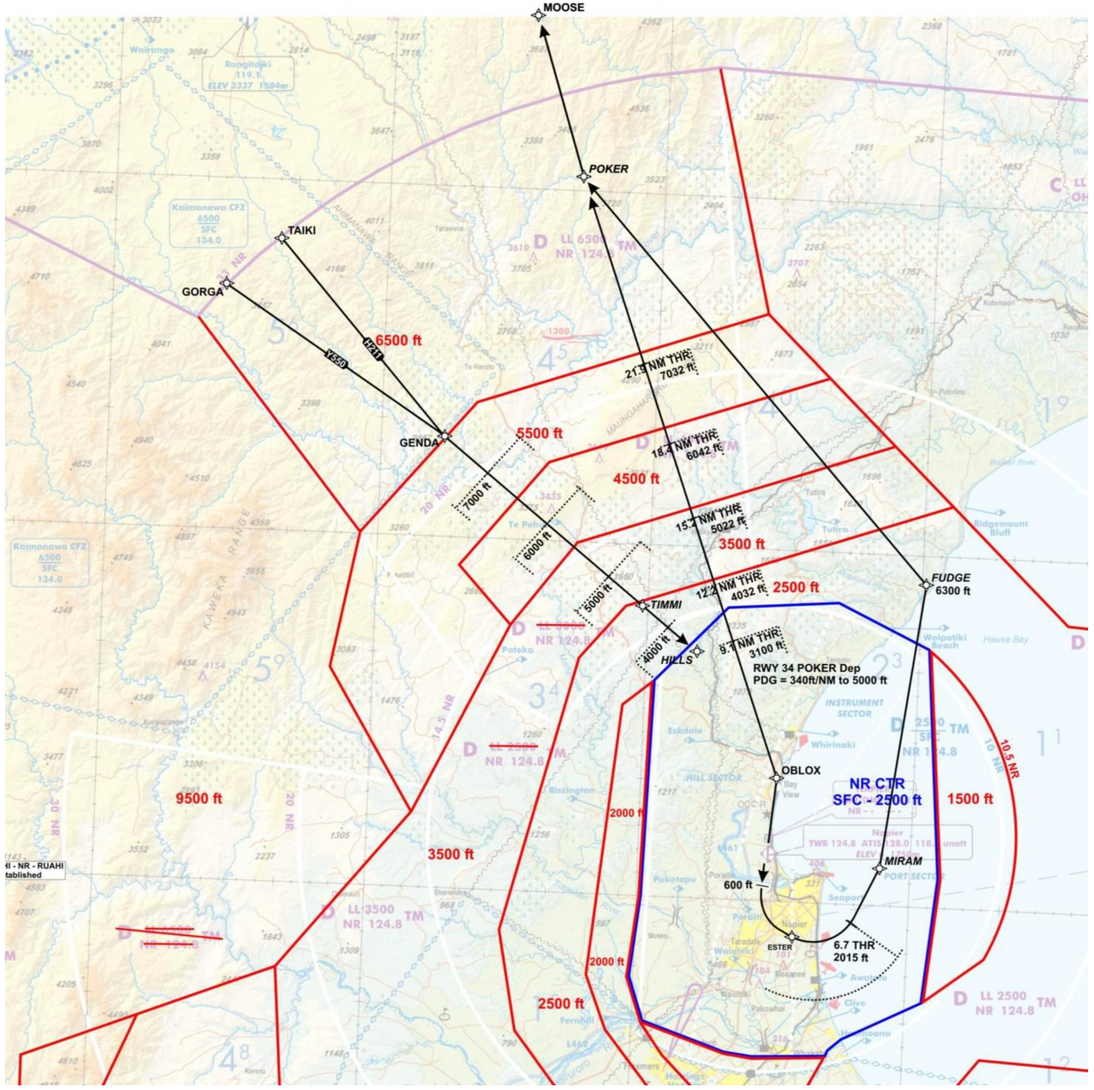
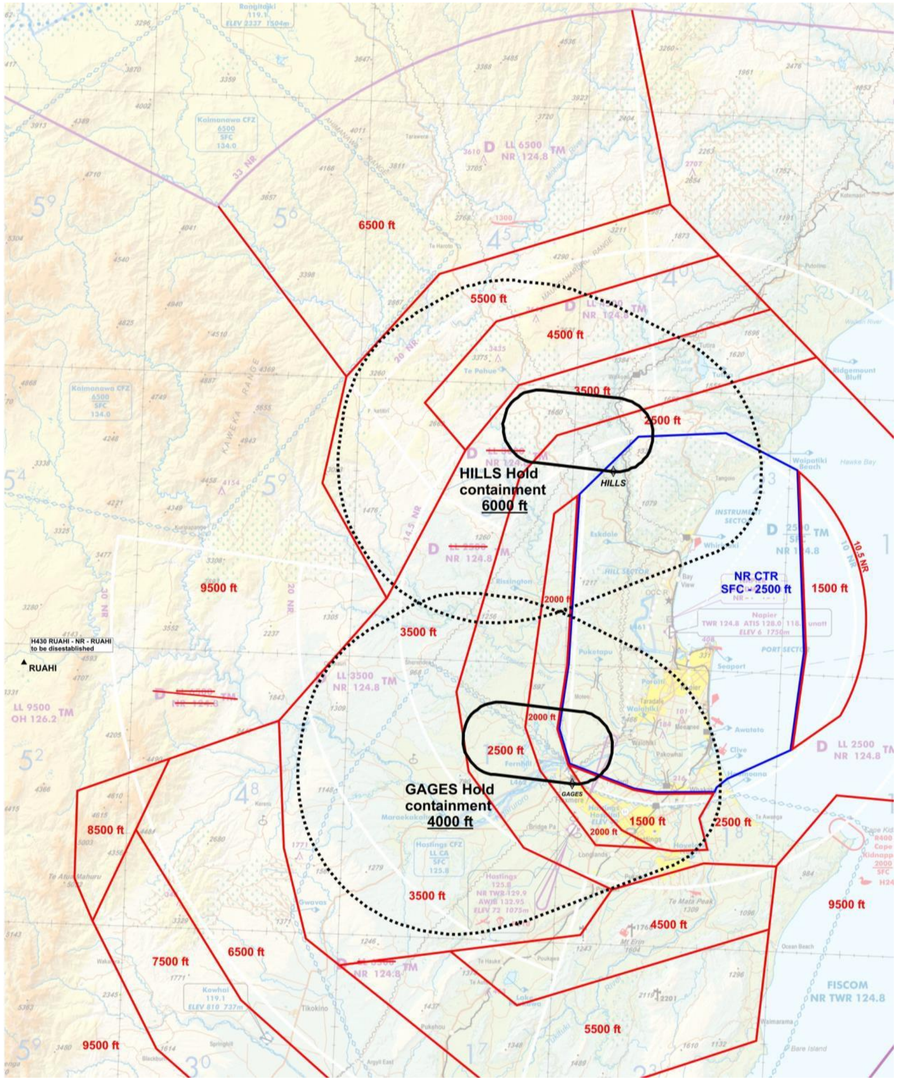
Hawke's Bay PBN – Napier Airspace





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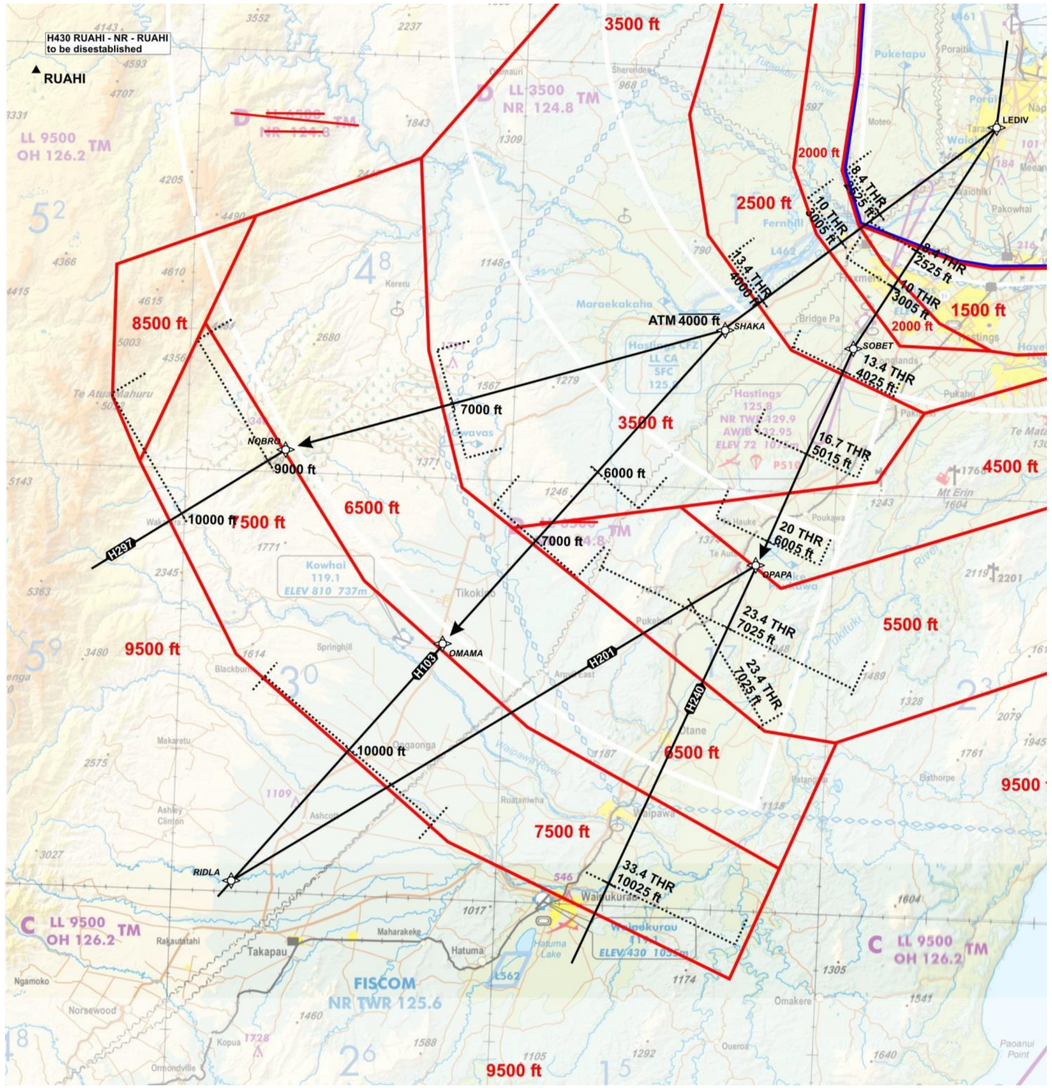
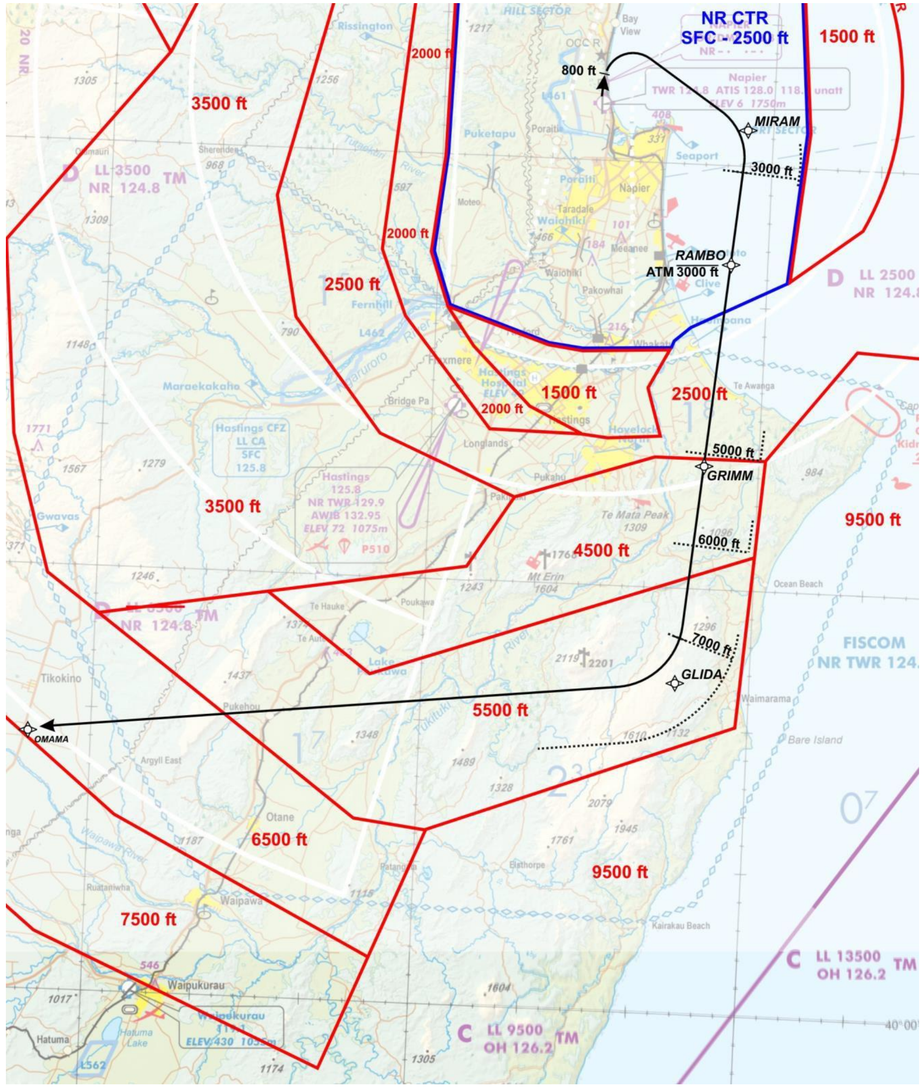
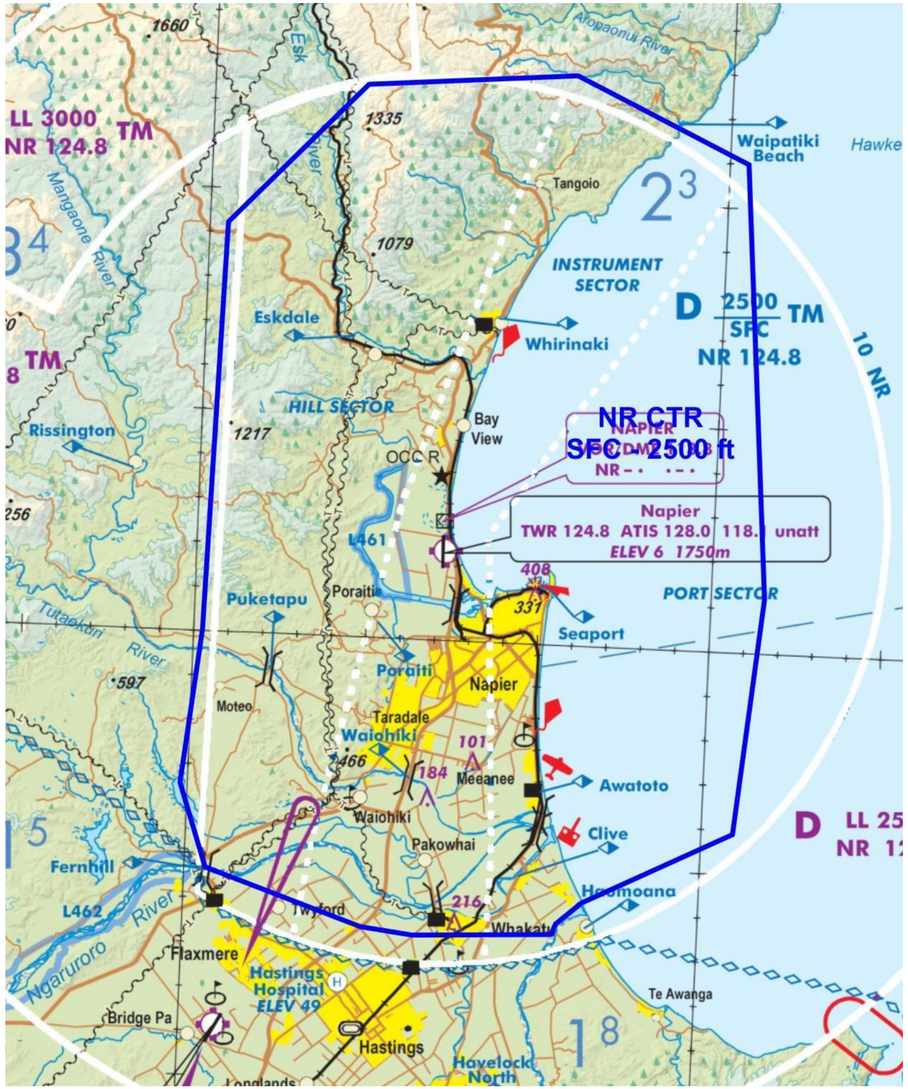
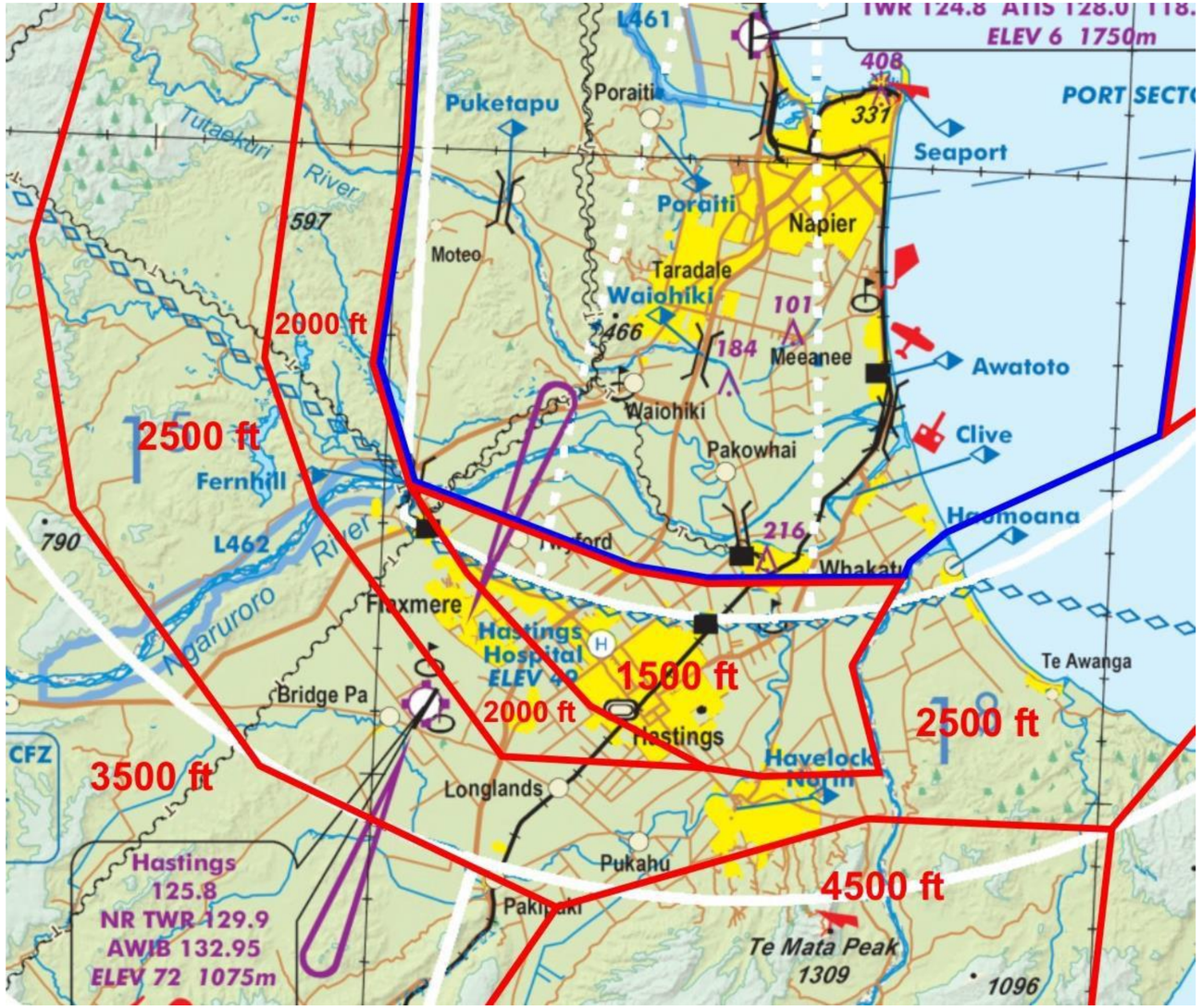
Hawke's Bay PBN – Napier Airspace



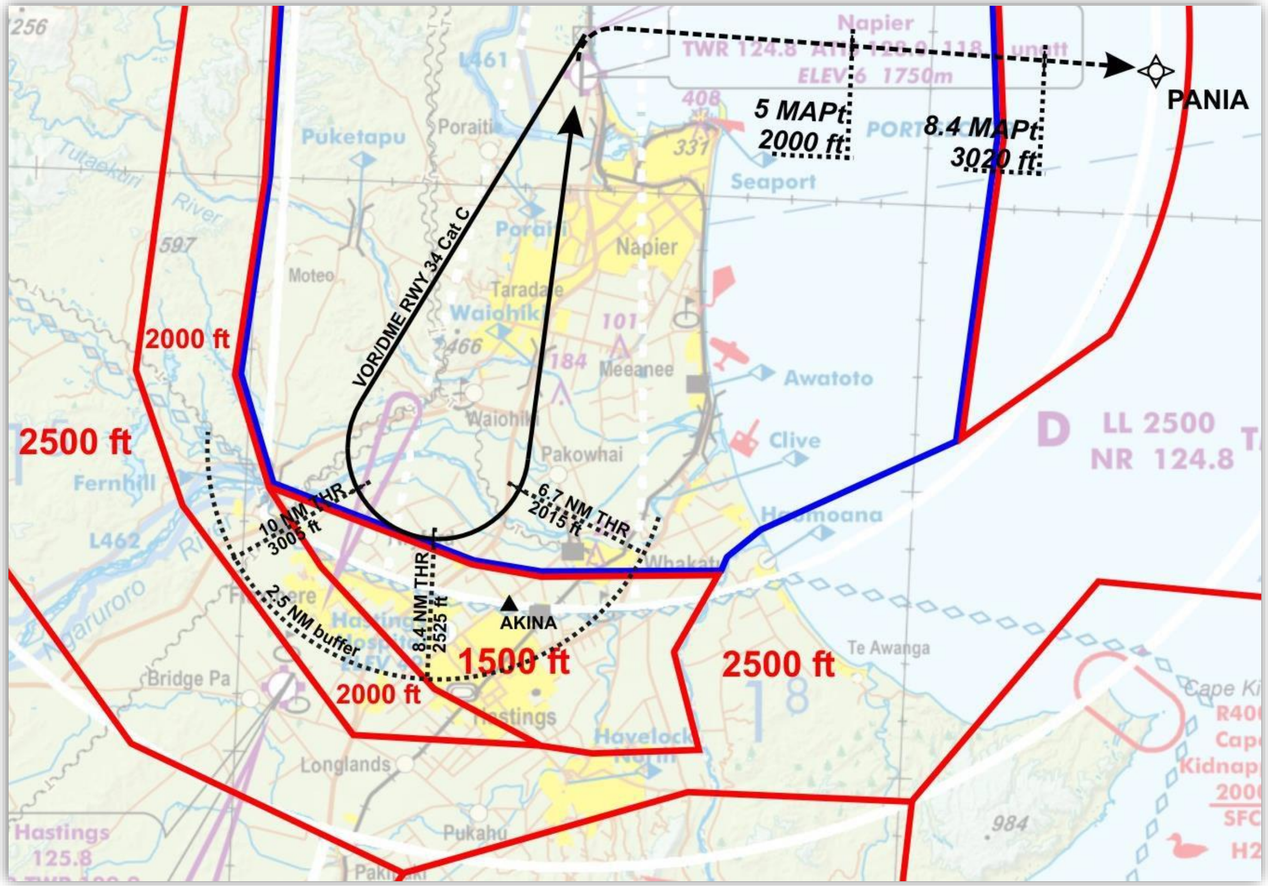


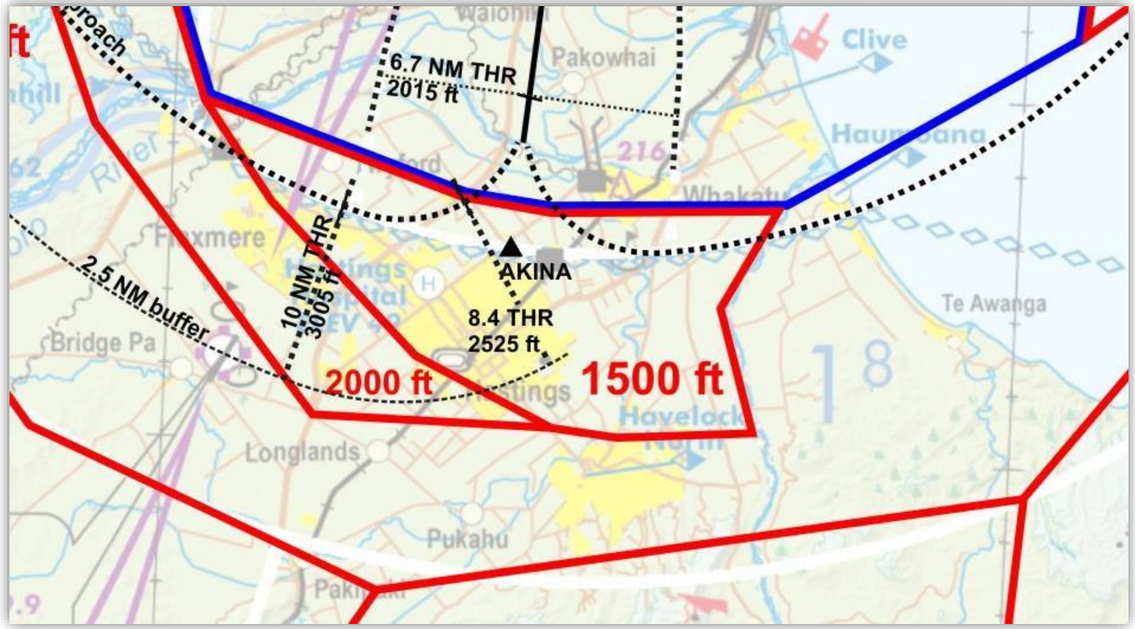
Hawke's Bay PBN – Napier Airspace





Hawke's Bay PBN – Napier Airspace





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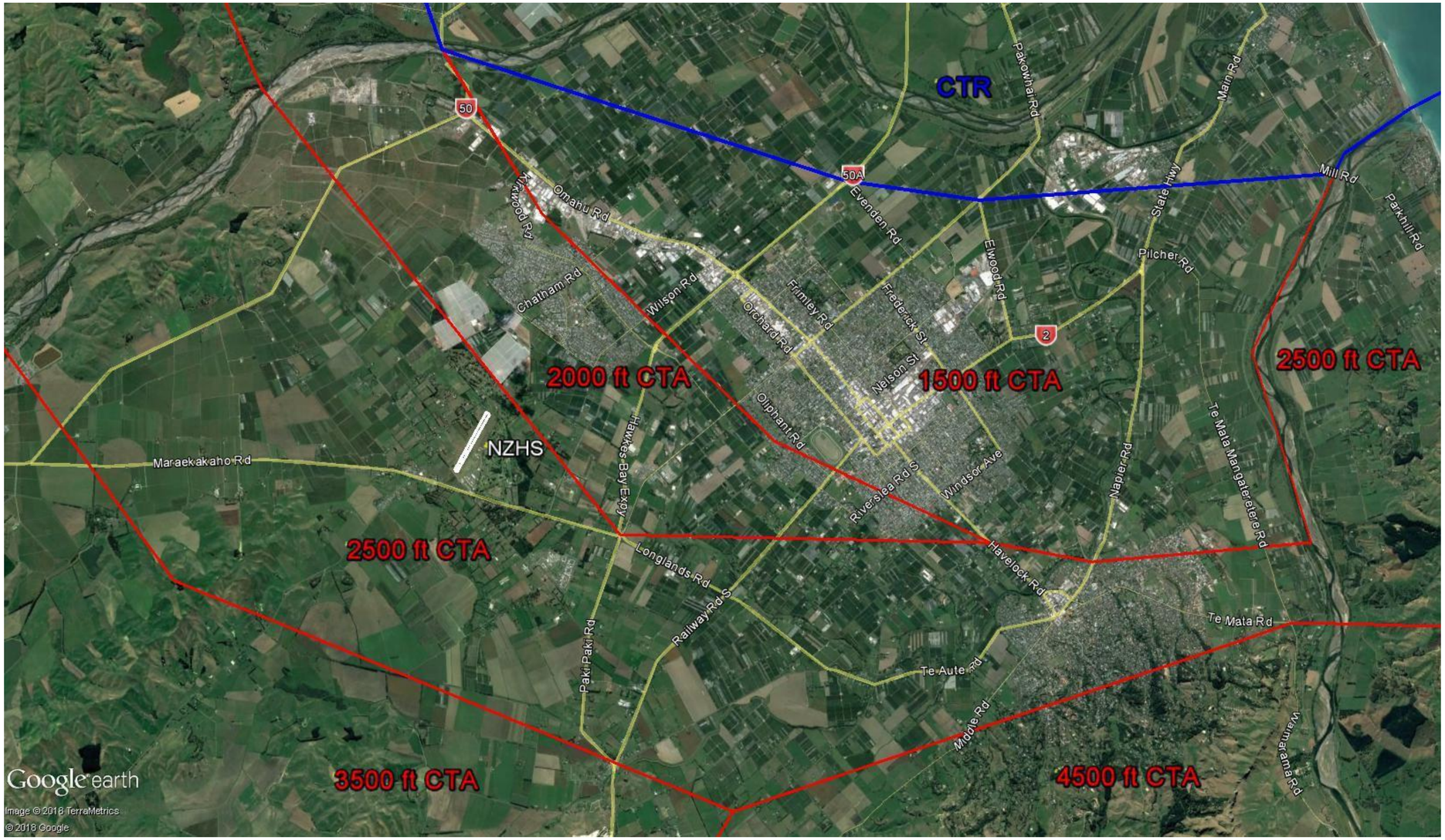

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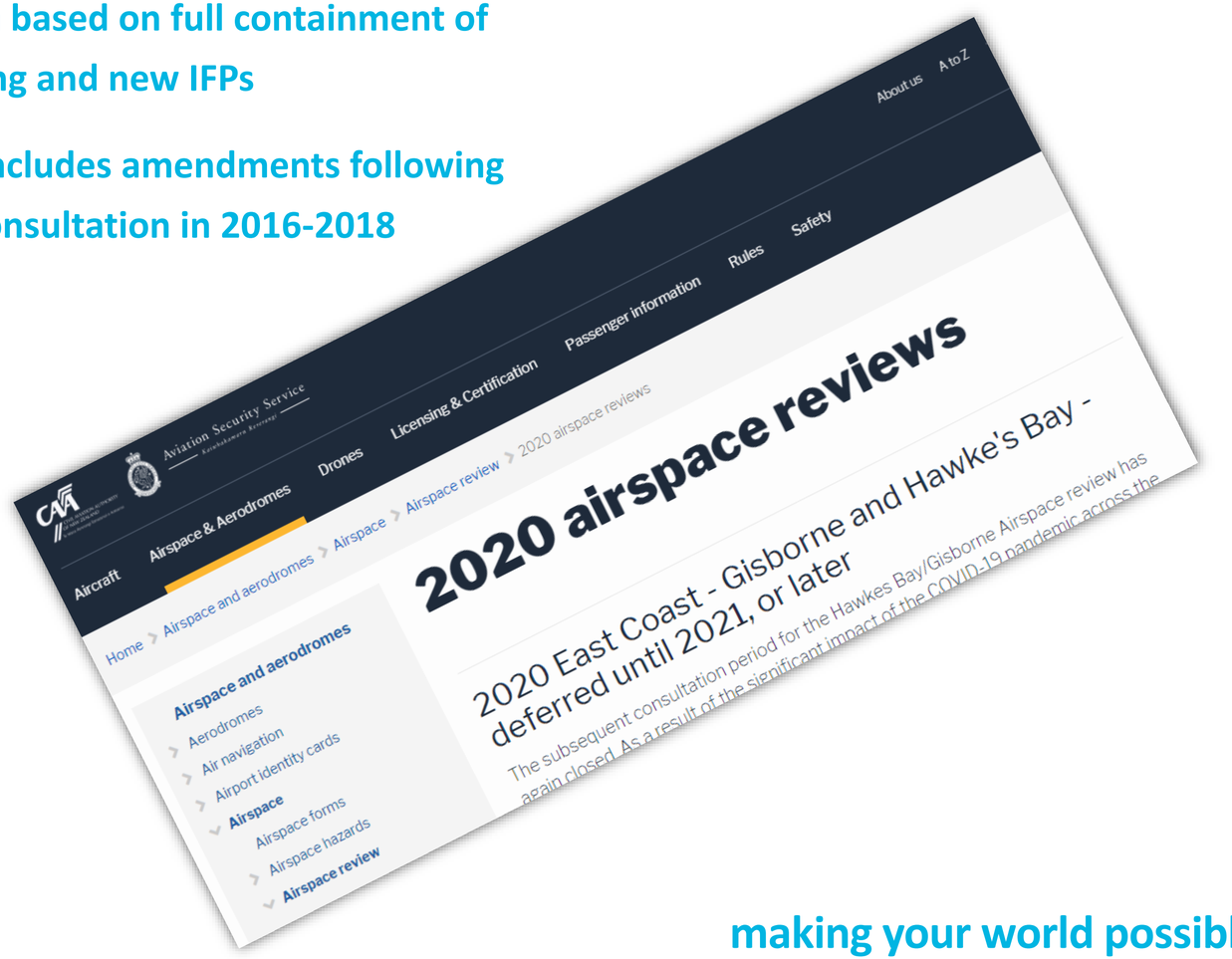
Hawke's Bay PBN – Gisborne Airspace

- **Airways will make a submission to CAA following the consultation meetings**
- **Submission based on full containment of both existing and new IFPs**
- **Version 4 includes amendments following previous consultation in 2016-2018**



Hawke's Bay PBN – Timeline

PBN TIMELINE 2022/23

- **Dec 22 (latest)** **Airways Airspace Submission made to CAA**
- **Feb – Apr 23** **CAA Airspace Consultation**
- **11 May 23** **VNC Chart Cutoff** (final date for any CAA airspace decision)
- **24 Jul 23** **ENRC Cutoff** (final date for any route changes)
- **31 Aug 23** **AIRAC Publishing Cutoff** (final date for any changes to AIP pages)
- **30 Nov 23** **Implementation date**