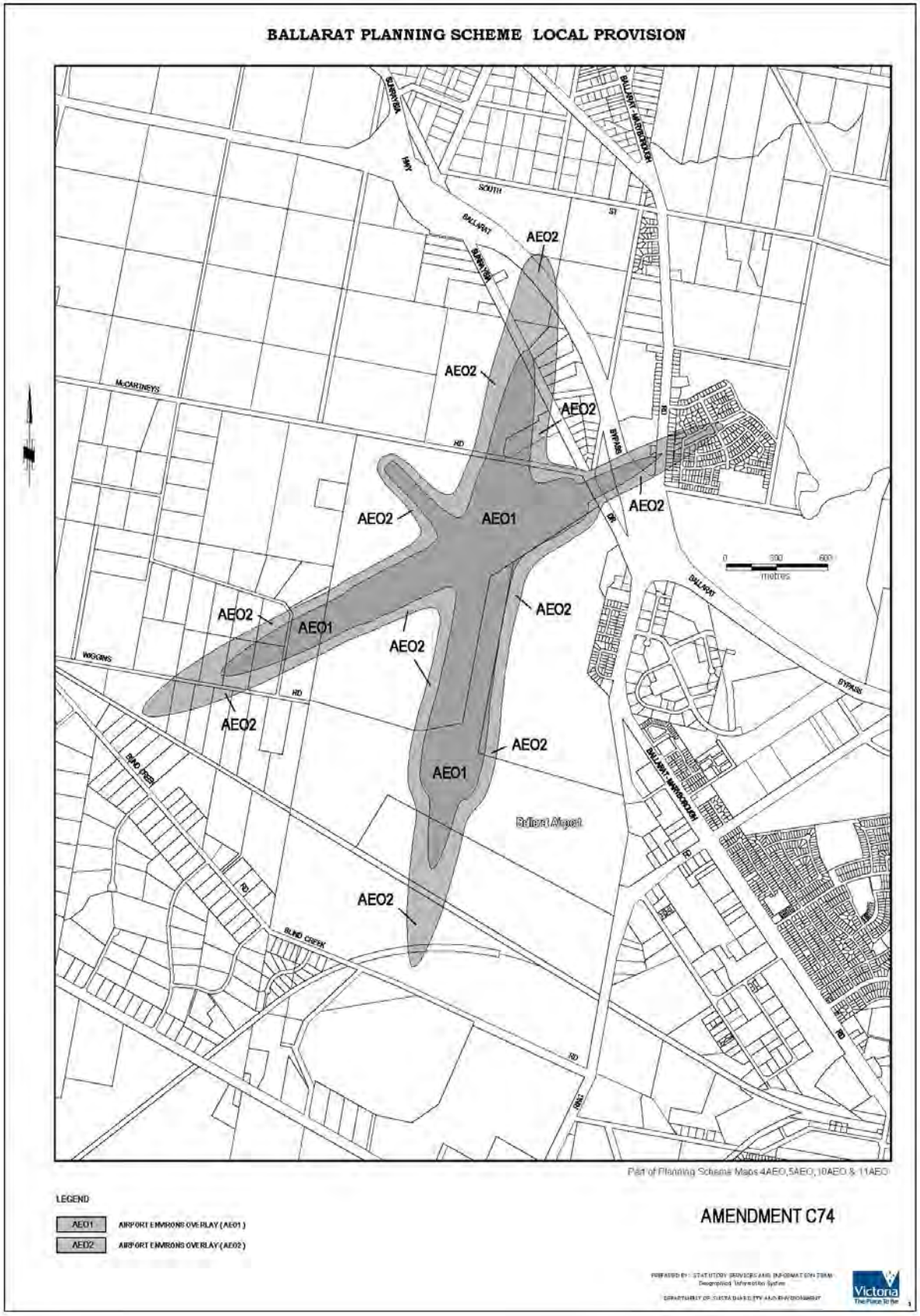


Figure 2: Current Airport Environs Overlays

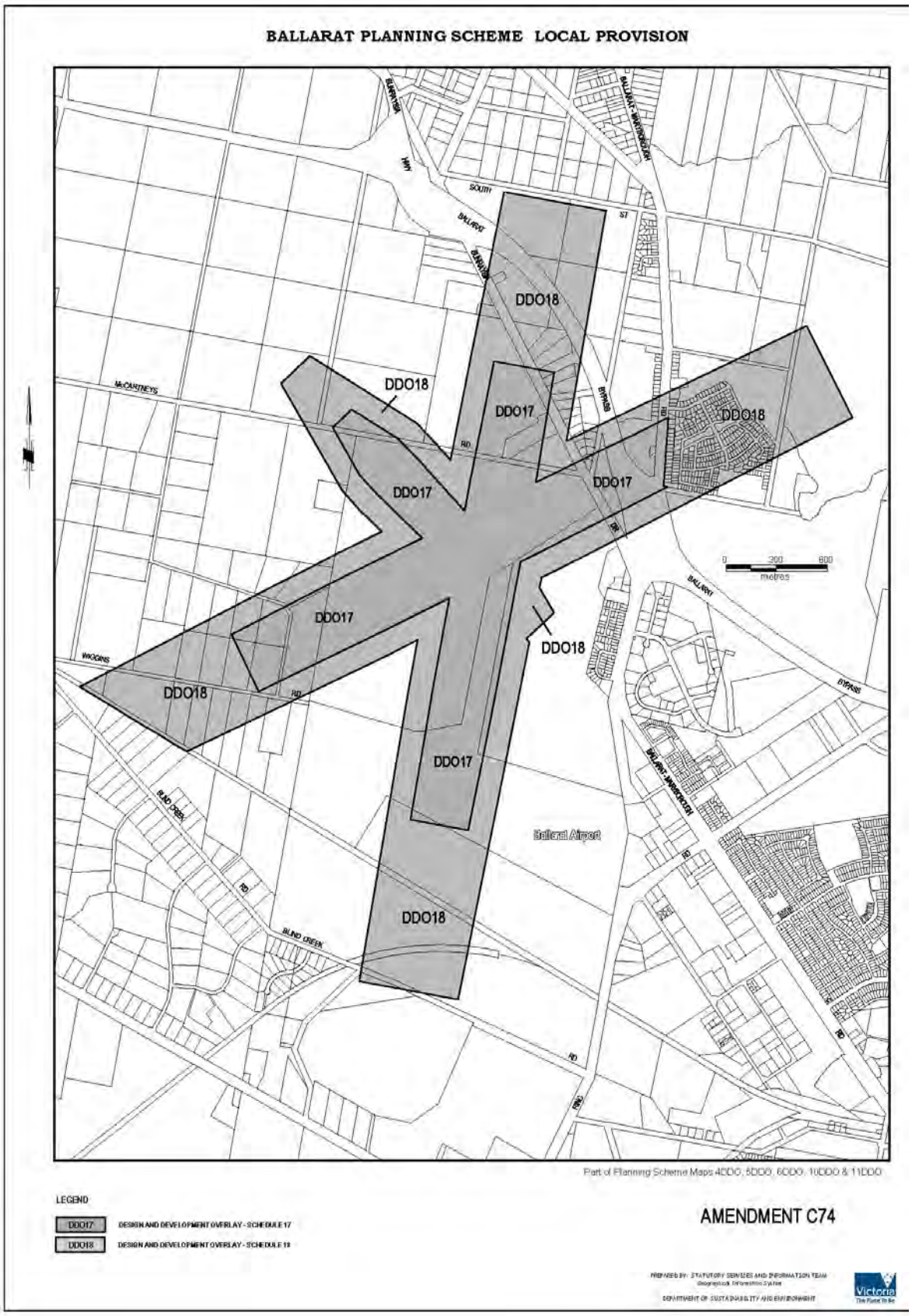


Figure 3: Current Design and Development Overlays

4 Background Studies

4.1 Ballarat Airport Australian Noise Exposure Forecast 2004

An Australian Noise Exposure Forecast (ANEF) study was undertaken for Ballarat Airport in 2004 by AOS Airport Consulting Pty Ltd. This study was based on a 10 year forecast of aircraft movements (20,400 movements in 2014) and included a 400m extension to the southern end of Runway 18/36. As this ANEF was a 10 year forecast to 2014, incorporating 20,400 aircraft movements, it is effectively out-of-date. The City of Ballarat estimates that current movements are around 35,000 per year.

The 2004 ANEF is shown in Figure 4. This ANEF is the basis of the current Airport Environs Overlay in the BPS.

4.2 Ballarat Aerodrome Noise Modelling Study 2010

A detailed aircraft noise study for Ballarat Airport was prepared in 2010, primarily to assess the impact of aircraft noise on the Ballarat West Growth Area. This study, titled *Ballarat Aerodrome Noise Modelling Study & Assessment of Impact on the Ballarat West Growth Area* (Kneebush Planning, Sept 2010), produced ANEF, LAmax[4] and N contours for the airport based on a 20 year forecast of aircraft movements (46,254 movements[5] in 2030).

Like the previous ANEF study, the 2010 study also included a 400m southern extension of Runway 18/36, taking the runway to 1645m long.

It is noted that the ANEF contours produced in 2010 are generally smaller than the previous ANEF contours produced in 2004. This was due to changes in the noise modelling software as well as differences in the assumptions used in the two studies. For example, in the 2010 study the number of Regular Public Transport (RPT) movements was reduced to 694 per year which was considered to be more realistic compared to the previous 1,200 RPT movements. The 2010 study also did not include the very noisy BAe Strikemaster (which was in the previous study) as this aircraft had ceased operating at Ballarat Airport.

The ANEF and Number Above contours produced in 2010 are shown below in Figures 5, 6 and 7. Note, the 2010 ANEF chart shows the 15 ANEF contour which is not shown on the 2004 chart (Figure 4). The 15 ANEF contour was only shown for information purposes, on the basis that noise does not stop at a line on a map, and does not need to be applied as a planning control. The 20 ANEF contour and above is where the AS2021 and AEO controls apply.

[4] The maximum A-weighted sound pressure level recorded during a noise event.

[5] Of these movements 45% of them were modelled as circuit training, more specifically touch-and-go operations. Touch-and-go operations have both a landing and a take-off, which means that in terms of landings and take-offs each operation is counted twice. Therefore, the forecast and modelling undertaken in 2010 comprised a total of 67,068 landings and take-offs.

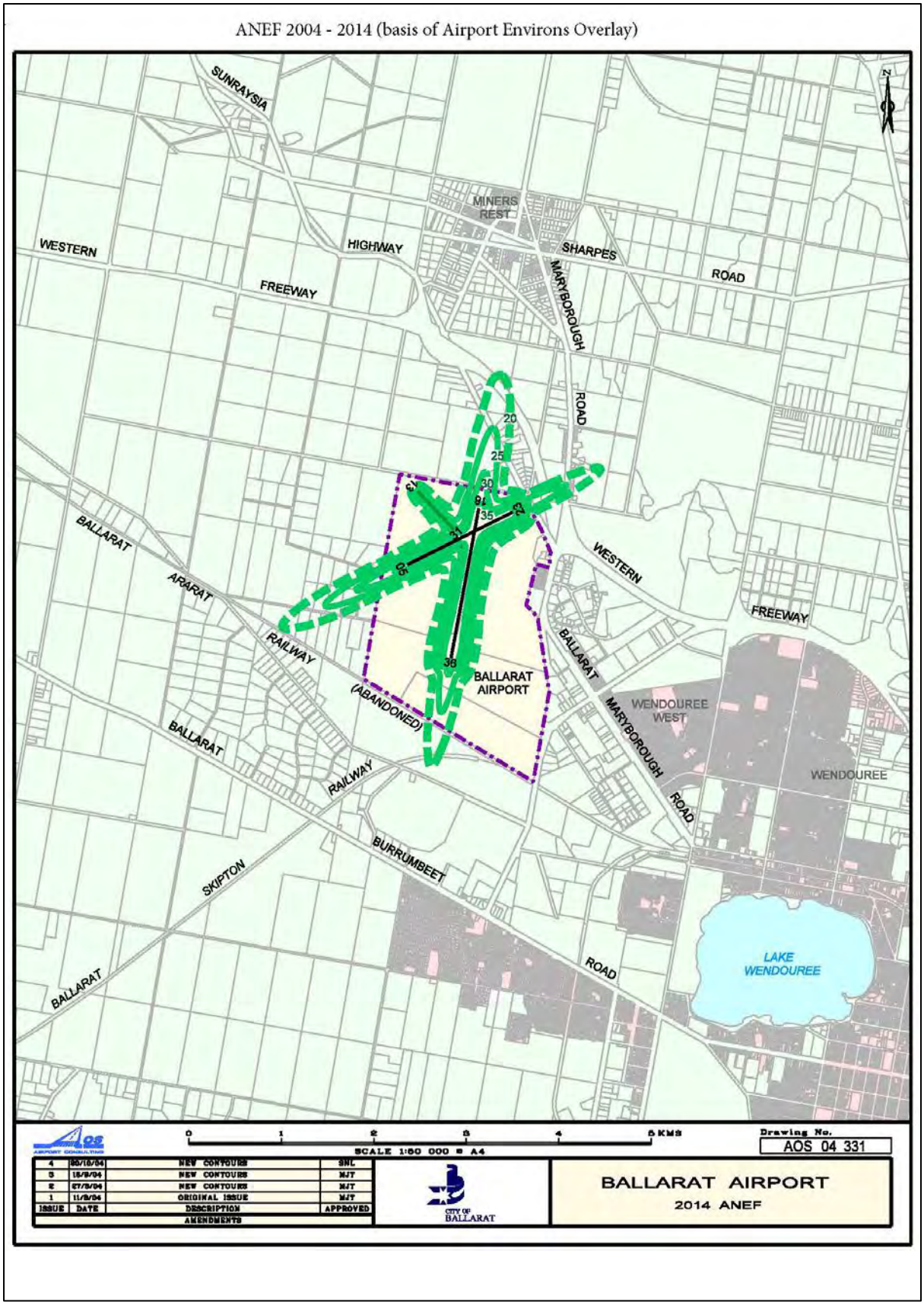


Figure 4: 2004 ANEF (2014 Forecast)

Figure 5: 2010 ANEF (2030 Forecast)

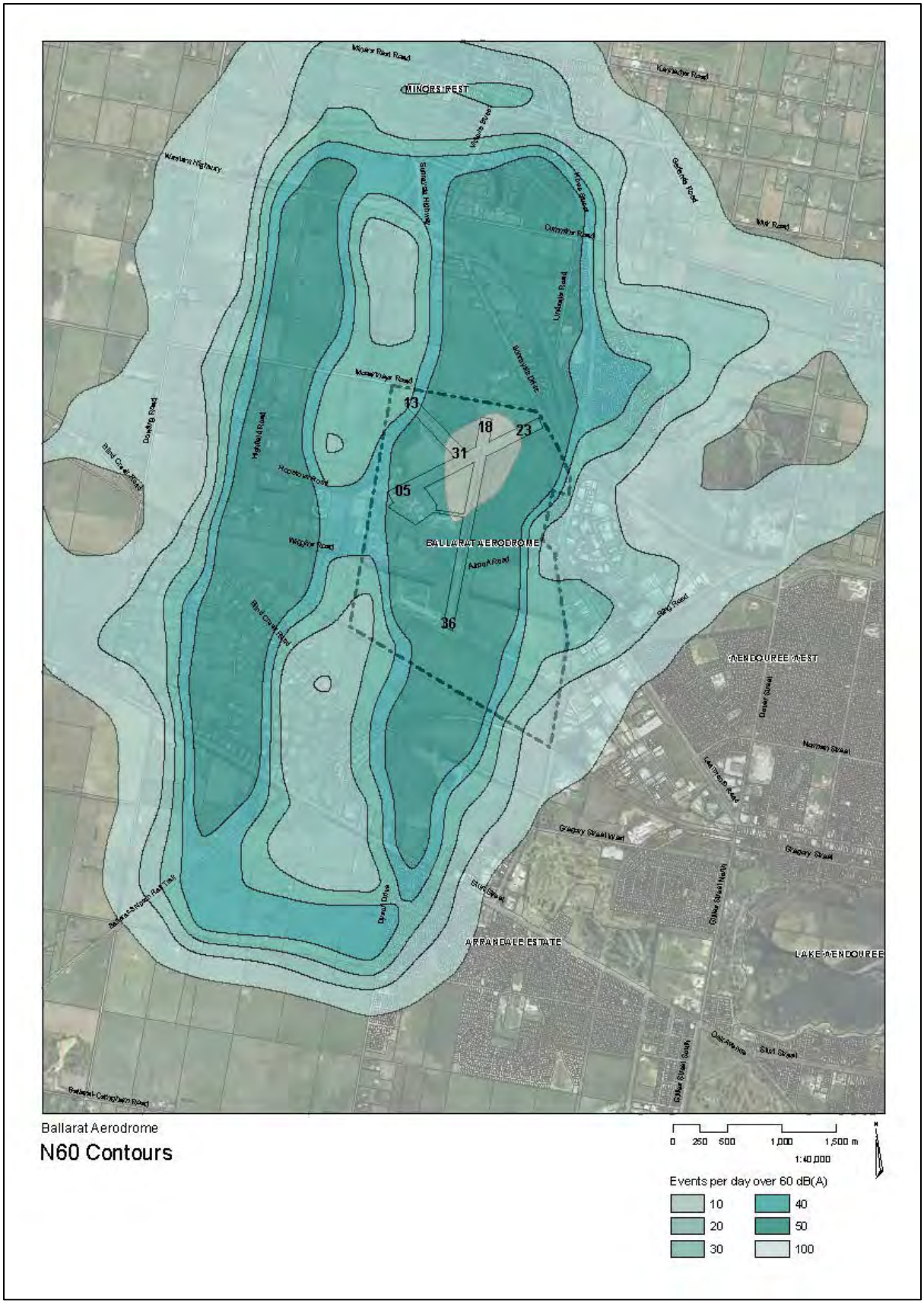


Figure 6: 2010 N60 Contours (2030 Forecast)

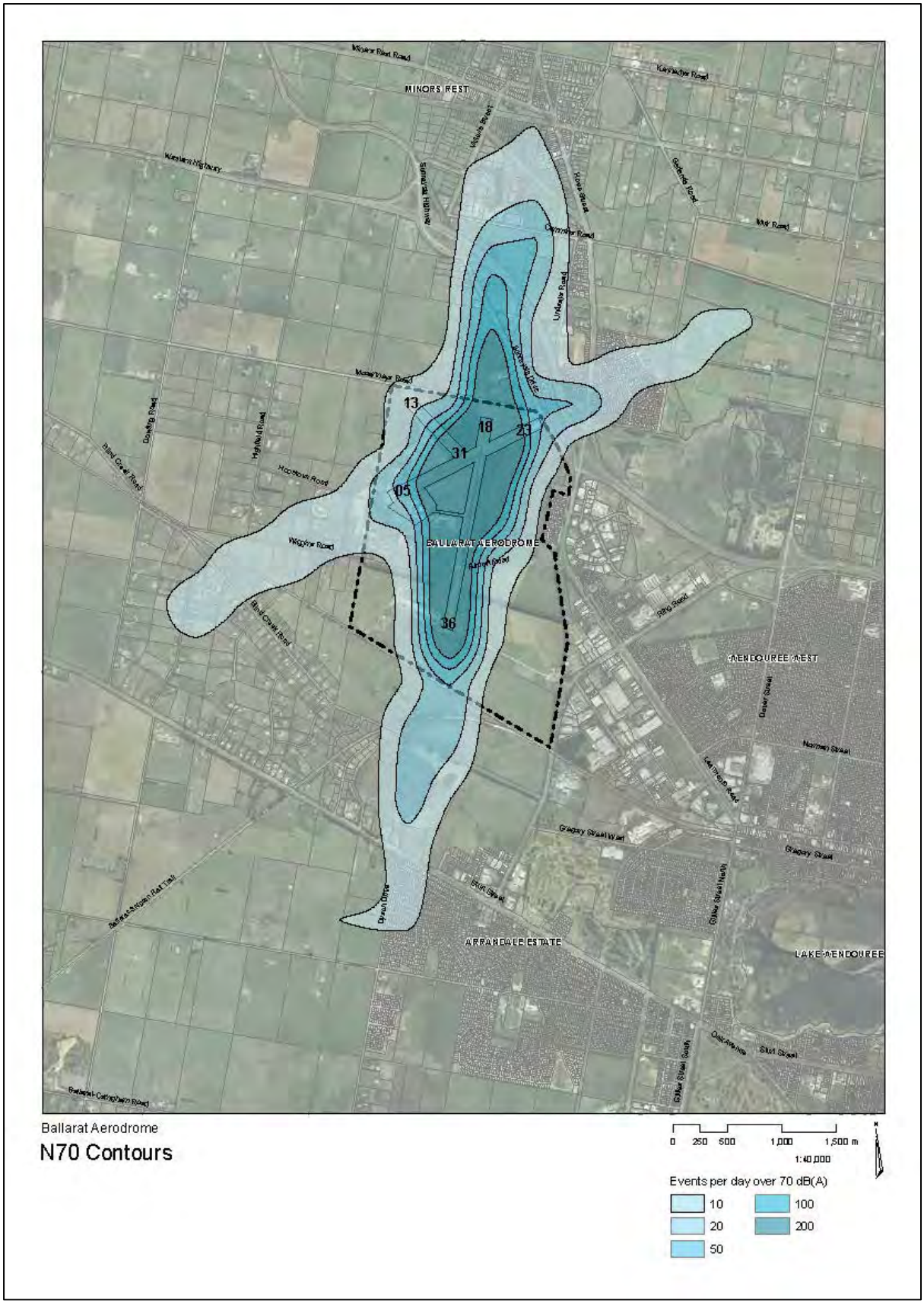


Figure 7: 2010 N70 Contours (2030 Forecast)

4.3 Ballarat Airport Master Plan 2013-2033

The current Master Plan for Ballarat Airport is the *Ballarat Airport Master Plan 2013-2033* (Kneebush Planning, May 2013).

A key element of the 2013 Master Plan relates to the extension of Runway 18/36. In this regard the Master Plan states:

> *While preserving the Runway 18/36 extension is seen as strategically prudent it is the recommendation of this Master Plan and the previous 2004- 2014 Master Plan that the runway extension should not increase the total length of the runway beyond 1800m. The primary reason for restricting the runway length to 1800m or below is to ensure that the runway does not change from a Code 3 runway to a Code 4 runway as this triggers a number of other changes, including widening of the entire runway to 45m (significant cost) and changing the characteristics of the Obstacle Limitation Surfaces (OLS). The important changes to the OLS would include the reduction of the slope of the approach surface to 2% and the widening of the approach surface to 300m at its origin. There is not an identifiable need for a runway longer than 1800m as this length can cater for all aircraft expected to operate in the foreseeable future, including limited use by medium size RPT jet aircraft.*
>
> *The potential extension of Runway 18/36 to the south by up to 555m is considered to be an essential component of the long term plan for Ballarat Airport and was identified as a key element of the Ballarat Airport in the 2004-2014 Master Plan. It is considered that any potential negative effects do not outweigh the need to protect and plan for the extension.*

Whilst the 2013 Master Plan stated that there is not an identifiable need for Runway 18/36 to be extended beyond 2,000m, there is now a potential need to extend Runway 18/36 to 2,000m, which is physically possible, for the proposed Aviation Emergency Services Hub as discussed in section 4.4 below.

The 2013 Master Plan includes an OLS chart incorporating a 400m extension to the south end of Runway 18/36 taking it to 1645m long. It is noted that no extension of this runway has yet occurred and it remains 1245m long.

The 2013 Master Plan also includes a section titled ‘Airport Protection’ which recommended:

- retention of the current AEOs based on the 2010 ANEF contours being smaller than the 2004 ANEF contours; and
- updating of the DDOs to protect the possible future extension of Runway 18/36 to 1800m.

Since adoption of the 2013 Master Plan, there has been no change to the AEO or DDO controls (which were incorporated into the BPS via Amendment C74 in 2007). It is noted that the Master Plan is not referenced in the Ballarat MSS.

4.4 Ballarat Airport Aviation Emergency Services Hub

In 2015 The Airport Group produced a report titled *Ballarat Airport Aviation Emergency Services Hub Prefeasibility Study* (Feb 2015) for the City of Ballarat.

This study supported the establishment of an Aviation Emergency Services Hub (AESH) at Ballarat Airport with multi-agency, all hazard capability, including capability to accommodate Large Air Tankers (LAT) which the report stated “are the future of fire response for Victoria for the next 20-30 years”.

In 2016, Beca undertook an analysis to understand the options available to upgrade the existing infrastructure at Ballarat Airport to facilitate operations by LATs. This particularly included options for upgrading the main runway.

In relation to upgrading the main runway, Beca's memorandum titled *Ballarat Airport Aviation Emergency Services Hub - Summary of Design Basis for Options Analysis* (24 October 2016) states:

> *Runway 18/36 is the main runway at Ballarat Airport, is orientated north-south and is 1245m long and 30m wide. The design aircraft stipulated for the AESH is the C130, which is classified as a Code D aircraft, with a runway field length requirement of 2000m as confirmed by key stakeholders/LAT Operators. To accommodate this aircraft type, in accordance with Civil Aviation Safety Authority (CASA) Manual of Standards Part 139 (MOS 139), a 45m wide runway is required in addition to the application of Code 4D Obstacle Limitation Surfaces (OLS) and associated runway strip requirements. These requirements are more onerous than those previously considered and have been reflected in the cost estimate.*

In developing options for consideration, the runway alignment was maintained as Runway 18/36, however the position of the runway varied from extending the existing alignment to new alignments both east and west of the existing Runway 18/36 centreline. Five main options were developed, some with sub-options:

- Option 1 – existing Runway 18/36
- Option 2 – east of existing Runway 18/36 – parallel Code D Taxiway on existing Taxiway Delta alignment
- Option 3 – east of existing Runway 18/36 – parallel Code D Taxiway on existing Runway 18/36 alignment
- Option 4 – west of existing Runway 18/36 – parallel Code D Taxiway on existing Runway 18/36
- Option 5 – west of existing Runway 18/36

Options 1D and 2B were deemed to be the preferred options as they both achieved a runway field length of 2000m for both Runway 18 and 36 as required for the LATs. The two options are shown in Figures 8 and 9 below.

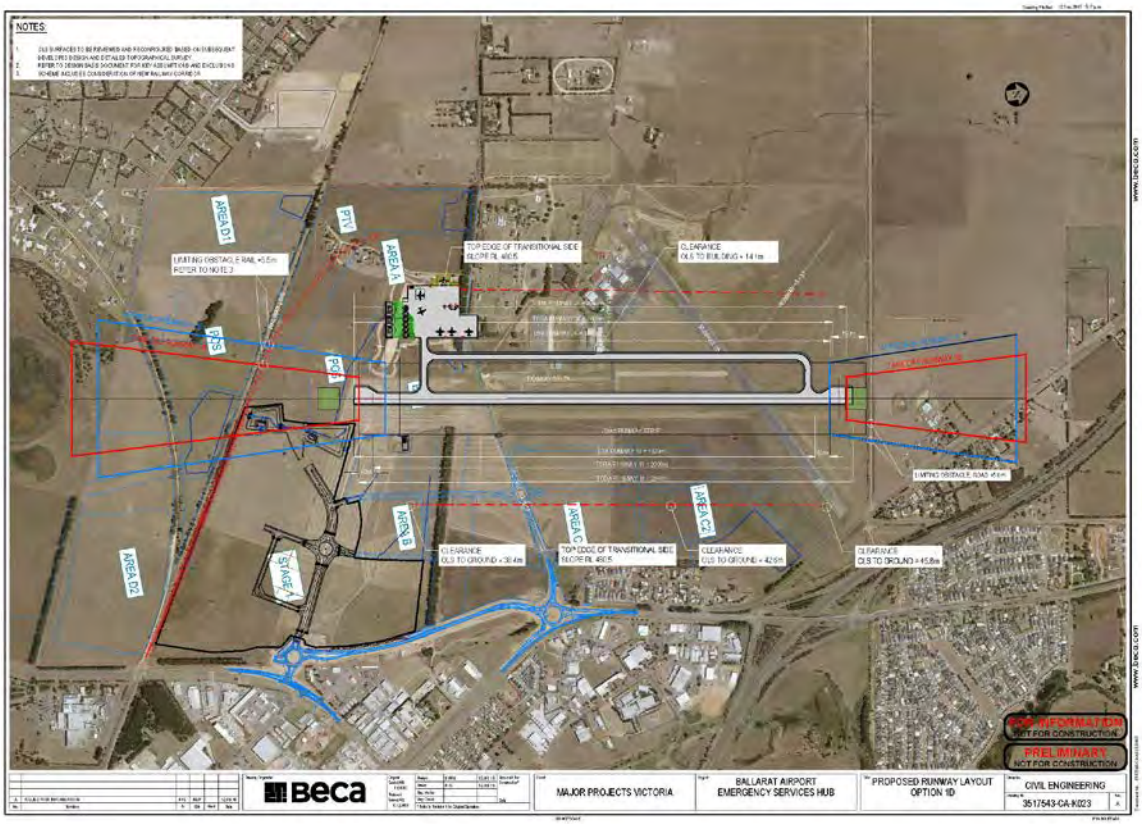


Figure 8: AESH Runway 18/36 Option 1D

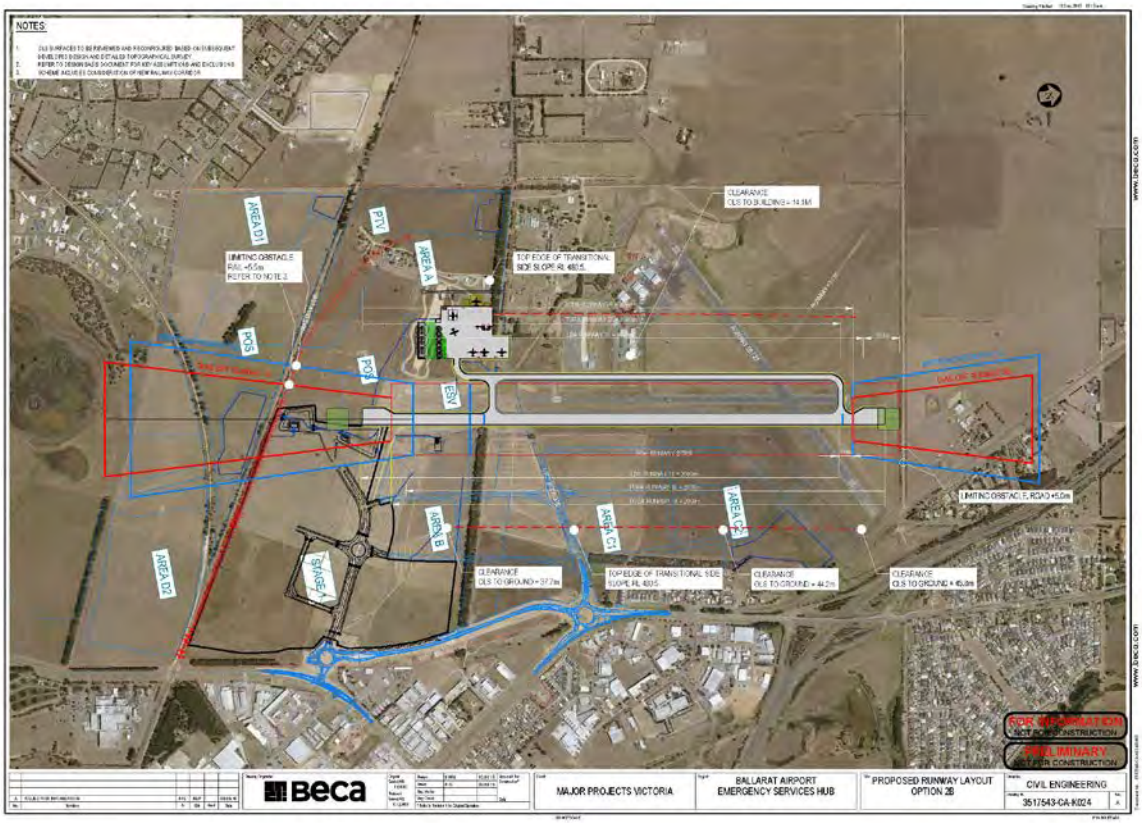


Figure 9: AESH Runway 18/36 Option 2B

5 Gap Analysis & Supplementary Studies

A gap analysis was undertaken to assess whether the current airport safeguarding environment adequately protects the future development of Ballarat Airport. This was identified as important due to:

- the advent of the Aviation Emergency Services Hub (AESH) proposal;
- the current planning controls protecting the airport (the AEOs and DDOs) were introduced over 10 years ago (Amendment C74, February 2007);
- the existing AEOs are based on an outdated ANEF prepared 14 years ago (2004);
- the existing DDOs are based on an OLS chart which does not include any extension to Runway 18/36;
- the last noise forecasting study for the airport was undertaken over seven years ago (September 2010);
- the last OLS chart for the airport, incorporated in the 2013 Master Plan, was prepared over 10 years ago (October 2007); and
- the current Master Plan for the airport was prepared five years ago (May 2013) and did not envisage Runway 18/36 being extended beyond 1800m.

The previous aircraft noise and OLS studies were based on a 400m extension of Runway 18/36, taking it to 1645m long, while the current Master Plan provides for the runway to be extended up to 1800m. Given the proposal to establish the AESH and extend Runway 18/36 to 2000m, the gap analysis identified the need for new noise contours and obstacle limitation surfaces to be prepared for the airport, incorporating the AESH changes, to inform strategic planning around the airport and determine whether planning scheme changes or improvements are required to protect the airport, and if so, the nature of the changes required.

This is particularly important as ANEF contours are used to determine the boundaries of the Airport Environs Overlay and the OLS chart is used to determine the extent of the Design and Development Overlay to control structures around the airport.

Based on the outcomes of the gap analysis, two supplementary studies were undertaken. New noise contours were prepared by To70 Aviation Australia and new OLS charts were prepared by Airport Surveys. Each of these studies considered the effect of Runway 18/36 Options 1D and 2B, as well as Options 1D and 2B combined. The outcomes are discussed below.

6 Noise Contours

New noise contours were prepared by To70 Aviation Australia having regard to NASF Guideline A. The key assumptions for the noise modelling were agreed to at a meeting with Council officers held on 20 March 2018 and are outlined in a separate report.

The key assumptions are that the noise contours produced for this study are based on:

- Development of the AESH proposal at Ballarat Airport as outlined in section 4.4 of this report;
- Either Runway 18/36 Option 1D or 2B being implemented; and

- A long range forecast of 56,361 aircraft movements in 2050.

The noise contours produced for this study do not incorporate any alternative runway extension options other than Options 1D and 2B.

6.1 ANEC/F Contours

An Australian Noise Exposure Concept (ANEC) has been prepared for Runway 18/36 Options 1D and 2B outlined in section 4.4 of this report, and a proposed Australian Noise Exposure Forecast (ANEF) chart has been prepared being a combination of the two ANECs. These noise contour charts are attached at Appendix 1.

The combination forecast is an 'ANEF' because it may eventually be submitted to Airservices Australia for endorsement and if so would become the official ANEF for Ballarat Airport. Until such time as it is endorsed by Airservices it should be considered an unofficial ANEF.

As outlined earlier, previous noise forecasting studies were undertaken for Ballarat Airport in 2004 and 2010. The ANEC/F contours produced for this latest study are broadly similar (but not identical) to the contours prepared in 2010 but are smaller than the previous ANEF contours produced in 2004. The current AEOs are based on the 2004 contours.

The 2004 contours are larger due to changes in the noise modelling software as well as differences in the assumptions used for the study. For example, the 2004 study included significantly more RPT movements and it also included the very noisy BAe Strikemaster which has ceased operating at Ballarat Airport.

Recommendations relating to land use within ANEF contours are contained in Australian Standard AS2021-2015 "Acoustics – Aircraft Noise Intrusion – Building Siting and Construction". These recommendations are summarised in Table 1 below. This is a summary only; Council should consult the Australian Standard for full details of the land use recommendations, and associated notes and conditions.

Table 1: Building Site Acceptability Based on ANEF Zones

(Based on Australian Standard AS 2021-2015 Table 2.1)

Building Type	ANEF Zone of Site		
	Acceptable	**Conditional**	**Unacceptable**
House, home unit, flat, caravan park	Less than 20 ANEF	20 to 25 ANEF	Greater than 25 ANEF
Hotel, motel, hostel	Less than 25 ANEF	25 to 30 ANEF	Greater than 30 ANEF
School, university	Less than 20 ANEF	20 to 25 ANEF	Greater than 25 ANEF
Hospital, nursing home	Less than 20 ANEF	20 to 25 ANEF	Greater than 25 ANEF
Public building	Less than 20 ANEF	20 to 30 ANEF	Greater than 30 ANEF
Commercial building	Less than 25 ANEF	25 to 35 ANEF	Greater than 35 ANEF
Light industrial	Less than 30 ANEF	30 to 40 ANEF	Greater than 40 ANEF
Other industrial	Acceptable in all ANEF zones		

'Acceptable' means that special measures are usually not required to reduce aircraft noise.
'Conditional' means that special measures (noise attenuation) are required to reduce aircraft noise.
'Unacceptable' means that the development should not normally be considered.

In Victorian Planning Schemes, the Airport Environs Overlay (AEO) is used to implement the ANEF and AS2021-2015 land use recommendations. As outlined earlier, AEOs currently apply over the Ballarat Airport site and surrounds based on the ANEF contours produced in 2004.

A map comparing the ANEF contours produced for this study against the current AEOs is also included in Appendix 1. As the ANEF contours are generally smaller than the AEOs, particularly outside the airport property, it is a recommendation of this study that the current AEOs be retained, at least until there is some certainty around the development of the AESH proposal and the potential 'overall' noise footprint can be defined.

6.2 Number Above Contours

In accordance with NASF Guideline A, Number Above ('N') contours were also prepared incorporating Options 1D and 2B. Number Above (N) contours were prepared for each option and for both options combined. This comprises:

- N60 contours (Appendix 2)
- N65 contours (Appendix 3)
- N70 contours (Appendix 4)

These noise contours will enable assessment of land use proposals around and in the vicinity of the airport in accordance with NASF Guideline A, SPPF clause 18.04 and DELWP guidance.

For example, in relation to “Rezoning of greenfield areas to permit noise sensitive uses”, Guideline A states:

16. *This section applies where the introduction of new noise-sensitive uses is under consideration in areas that are predominantly rural or non-urban, including specifically identified urban boundary areas. This section does not apply to existing urban areas which have been developed.*

17. *It is important that consideration be given to the application of the following approach to land use planning:*

    i. *No new designations or zoning changes that would provide for noise sensitive developments within a 20 ANEF where that land was previously rural or for non urban purposes (in keeping with AS2021).*

    ii. *Zoning for noise–sensitive development be avoided where ultimate capacity or long range noise modelling for the airport indicates either:*

        - *20 or more daily events greater than 70 dB(A);*
        - *50 or more daily events of greater than 65 dB(A); or*
        - *100 events or more daily events of greater than 60 dB(A).*

    iii. *Zoning for noise–sensitive development should take into account likely night time movements and their impact on residents’ sleeping patterns. For example, where there are more than 6 events predicted between the hours of 11pm to 6am which create a 60 dB(A) or greater noise impact, measures for aircraft noise amelioration and restriction on noise sensitive development may be appropriate.*

18. *The above approach could be used as additional guidance by strategic planners and weighed along with other relevant strategic considerations.*

The critical N contours referred to above are shown on the maps within the appendices. As per paragraph 17 of NASF Guideline A, zoning for noise-sensitive development should be avoided within these critical contours, particularly the N65/50 events and N70/20 events contours which extend outside the airport site to the north and south. Whilst the forecast movements in the noise model did not generate N60/100 events contours (or any 100 events contours), the maps do show N60/50 events contours extending outside the airport site. Within the N60/50 contour it is forecast that there will be 50+ aircraft noise events per day above 60dB(A) - this is not an insignificant effect and should be recognised in strategic planning. 60 dB(A) is the sound pressure level at which noise events may become intrusive to speech and hence may interfere with activities like telephone conversations and watching the TV (assuming no noise attenuation).

Given the low volume of aircraft movements forecast at night, the noise model did not generate a N60 night contour for movements between 11pm and 6am.

6.3 Noise Contour Assumptions and Limitations

Caution must be exercised when considering the implications of these noise contours. The new noise contours produced for this study incorporate a number of assumptions, as outlined earlier. First and foremost, they are based on runway options 1D and 2B.

The contours produced in 2010 are slightly larger, particularly to the north of the airport, partly because they were based on Runway 18/36 only being extended by 400m to 1645m total length. Extending the runway to the south, to 2000m (or building a new 2000m long runway) will have the effect of reducing the noise contours to the north. This is because aircraft taking-off to the north on Runway 36, the most used direction, would start at the far southern end of the runway, which would be about 700m south of where aircraft start taking-off today and about 350m south of where the 2010 modelling envisaged.

This is particularly important when considering land use to the north of the airport. With a 2000m runway, aircraft taking-off to the north on the main runway would be higher in the air earlier compared to aircraft taking-off on a shorter runway. Maintaining the existing runway length, or constructing a shorter runway extension, would have an even greater noise impact to the north when compared to the 2000m scenario. This is simplistically shown in Figure 10 below.

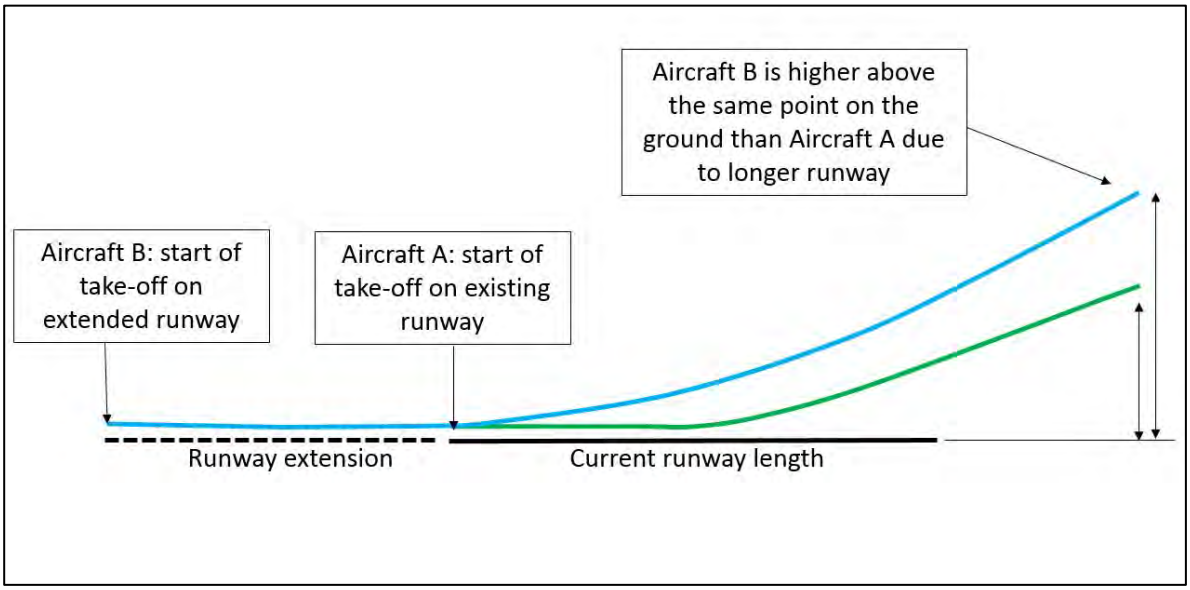


Figure 10: Effect of Runway Extension on Take-offs

7 Obstacle Limitation Surfaces

Obstacle Limitation Surfaces (OLS) charts have been prepared by Airport Surveys for each Runway 18/36 option outlined in section 4.4 of this report, and for the two options combined. These are attached at Appendix 5.

In Victorian Planning Schemes, the Design and Development Overlay (DDO) is often used to protect an airport's OLS. As discussed in section 3.3.3 of this report, two DDOs (DDO17 and DDO18) currently apply over the Ballarat Airport site and surrounds which reflect an OLS chart based on the existing runway lengths with no extensions at all (reflecting the current runway lengths outlined in section 1.2 and shown in Figure 1).

A map comparing the OLS contours produced for this study against the current DDOs is also included in Appendix 5. This shows that the new OLS contours extend outside the boundaries of the current DDOs in the BPS.

Importantly, the current DDOs only relate to the inner most approach, take-off and transitional surfaces for the existing runway lengths and do not protect extension of the main runway. It is a recommendation of this report that the existing DDOs be amended to protect extension of the main runway, but not until there is certainty around the AESH and the length of runway extension that should be protected.

In addition, the current DDOs do not protect the OLS Inner Horizontal Surface. The Inner Horizontal Surface is the flat surface located between the inner most sloping surfaces and the conical surface (see Figure 10 below). Whilst the inner most approach, take-off and transitional surfaces are the most critical, it is a recommendation of this report that consideration be given to protecting the Inner Horizontal Surface which is also important. This can, however, be problematic given the large area covered by the Inner Horizontal Surface.

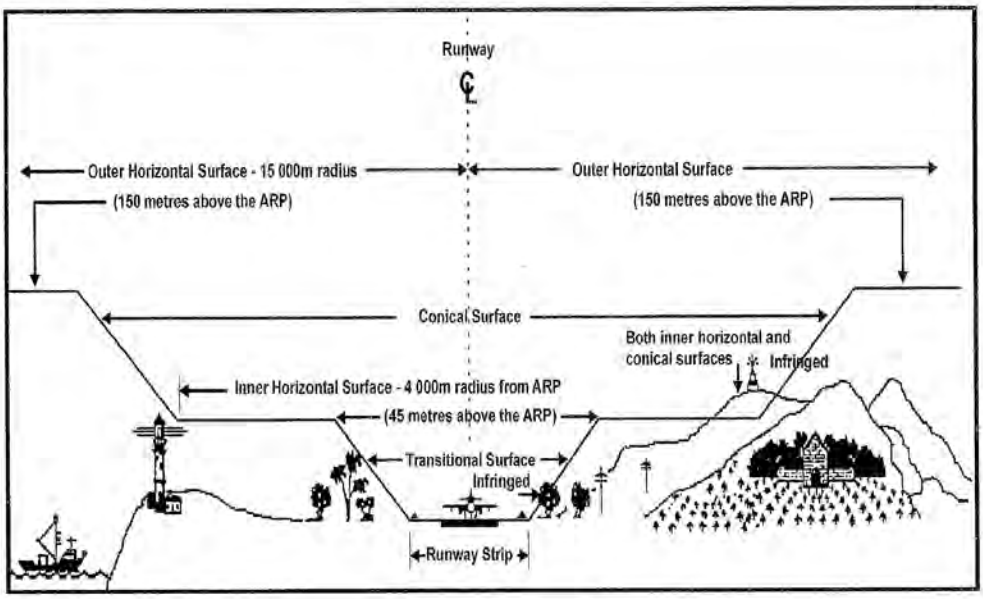
Furthermore, when the exact details of the OLS surfaces to be protected are confirmed, the building height permit triggers specified in the DDO schedules should also be reviewed to ensure they protect the changed OLS surface heights.

It should be noted that because the OLS surfaces produced for this study are based on a much longer Runway 18/36 than previous OLS charts, the surfaces are much lower outside the airport site. This is a critical matter for Council to recognise when considering development proposals around the airport, particularly as the current DDOs to not protect these surfaces.

It is also noted that Clause 21.09-5 (Strategy 7) of the BPS states that there should be no development under the OLS. This policy statement is not consistent with the purpose of the OLS and DDOs which are essentially about restricting the height of development, not land use.

Guideline F Attachment 1a
to Airspace Protection Guidelines

Cross section of OLS



Isometric view of OLS

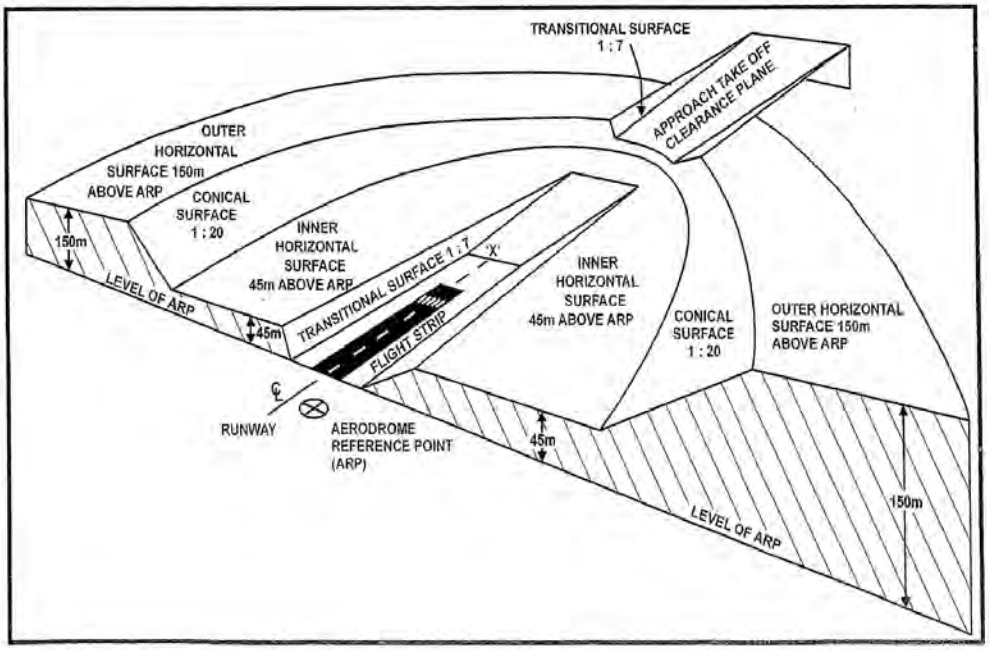


Figure 11: Typical Cross Section and Isometric View of OLS (Source: NASF)

8 Assessment of Current Safeguards

The following is an assessment of the Ballarat Airport's current safeguarding environment having regard to the preceding gap analysis and supplementary studies.

8.1 SWOT Analysis

8.1.1 Strengths

- SPPF clause 18.04 provides high level support for the safeguarding of Ballarat Airport.
- NASF has been agreed to by the State Government and is referred to in the SPPF and therefore must be considered in strategic planning.
- Ballarat Airport is recognised in the BPS MSS as an important asset that needs to be protected.
- ANEC/F and N contours have been produced for the airport based on different growth and development scenarios.
- The BPS currently includes AEOs that provide some (but limited) protection from encroachment of noise senstive land uses.
- The current DDOs provide some control over intrusions into the critical OLS approach and take-off surfaces for the existing runway lengths.
- There is a Master Plan in place for the airport.

8.1.2 Weaknesses

- The current AEOs are based on an outdated ANEF.
- ANEFs have a number of limitations and they do not provide a full picture of where aircraft noise impacts may be experienced around airports (see NASF Guideline A).
- The current DDOs do not protect extension of the main runway or the OLS Inner Horizontal Surface, and the building height permit triggers specified in the schedules would need to be updated.
- The current safeguarding environment does not fully address all NASF guidelines (see section 8.2 below).
- The Master Plan is not referenced in the BPS MSS.
- Although physically possible, the current Master Plan does not provide for a 2000m main runway (neither Option 1D or 2B).
- The potential overall noise and OLS footprint is unclear due to uncertanties around the future length of Runway 18/36.
- The role of N contours is not defined in the BPS or the current Master Plan.

8.1.3 Opportunities

- An update of the Master Plan for the airport provides an opportunity to comprehensively address the full suite of airport safeguarding matters in accordance with NASF, including the role of N contours in Council's strategic planning.
- When finalised, the updated Master Plan could be made a reference document in the BPS giving it statutory status as a guidance document for assessment of planning proposals around the airport.
- An update of the Master Plan may also assist in confirming the long term future of the airport, particularly the ultimate length of the main runway.
- Noise contours and obstacle surfaces could be produced incorporating all possible runway length scenarios to define the potential 'overall' footprint, incorporating for example the following scenarios:
    - Existing runway lengths
    - 400m extension to Runway 18/36 taking it to 1645m long
    - 1800m long Runway 18/36 (2013 Master Plan)
    - Runway 18/36 Option 1D
    - Runway 18/36 Option 2B
    - Higher or lower aircraft movement forecasts.

8.1.4 Threats

- Encroachment of incomptabile land use and development around the airport, particularly noise sensitive uses and intrusions into the airport's airspace surfaces.
- Inadequate consideration of airport safeguarding matters in strategic planning.

8.2 NASF Guidelines

Table 2 below assesses the current safeguarding environment relating to Ballarat Airport against each NASF guideline. As previously stated, under Clause 18.04-2 of the SPPF, NASF is a policy guideline that planning must consider. The table below outlines whether each guideline has been specifically addressed in the BPS or the Master Plan for the airport.

Table 2: NASF Guidelines Assessment

NASF Guideline	Assessment
Guideline A: Measures for Managing Impacts of Aircraft Noise	ANEC/F and N contours have been produced for the airport based on different growth scenarios and AEOs are in place in the BPS. However, the potential 'overall' noise footprint is unclear. The role of N contours is not defined in the local planning context.
Guideline B: Managing the Risk of Building Generated Windshear and Turbulence at Airports	Not specifically addressed in the BPS or the current Master Plan.
Guideline C: Managing the Risk of Wildlife Strikes in the Vicinity of Airports	Not specifically addressed in the BPS or the current Master Plan.
Guideline D: Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation	Not specifically addressed in the BPS or the current Master Plan. However, BPS clause 52.32 provides some protection.
Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports	Not specifically addressed in the BPS or the current Master Plan.
Guideline F: Managing the Risk of Intrusions into the Protected Airspace of Airports	Several OLS charts have been prepared for the airport based on different runway scenarios. DDOs are in place in the BPS but these do not protect extension of the main runway or the OLS Inner Horizontal Surface. The DDOs need to be reviewed when the ultimate length of main runway is confirmed.
Guideline G: Protecting Aviation Facilities - Communications, Navigation and Surveillance (CNS)	Not specifically addressed in the BPS or the current Master Plan.
Guideline H: Protecting Strategically Important Helicopter Landing Sites	This guideline does not relate to Helicopter Landing Sites on aerodromes.
Guideline I: Managing the Risk in Public Safety Zones at the Ends of Runways (Draft)	Not specifically addressed in the BPS or the current Master Plan.

In relation to the NASF windshear, wildlife strikes, wind farm, lighting, CNS and public safety zone guidelines, Council could choose to apply overlay controls for these matters. However, unlike for the ANEF contours and airspace surfaces, there is currently no standard or accepted approach for dealing with these matters via planning controls in Victorian planning schemes. We are unaware of any other airports in Victoria with such controls in place. This is an issue that would need to be discussed with the State Government before introducing planning controls for these matters, particularly given the large area some of these matters cover.

Having said that, these matters should all be considered when assessing planning proposals around the airport, in accordance with SPPF Clause 18.04, and they should also be addressed in detail in the next update of the Master Plan.

9 Conclusion and Recommendations

Based on the above assessment, the following recommendations are made in relation to safeguarding Ballarat Airport:

1. When assessing planning proposals around the airport, all of the NASF guidelines should be considered in accordance with SPPF Clause 18.04.
2. When assessing planning proposals around the airport, the noise contours produced as part of this study, as well as the 2010 contours, including all N contours, should be considered by Council in accordance with NASF Guideline A.
3. As the ANEC/F contours produced for this study are generally smaller than the ANEF contours produced in 2004 (which were the basis of the current AEOs), the current AEOs should be retained, at least until there is some certainty around the development of the AESH proposal and the potential 'overall' noise footprint.
4. The OLS charts produced as part of this study should be considered by Council when assessing development proposals around the airport in accordance with NASF Guideline F, particularly as the current DDOs do not protect these surfaces or any extension to the main runway.
5. The existing DDOs should be amended to protect extension of the main runway, but not until there is certainty around the AESH and the length of runway extension that should be protected. At the same time consideration should be given to protecting the Inner Horizontal Surface and the building height permit triggers specified in the DDO schedules should be reviewed to ensure they protect any changes to the OLS surface heights.
6. A Planning Scheme Amendment relating to the airport's planning controls should not proceed until there is certainty around the AESH proposal and the long term / ultimate length of the main runway.
7. Council should consider reviewing and updating the Ballarat Airport Master Plan when the AESH proposal and funding for it is confirmed. An update of the Master Plan provides an opportunity to comprehensively address the full suite of airport safeguarding matters as per the NASF guidelines. An update of the Master Plan may also assist in confirming the long term future of the airport, particularly the ultimate length of the main runway.
8. Any Planning Scheme Amendment relating to the airport should incorporate referencing the Master Plan and N contours in the Ballarat MSS giving them statutory status as guidance documents for assessment of planning proposals around the airport.

9. Noise contours and obstacle surfaces could be produced incorporating all possible runway length options / scenarios to define the potential 'overall' footprint. However, it would be more appropriate to first confirm the long term future development of the airport, particularly the AESH proposal, thus limiting the number of scenarios to be protected.

10. Council should monitor developments in the airport safeguarding arena, including the release of new NASF guidelines and any intiatives by the State Government in relation to NASF and its implementation in the Victorian planning system.

Appendix 1

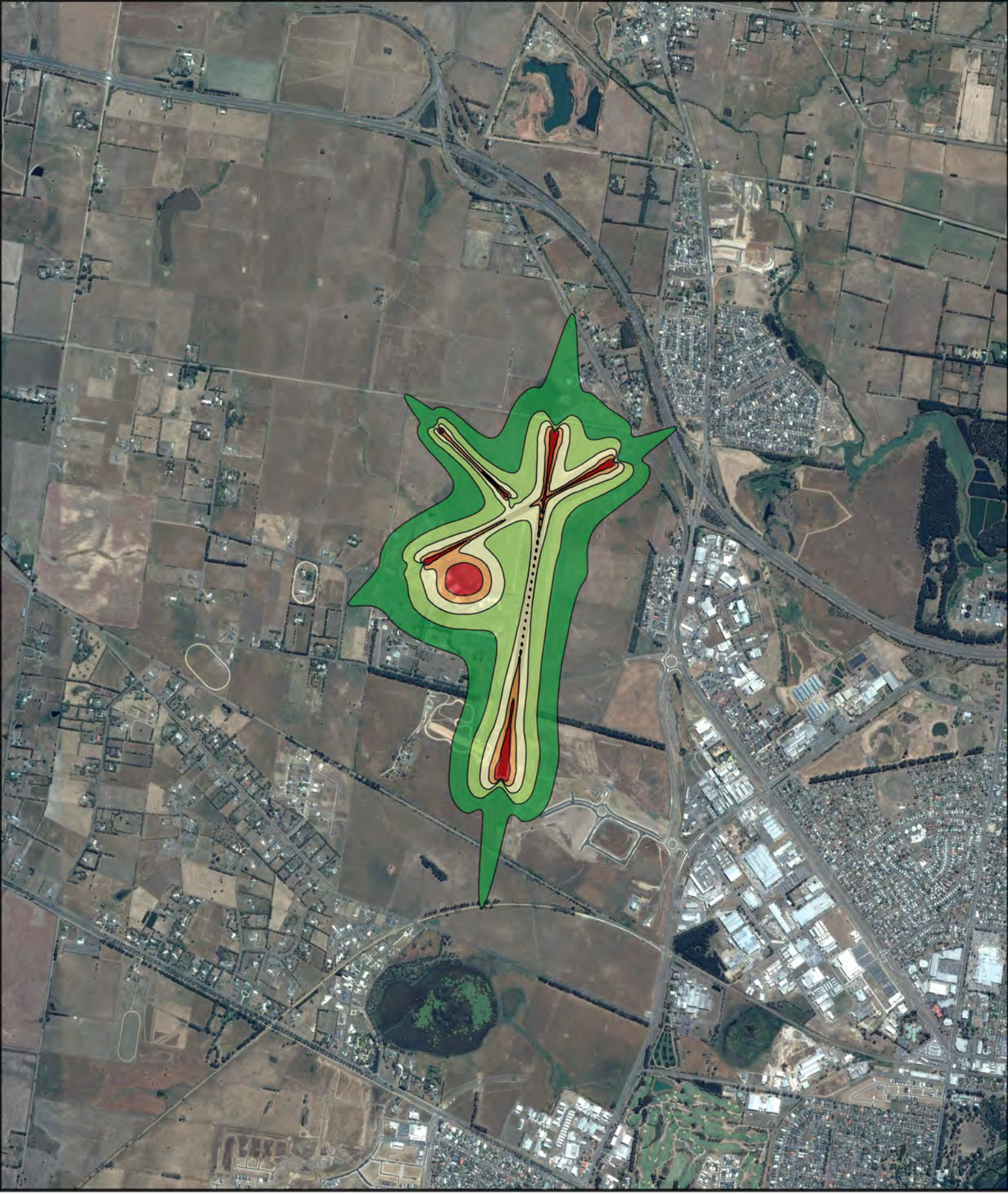
ANEC/F Contours:

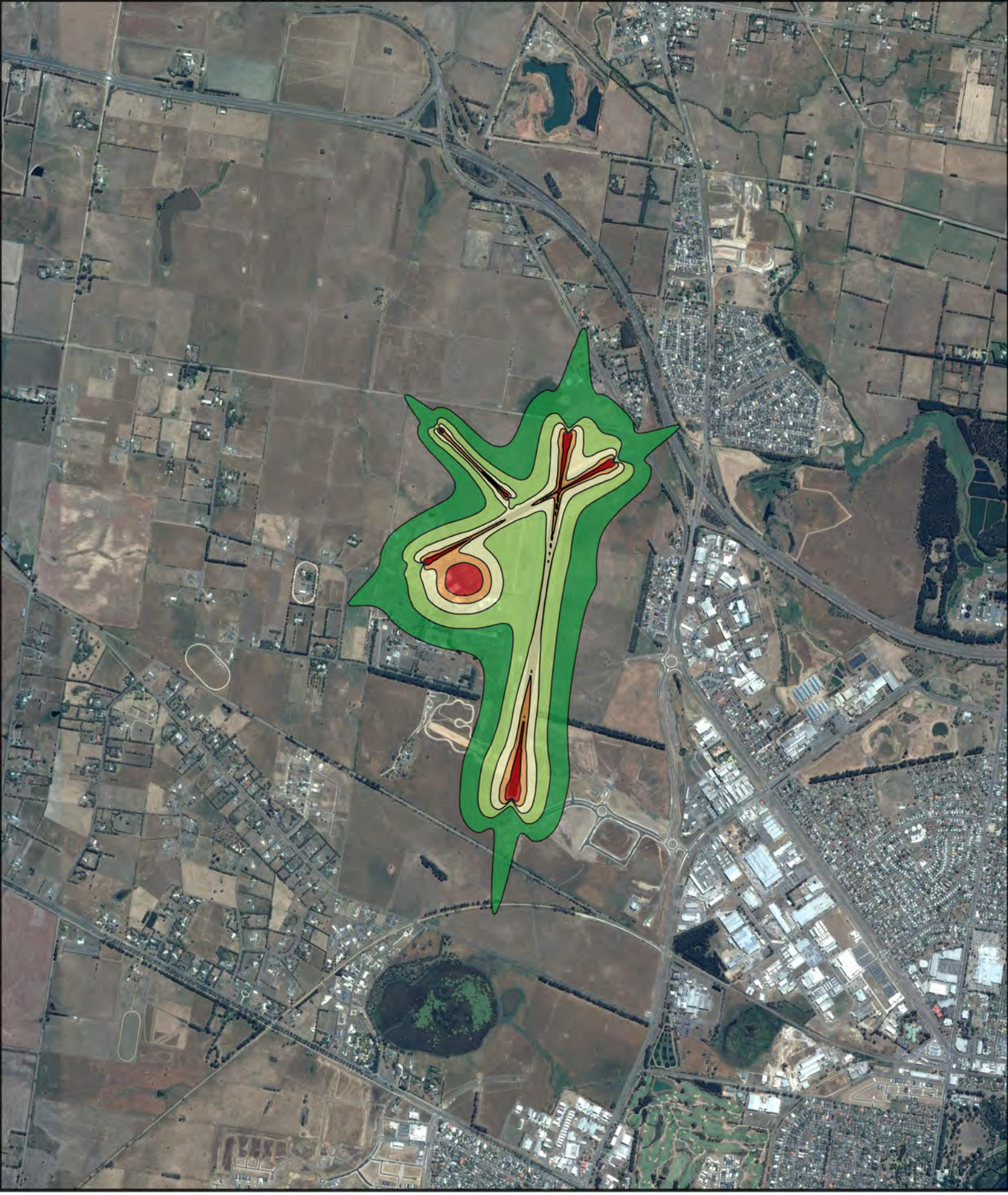
Option 1D

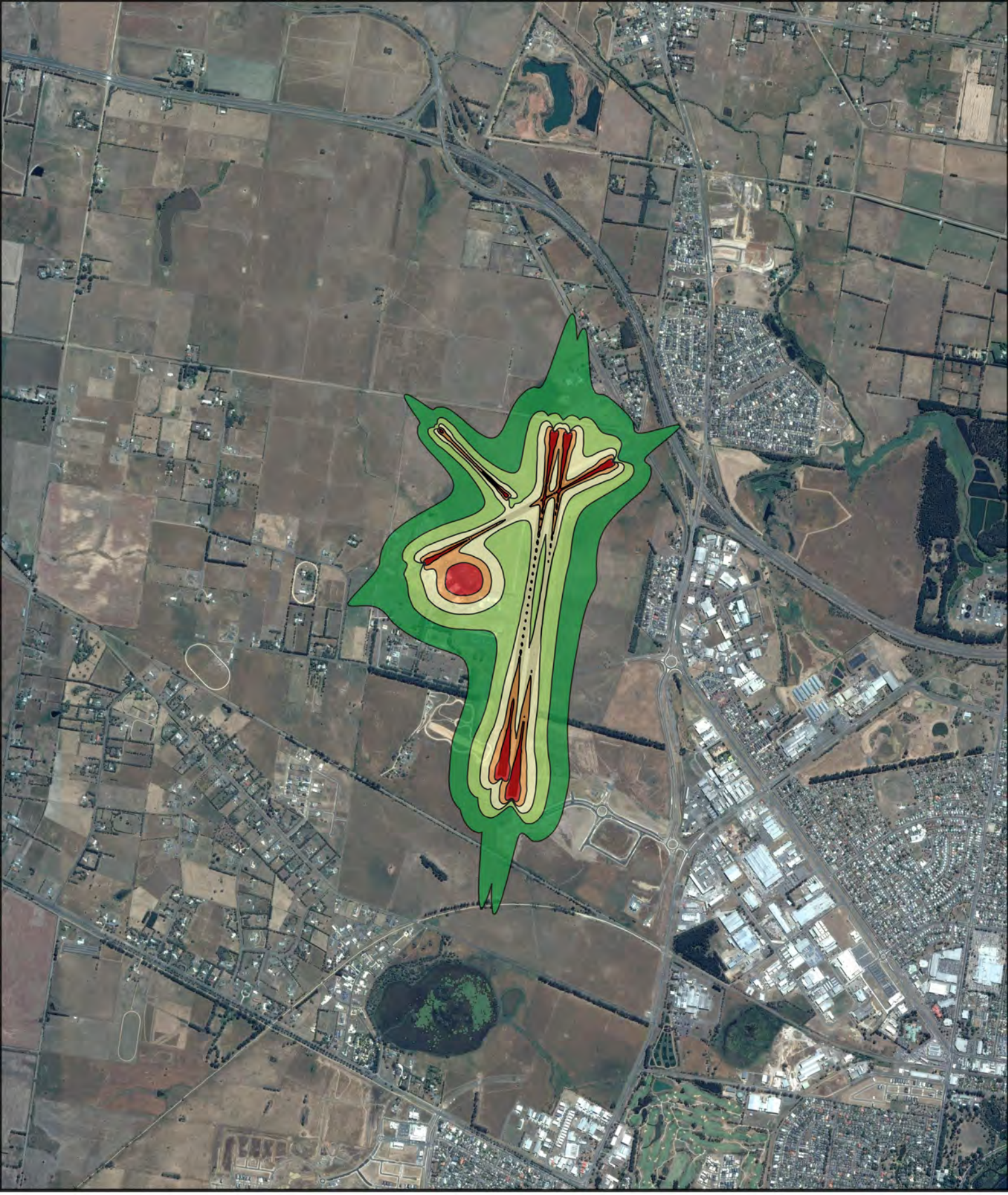
Option 2B

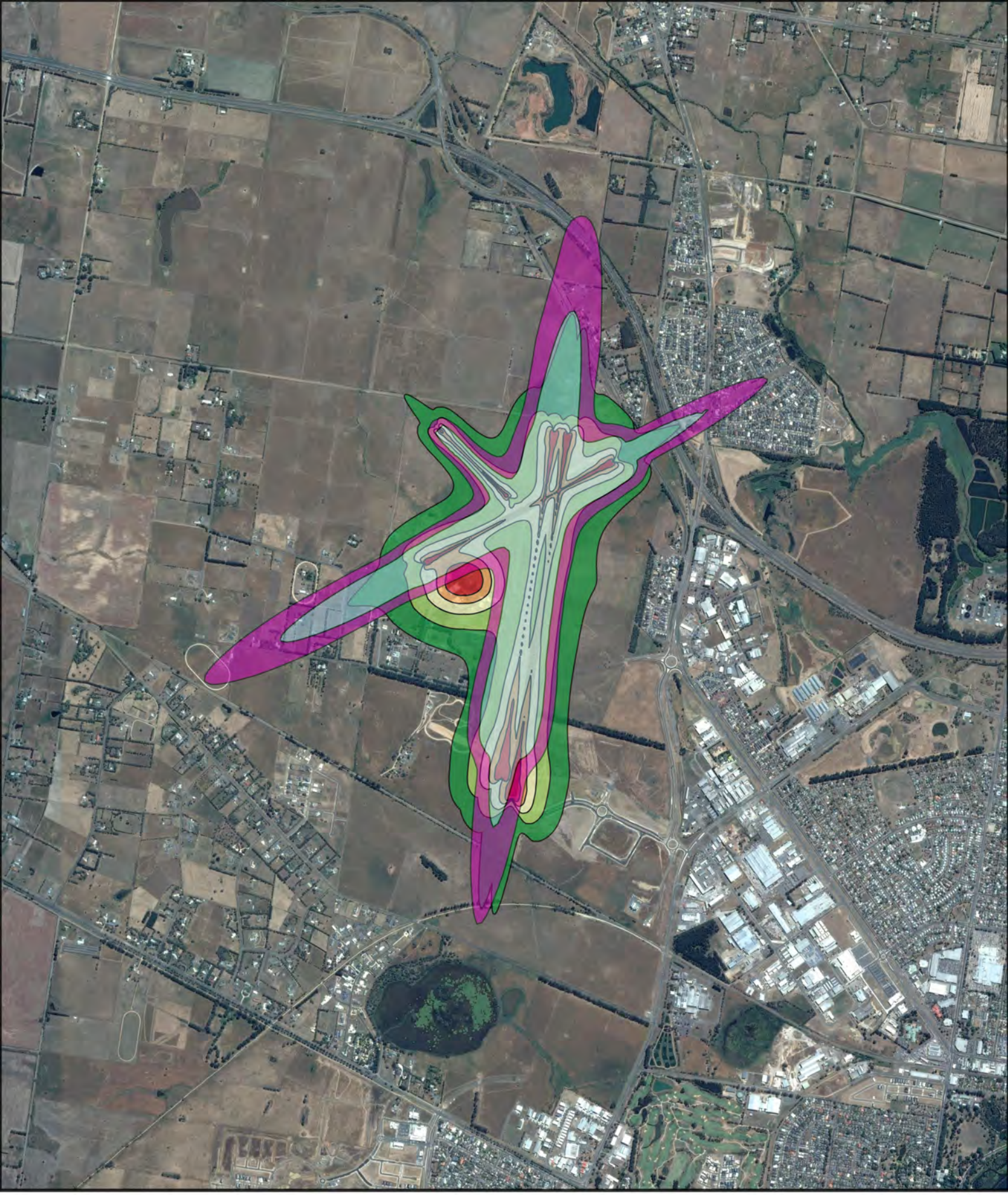
Options 1D & 2B Combined

ANEF and AEO Comparison


Ballarat Aerodrome
ANEF Option 1D
0
500
1000
1500
2000 m
N
ANEF 20
ANEF 25
ANEF 30
ANEF 35
ANEF 40


Ballarat Aerodrome
ANEF Option 2B
0
500
1000
1500
2000 m
N
ANEF 20
ANEF 25
ANEF 30
ANEF 35
ANEF 40


Ballarat Aerodrome
ANEF Merged (Option 1D & 2B)
0
500
1000
1500
2000 m
N
ANEF 20
ANEF 25
ANEF 30
ANEF 35
ANEF 40


Ballarat Aerodrome
ANEF Merged & Existing AEO
0
500
1000
1500
2000 m
N
Existing AEO1
370 Existing AEO2
ANEF 20
ANEF 25
ANEF 30
ANEF 35
ANEF 40

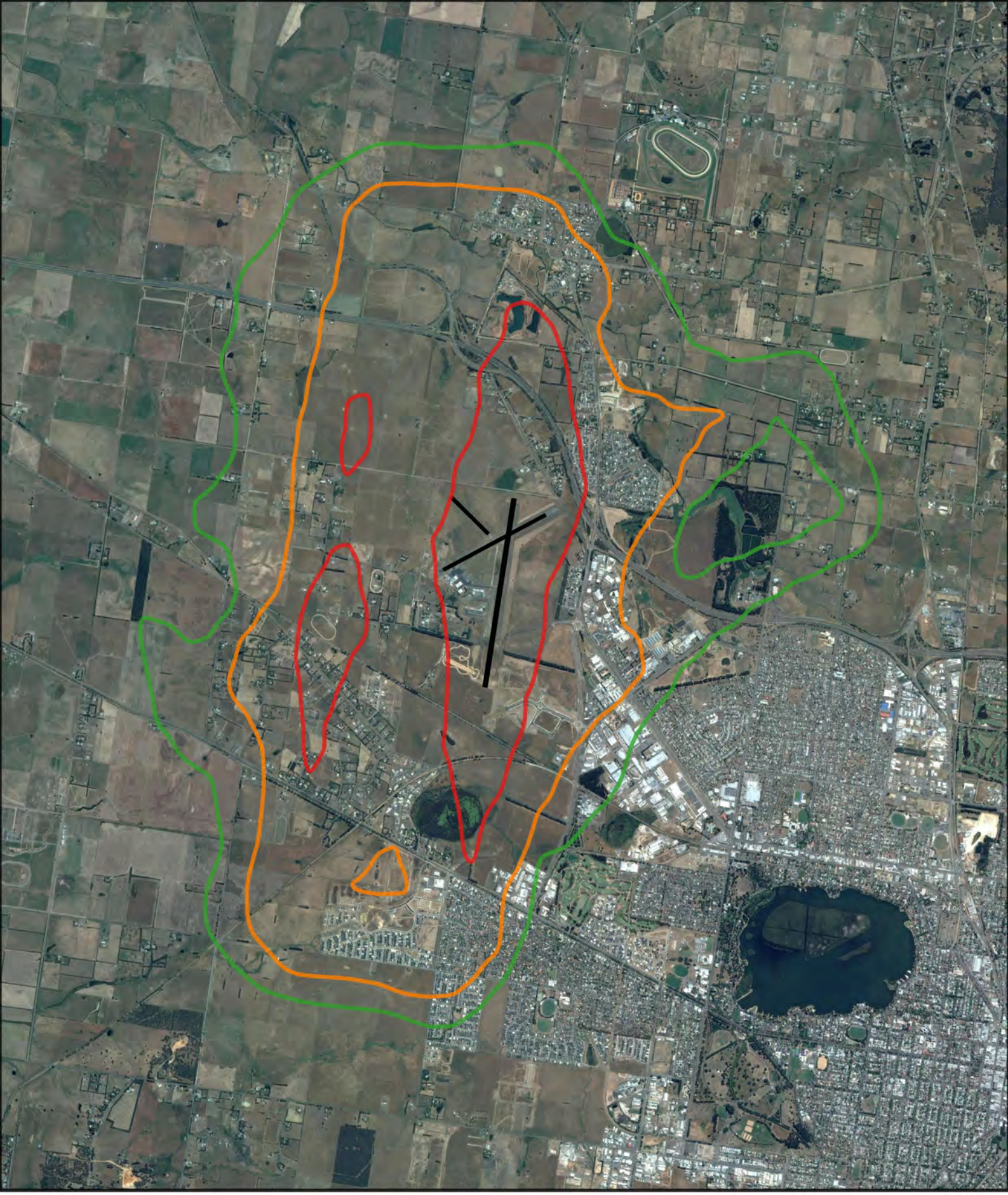
Appendix 2

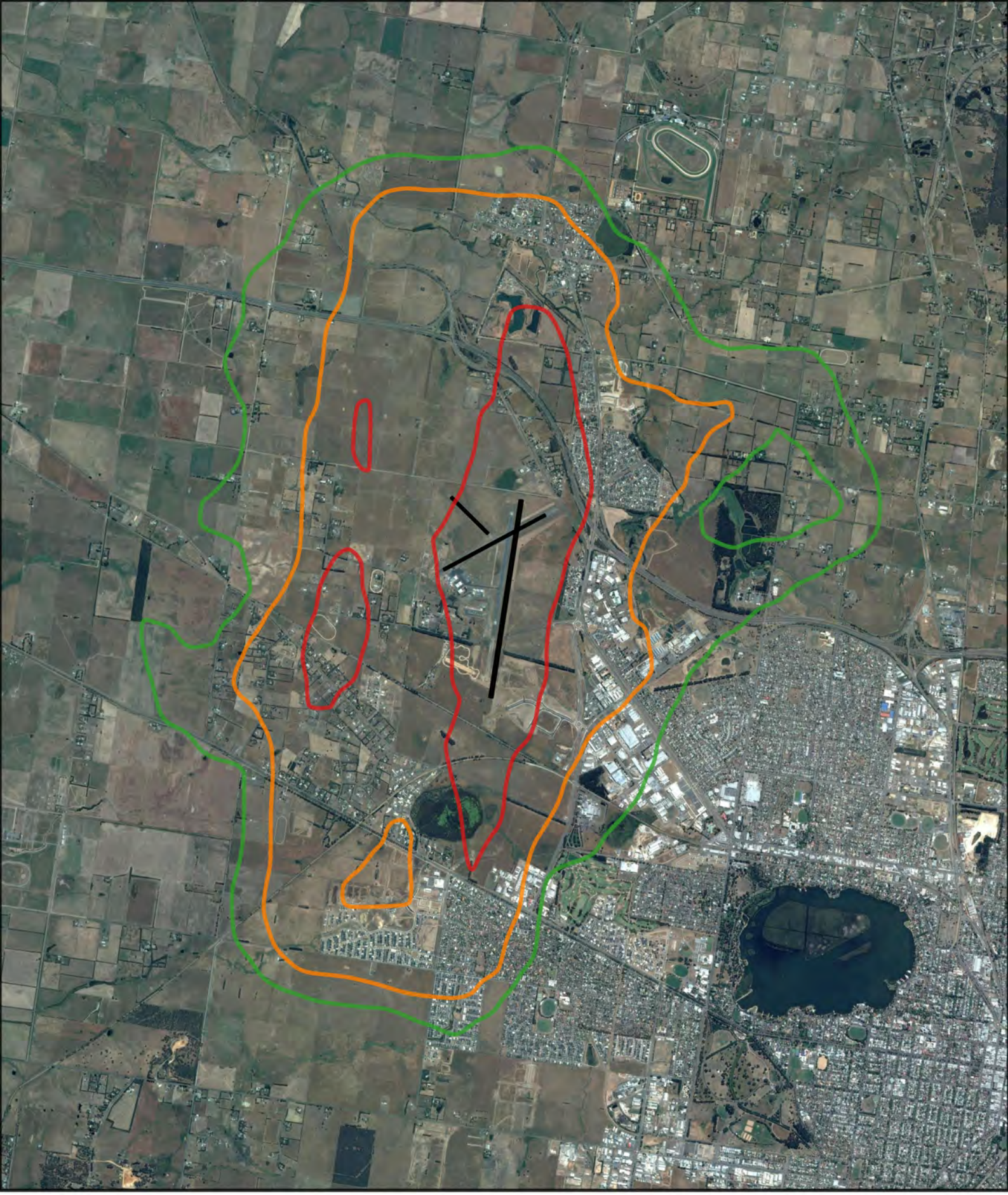
N60 Noise Contours:

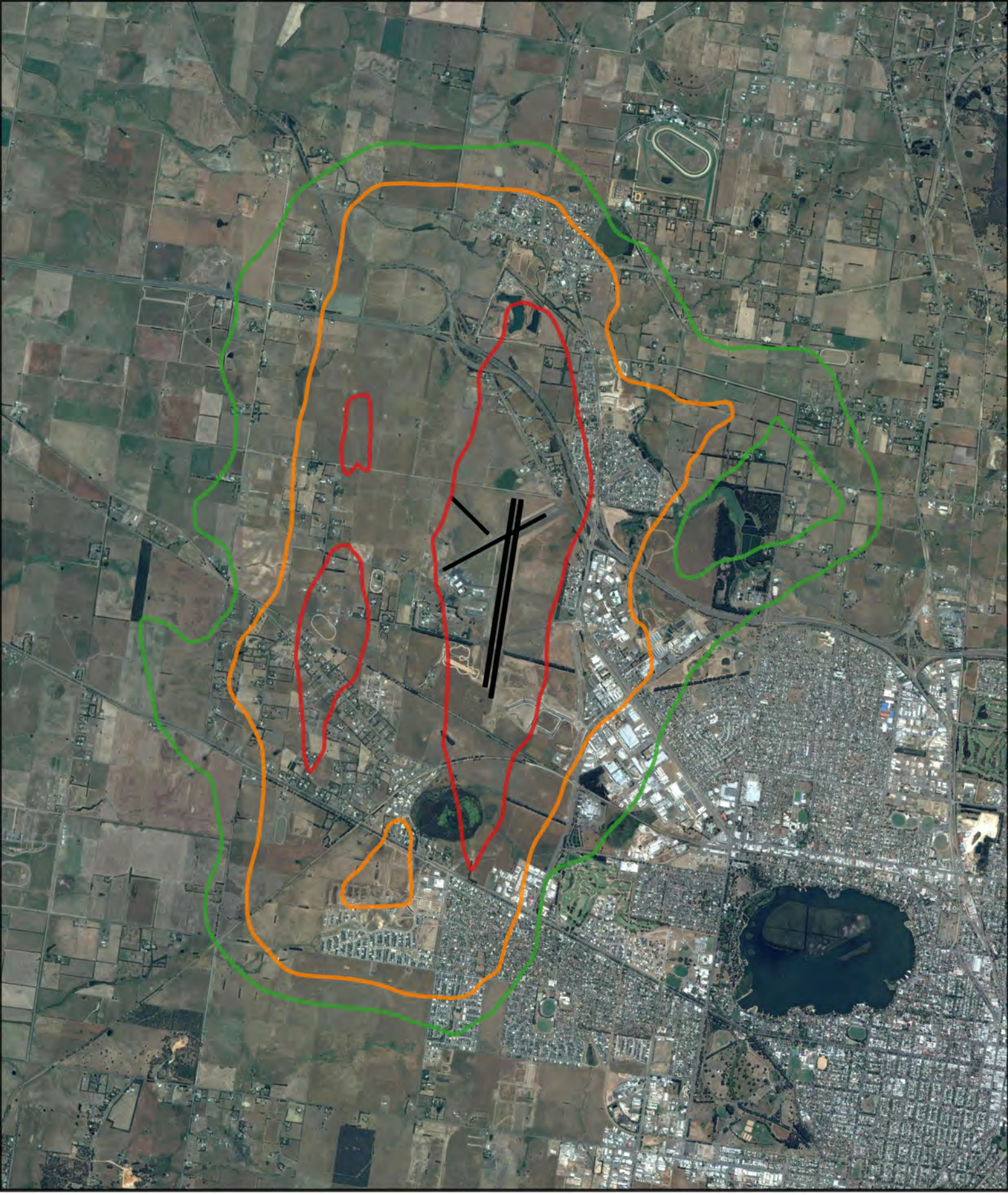
Option 1D

Option 2B

Options 1D & 2B Combined


Ballarat Aerodrome
N60 - Option 1D
0
1000
2000 m
N
10
50
20


Ballarat Aerodrome
N60 - Option 2B
0
1000
2000 m
N
10
20
50


Ballarat Aerodrome
N60 - Merged (Option 1D & 2B)
0
1000
2000 m
10
20
50
N

Appendix 3

N65 Noise Contours:

Option 1D

Option 2B

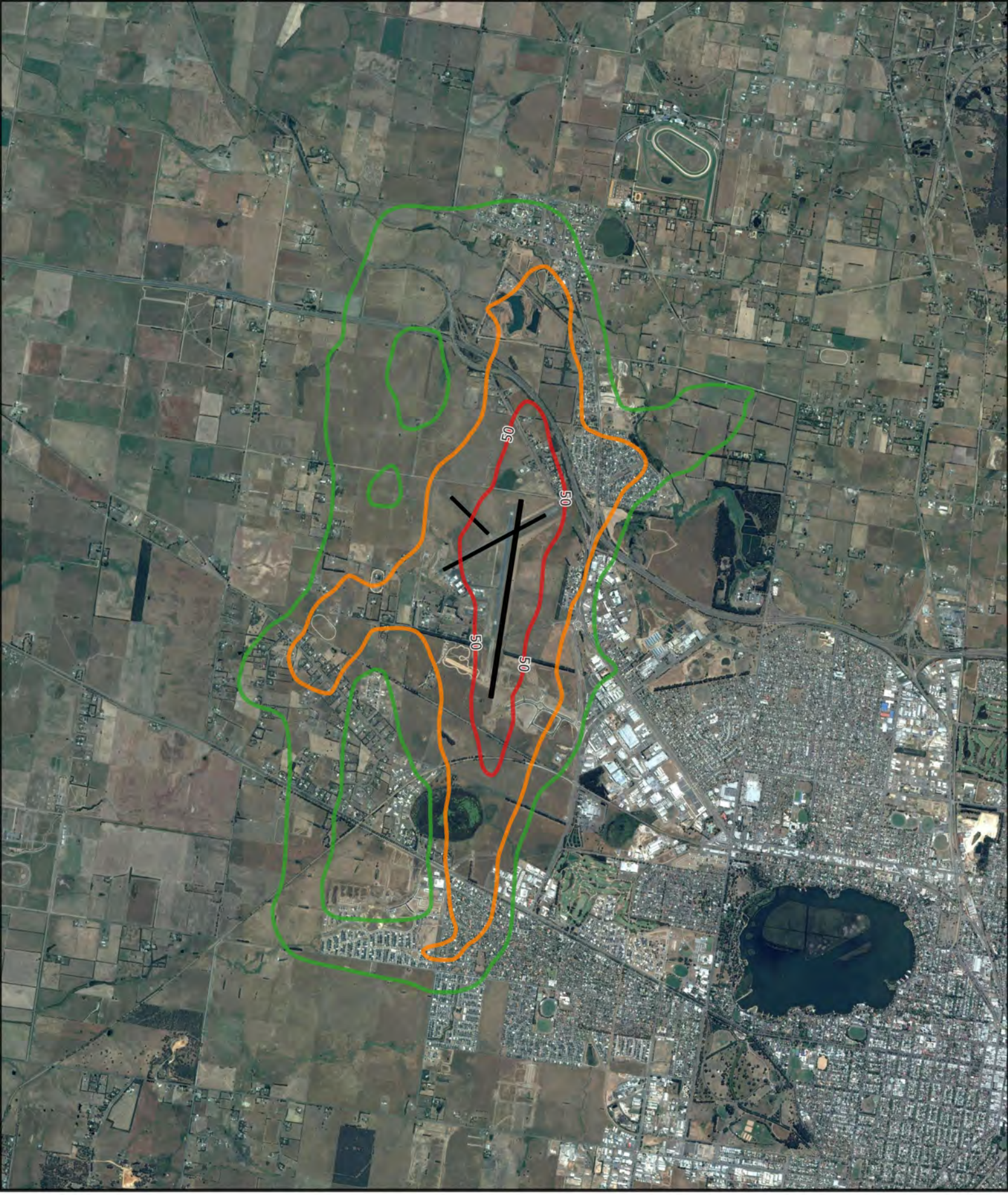
Options 1D & 2B Combined

Ballarat Aerodrome
N65 - Option 1D

0 1000 2000 m

10 50
20

N



Ballarat Aerodrome
N65 - Option 2B

0 1000 2000 m

N

10 50
20

Ballarat Aerodrome
N65 - Merged (Option 1D & 2B)

0 1000 2000 m

10 50
20

N

Appendix 4

N70 Noise Contours:

Option 1D

Option 2B

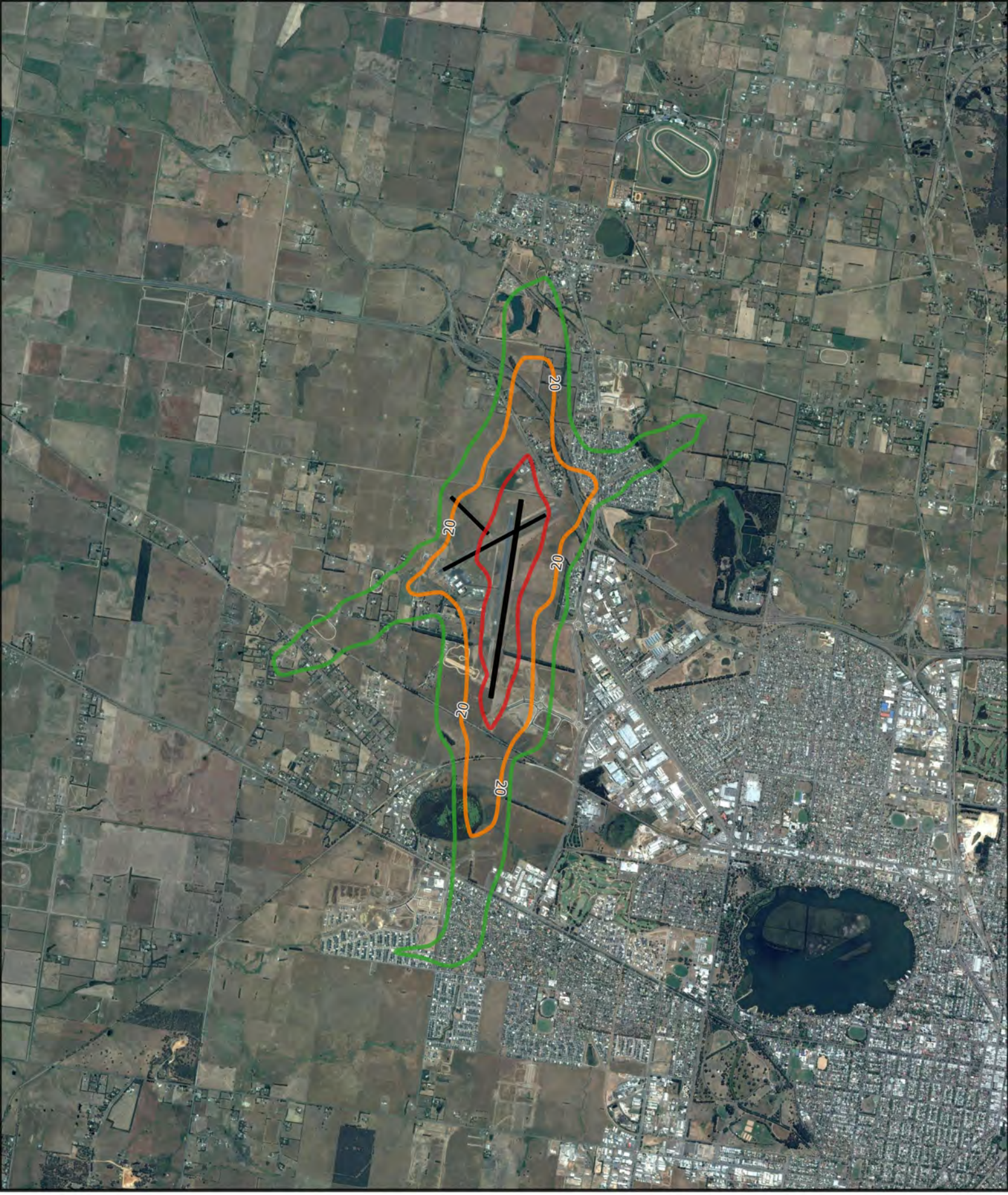
Options 1D & 2B Combined

Ballarat Aerodrome
N70 - Option 1D

0 1000 2000 m

10 50
20

N

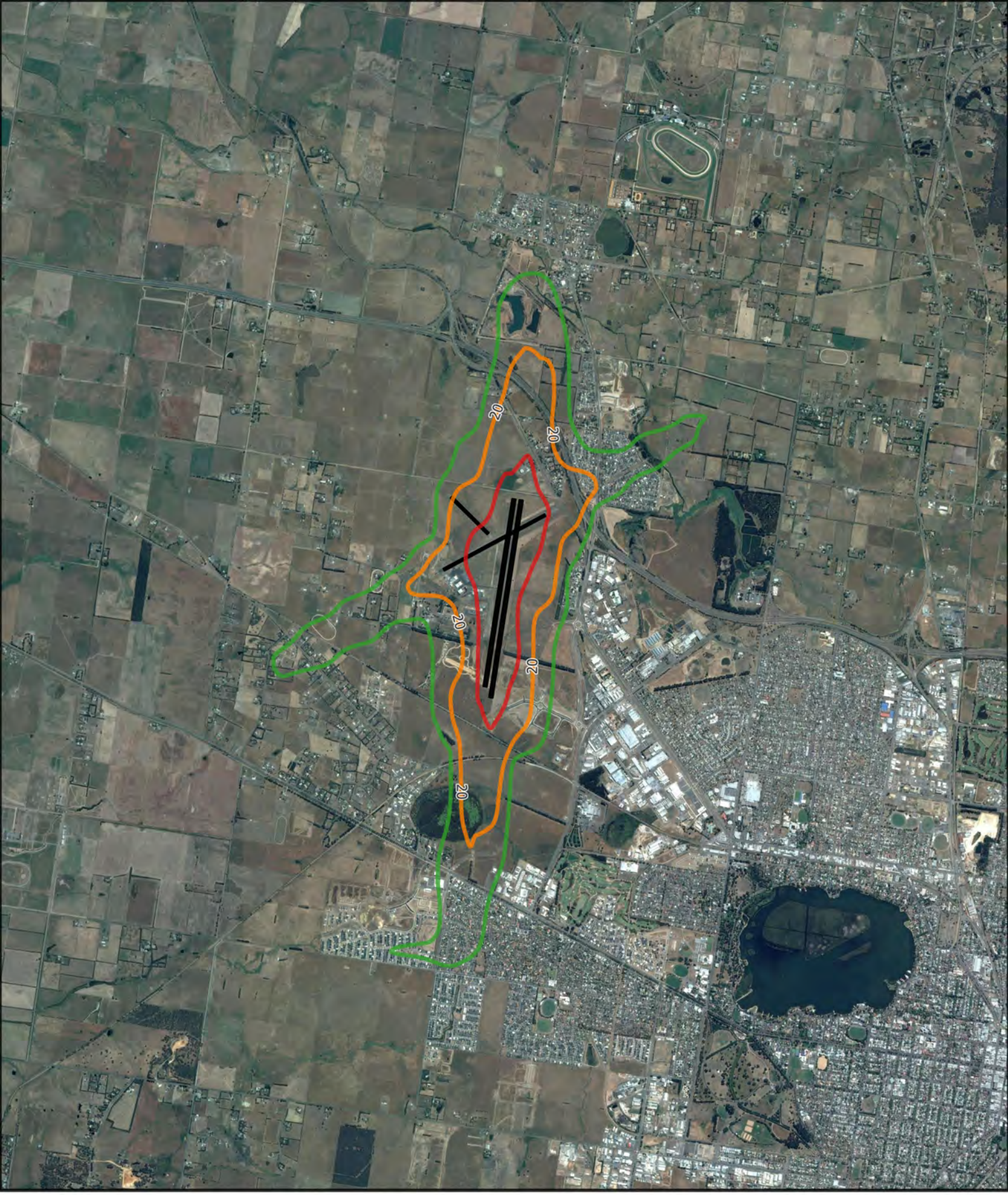


Ballarat Aerodrome
N70 - Option 2B

0 1000 2000 m

N

10 50
20



Ballarat Aerodrome
N70 - Merged (Option 1D & 2B)

0 1000 2000 m

N

10 50
20

Appendix 5

Obstacle Limitation Surfaces:

Option 1D

Option 2B

Options 1D & 2B Combined

DDO and OLS Comparison

735000 740000 745000 750000 755000 760000

5860000 5855000 5850000 5845000 5840000 5835000 5830000

HORIZONTAL SECTION RL 586.6 metres

RL 736.60

RL 586.60 RL 580 RL 570 RL 560 RL 580 RL 570 RL 586.6 RL 950

HORIZONTAL SECTION RL 625.6

RL625.6 RL620 RL610 RL620 RL625.6 RL610 RL600 RL590 RL580 RL570 RL560 RL540 RL560 RL625.6 RL620 RL610

INNER HORIZONTAL SURFACE RL 480.5 metres

RL 480.5 RL 490 RL 470 RL 480 RL 490 RL 480.5 RL 470 RL 480 RL 490 RL 470 RL 480 RL 490 RL 480.5

RL 570 RL 580 RL 590 RL 600 RL 610 RL 620 RL 624.6 RL 630 RL 640 RL 550 RL 540 RL 530 RL 520 RL 510 RL 500 RL 490 RL 480.5

18 SEALED 1260 x 45m SEALED RUNWAY 36

INNER HORIZONTAL SURFACE RL 480.5 metres

RL 480.5 RL 490 RL 500 RL 510 RL 520 RL 530 RL 540 RL 550 RL 560 RL 570 RL 580 RL 590 RL 600 RL 610 RL 620 RL 624.6

HORIZONTAL SECTION RL 624.6

RL 570 RL 580 RL 590 RL 560 RL 570 RL 580 RL 590 RL 591.10

HORIZONTAL SECTION RL 591.10 metres

RL 736.60 RL 741.6

BALLARAT AERODROME

OBSTACLE LIMITATION SURFACE DIMENSIONS
CO-ORDINATES ARE MGA94 ZONE 54

RUNWAY 18- 36

CODE 4 NON-PRECISION INSTRUMENT APPROACH RUNWAY

18 Approach Inner Edge
E 747057.452 N 5845277.121 RL 436.665

18 Threshold
E 747046.548 N 5845218.120 RL 436.606

Runway 18 Start of TORA/TODA
E 747073.8 N 5845365.6 RL 436.75

36 Approach Inner Edge
E 746721.226 N 5843457.931 RL 441.588

Threshold
E 746732.130 N 5843516.932 RL 441.112

Runway 36 Start of TORA/TODA
E 746695.8 N 5843320.3 RL 442.70

TAKE OFF SURFACE

TAKE OFF GRADE 2%
LENGTH OF TAKE OFF AREA 15000 metres
INNER EDGE LENGTH 180 metres
DIVERGENGE ANGLE 12.5%

APPROACH SURFACE

FIRST SECTION GRADE 2%
FIRST SECTION LENGTH 3000 metres
SECOND SECTION GRADE 2.5%
SECOND SECTION LENGTH 3600 metres
HORIZONTAL SECTION LENGTH 8400 metres
INNER EDGE LENGTH 300 metres
DIVERGENCE ANGLE 15%

TRANSITIONAL SLOPE 14.3%
INNER HOR. SURFACE HT 45 metres
INNER HOR. SURFACE RAD 4000 metres
CONICAL SURFACE SLOPE 5%
CONICAL SURFACE WIDTH 2000 metres

RUNWAY 05 - 23

CODE 3 NON-INSTRUMENT APPROACH RUNWAY

05 THRESHOLD 746278.891 5844613.896 434.682
23 THRESHOLD 747413.806 5845179.785 435.681
CENTRELINE BEARING 63°29' 54"

TAKE OFF SURFACE

TAKE OFF GRADE 2%
LENGTH OF TAKE OFF AREA 15000 metres
INNER EDGE LENGTH 180 metres
DIVERGENGE ANGLE 12.5%

APPROACH SURFACE

FIRST SECTION GRADE 3.33%
FIRST SECTION LENGTH 3000 metres
SECOND SECTION GRADE 2.5%
SECOND SECTION LENGTH 3600 meters
HORIZTONAL SECTION LENGTH 8400 meters
INNER EDGE LENGTH 150 metres
DIVERGENCE ANGLE 15%

RUNWAY 13 - 31

CODE 1 NON-INSTRUMENT APPROACH RUNWAY

13 THRESHOLD 746385.296 5845406.570 433.022
31 THRESHOLD 746778.650 5844994.647 435.761
CENTRELINE BEARING 316° 19' 16"

TAKE OFF SURFACE

TAKE OFF GRADE 5%
LENGTH OF TAKE OFF AREA 1600 metres
INNER EDGE LENGTH 90 metres
DIVERGENGE ANGLE 10%

APPROACH SURFACE

FIRST SECTION GRADE 5%
FIRST SECTION LENGTH 1600 metres
INNER EDGE LENGTH 90 metres
DIVERGENCE ANGLE 10%

DRAWN	B.FITZGERALD
DATE	15/04/2018
SURVEYED	
DATE	
ARCHIVED	
DRAWING No.	BLT/010 Sheet 1 of 1 Sheets

NOTE:

- LEVELS ARE TO AUSTRALIAN HEIGHT DATUM (AHD)
- CO-ORDINATES ARE MGA94 ZONE 54
- DUE TO THE VARIABLE NATURE OF THE TRANSITIONAL SURFACE, OBJECTS LOCATED WITHIN IT SHOULD BE CHECKED BY GROUND SURVEY FOR CLEARANCE

CLIENT

BALLARAT AERODROME

AIRPORT SURVEYS
0409 230 650
paul@airportsurveys.com.au

PROJECT

OBSTACLE LIMITATION SURFACES - OPTION 1D

Meters
1000 0 1000 2000
1:50000

AMENDMENTS

DATE	AMENDMENT	SIGNED

735000 740000 745000 750000 755000 760000

5860000 5855000 5850000 5845000 5840000 5835000 5830000

HORIZONTAL SECTION RL 587.2 metres

HORIZONTAL SECTION RL 625.6

HORIZONTAL SECTION RL 624.6

HORIZONTAL SECTION RL 591.5 metres

INNER HORIZONTAL SURFACE RL 480.5 metres

INNER HORIZONTAL SURFACE RL 480.5 metres

RL 587.2 RL 580 RL 570 RL 560 RL 550

RL 580.5 RL 570 RL 560 RL 550 RL 540 RL 530 RL 520 RL 510 RL 500 RL 490 RL 480.5

RL 625.6 RL 620 RL 610 RL 600 RL 590 RL 580 RL 570 RL 560 RL 550 RL 540

RL 624.6 RL 620 RL 610 RL 600 RL 590 RL 580 RL 570 RL 560 RL 550 RL 540

RL 591.50 RL 580 RL 570 RL 560 RL 550 RL 590 RL 591.5

RL 741.5

RL 480.5 RL 470 RL 460 RL 450 RL 440

05 SEALED 1280 23

18 36

200m x 45m SEALED RUNWAY

RL 456 RL 460 RL 470 RL 480.5

BALLARAT AERODROME

OBSTACLE LIMITATION SURFACE DIMENSIONS
CO-ORDINATES ARE MGA94 ZONE 54

RUNWAY 18- 36

CODE 4 NON-PRECISION INSTRUMENT APPROACH RUNWAY

18 Approach Inner Edge
E 747130.42 N 5845222.96 RL 437.2

18 Threshold
E 747119.52 N 5845163.96 RL 436.77

Runway 18 Start of TORA/TODA
E 747154.1 N 5845350.8 RL 438.27

36 Approach Inner Edge
E 746796.02 N 5843413.60 RL 441.5

36 Threshold
E 746806.92 N 5843472.60 RL 441.1

Runway 36 Start of TORA/TODA
E 746756.0 N 5843197.2 RL 442.38

TAKE OFF SURFACE

TAKE OFF GRADE 2%
LENGTH OF TAKE OFF AREA 15000 metres
INNER EDGE LENGTH 180 metres
DIVERGENGE ANGLE 12.5%

APPROACH SURFACE

FIRST SECTION GRADE 2%
FIRST SECTION LENGTH 3000 metres
SECOND SECTION GRADE 2.5%
SECOND SECTION LENGTH 3600 metres
HORIZONTAL SECTION LENGTH 8400 metres
INNER EDGE LENGTH 300 metres
DIVERGENCE ANGLE 15%

TRANSITIONAL SLOPE 14.3%
INNER HOR. SURFACE HT 45 metres
INNER HOR. SURFACE RAD 4000 metres
CONICAL SURFACE SLOPE 5%
CONICAL SURFACE WIDTH 2000 metres

RUNWAY 05 - 23

CODE 3 NON-INSTRUMENT APPROACH RUNWAY

05 THRESHOLD 746278.891 5844613.896 434.682
23 THRESHOLD 747413.806 5845179.785 435.681
CENTRELINE BEARING 63°29' 54"

TAKE OFF SURFACE

TAKE OFF GRADE 2%
LENGTH OF TAKE OFF AREA 15000 metres
INNER EDGE LENGTH 180 metres
DIVERGENGE ANGLE 12.5%

APPROACH SURFACE

FIRST SECTION GRADE 3.33%
FIRST SECTION LENGTH 3000 metres
SECOND SECTION GRADE 2.5%
SECOND SECTION LENGTH 3600 meters
HORIZTONAL SECTION LENGTH 8400 meters
INNER EDGE LENGTH 150 metres
DIVERGENCE ANGLE 15%

RUNWAY 13 - 31

CODE 1 NON-INSTRUMENT APPROACH RUNWAY

13 THRESHOLD 746385.296 5845406.570 433.022
31 THRESHOLD 746778.650 5844994.647 435.761
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TAKE OFF GRADE 5%
LENGTH OF TAKE OFF AREA 1600 metres
INNER EDGE LENGTH 90 metres
DIVERGENGE ANGLE 10%

APPROACH SURFACE

FIRST SECTION GRADE 5%
FIRST SECTION LENGTH 1600 metres
INNER EDGE LENGTH 90 metres
DIVERGENCE ANGLE 10%

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DATE	15/04/2018
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NOTE:

- LEVELS ARE TO AUSTRALIAN HEIGHT DATUM (AHD)
- CO-ORDINATES ARE MGA94 ZONE 54
- DUE TO THE VARIABLE NATURE OF THE TRANSITIONAL SURFACE, OBJECTS LOCATED WITHIN IT SHOULD BE CHECKED BY GROUND SURVEY FOR CLEARANCE

CLIENT

BALLARAT AERODROME

AIRPORT SURVEYS
0409 230 650
paul@airportsurveys.com.au

PROJECT

OBSTACLE LIMITATION SURFACES - OPTION 2B

Meters
1000 0 1000 2000
1:50000

AMENDMENTS

DATE	AMENDMENT	SIGNED

735000 740000 745000 750000 755000 760000

5860000 5855000 5850000 5845000 5840000 5835000 5830000

HORIZONTAL SECTION RL 624.6

HORIZONTAL SECTION RL 625.6

INNER HORIZONTAL SURFACE RL 480.5 metres

HORIZONTAL SECTION RL 591.10 metres

HORIZONTAL SECTION RL 741.5

BALLARAT AERODROME

OBSTACLE LIMITATION SURFACE DIMENSIONS
CO-ORDINATES ARE MGA94 ZONE 54

RUNWAY 18- 36

CODE 4 NON-PRECISION INSTRUMENT APPROACH RUNWAY

OPTION 1D

18 Approach Inner Edge
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18 Threshold
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Runway 18 Start of TORA/TODA
E 747073.8 N 5845365.6 RL 436.75

36 Approach Inner Edge
E 746721.226 N 5843457.931 RL 441.588

Threshold
E 746732.130 N 5843516.932 RL 441.112

Runway 36 Start of TORA/TODA
E 746695.8 N 5843320.3 RL 442.70

OPTION 2B

18 Approach Inner Edge
E 747130.42 N 5845222.96 RL 437.2

18 Threshold
E 747119.52 N 5845163.96 RL 436.77

Runway 18 Start of TORA/TODA
E 747154.1 N 5845350.8 RL 438.27

36 Approach Inner Edge
E 746796.02 N 5843413.60 RL 441.5

36 Threshold
E 746806.92 N 5843472.60 RL 441.1

Runway 36 Start of TORA/TODA
E 746756.0 N 5843197.2 RL 442.38

TAKE OFF SURFACE

TAKE OFF GRADE 2%
LENGTH OF TAKE OFF AREA 15000 metres
INNER EDGE LENGTH 180 metres
DIVERGENGE ANGLE 12.5%

APPROACH SURFACE

FIRST SECTION GRADE 2%
FIRST SECTION LENGTH 3000 metres
SECOND SECTION GRADE 2.5%
SECOND SECTION LENGTH 3600 metres
HORIZONTAL SECTION LENGTH 8400 metres
INNER EDGE LENGTH 300 metres
DIVERGENCE ANGLE 15%

TRANSITIONAL SLOPE 14.3%
INNER HOR. SURFACE HT 45 metres
INNER HOR. SURFACE RAD 4000 metres
CONICAL SURFACE SLOPE 5%
CONICAL SURFACE WIDTH 2000 metres

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TAKE OFF SURFACE

TAKE OFF GRADE 2%
LENGTH OF TAKE OFF AREA 15000 metres
INNER EDGE LENGTH 180 metres
DIVERGENCE ANGLE 12.5%

APPROACH SURFACE

FIRST SECTION GRADE 3.33%
FIRST SECTION LENGTH 3000 metres
SECOND SECTION GRADE 2.5%
SECOND SECTION LENGTH 3600 meters
HORIZTONAL SECTION LENGTH 8400 meters
INNER EDGE LENGTH 150 metres
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RUNWAY 13 - 31

CODE 1 NON-INSTRUMENT APPROACH RUNWAY

13 THRESHOLD 746385.296 5845406.570 433.022
31 THRESHOLD 746778.650 5844994.647 435.761
CENTRELINE BEARING 316° 19' 16"

TAKE OFF SURFACE

TAKE OFF GRADE 5%
LENGTH OF TAKE OFF AREA 1600 metres
INNER EDGE LENGTH 90 metres
DIVERGENGE ANGLE 10%

APPROACH SURFACE

FIRST SECTION GRADE 5%
FIRST SECTION LENGTH 1600 metres
INNER EDGE LENGTH 90 metres
DIVERGENCE ANGLE 10%

DRAWN	B.FITZGERALD
DATE	15/04/2018
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DATE	
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DRAWING No.	BLT/012 Sheet 1 of 1 Sheets

NOTE:

- LEVELS ARE TO AUSTRALIAN HEIGHT DATUM (AHD)
- CO-ORDINATES ARE MGA94 ZONE 54
- DUE TO THE VARIABLE NATURE OF THE TRANSITIONAL SURFACE, OBJECTS LOCATED WITHIN IT SHOULD BE CHECKED BY GROUND SURVEY FOR CLEARANCE

CLIENT

BALLARAT AERODROME

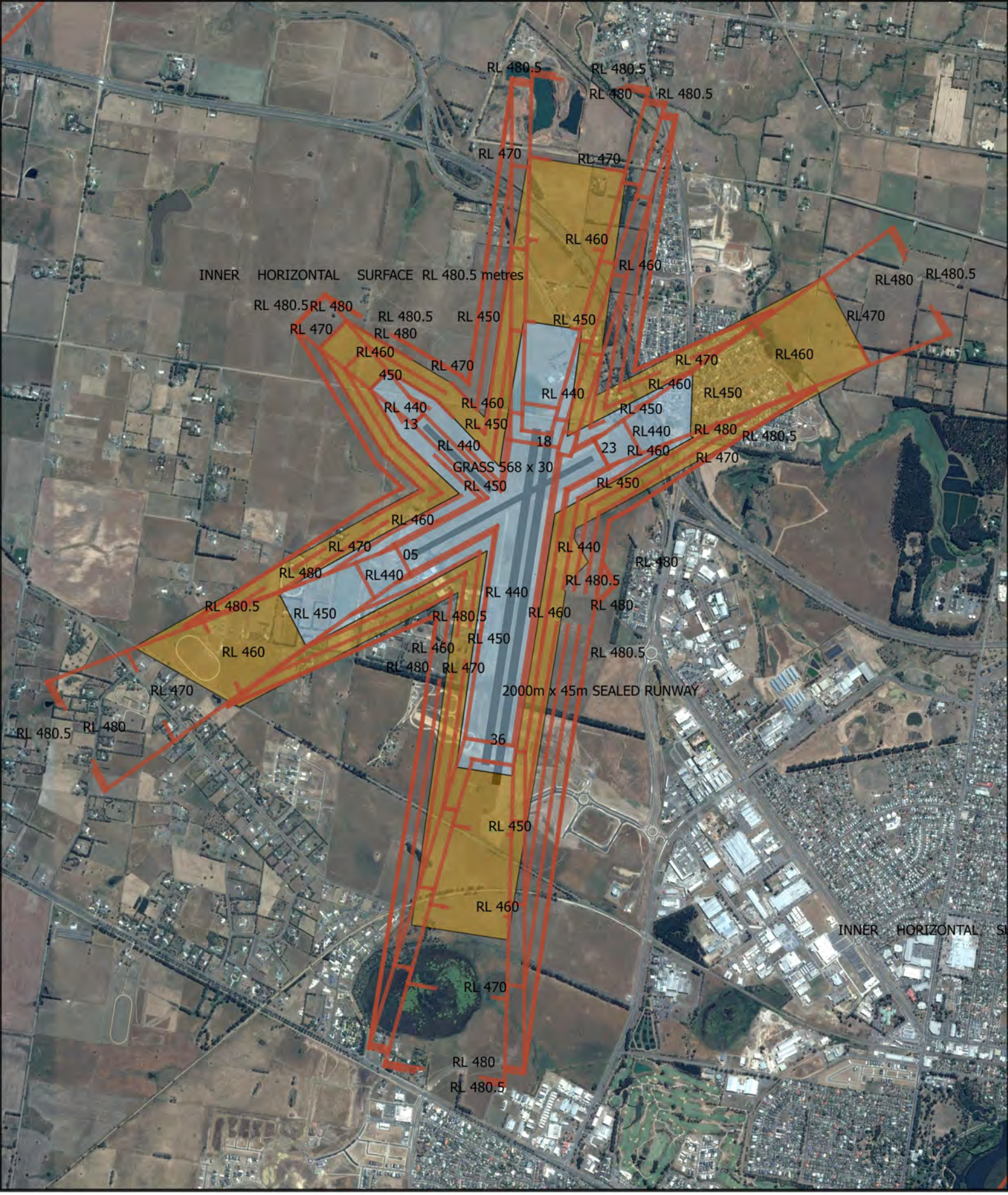
AIRPORT SURVEYS
0409 230 650
paul@airportsurveys.com.au

PROJECT

OBSTACLE LIMITATION SURFACES - OPTION 1D & 2B COMBINED

Meters
1000 0 1000 2000
1:50000

AMENDMENTS		
DATE	AMENDMENT	SIGNED



Ballarat Aerodrome
DDO & OLS

0 500 1000 1500 2000 m

N

OLS (1D & 2B)
Existing DDO18
Existing DDO17

17.088.01 • June 2018

Ballarat Aerodrome Noise Modelling Report

City of Ballarat

Ballarat Aerodrome Noise Modelling Report

Report

Report

Prepared for City of Ballarat

T070 Aviation Australia

Suite 19, 70 Racecourse Road,
North Melbourne
VIC 3051
Email: info@to70.com.au

North Melbourne, June 2018

Table of Contents

1 Introduction

Kneebush Planning and To70 Aviation Australia (To70) have been appointed by City of Ballarat (CoB) to carry out an airport noise assessment for two runway development options at Ballarat Aerodrome. This required the preparation of ANEC, N60 and N70 noise contours.

The noise contours were produced using Integrated Noise Model (INM) version 7.0d which is the current version. INM is a computer noise prediction model developed by the U.S. Federal Aviation Administration used for airport noise assessments worldwide and Australia.

This report presents the results of the noise modelling, as well as details of the inputs and assumptions used in the noise model calculations.

1.1 Background

Development of land nearby and adjacent to Ballarat Aerodrome triggered a review of safeguarding measures and future airport development as laid out in the 2013 Ballarat Airport Master Plan.

Following an initial meeting with Council on 6th December, Kneebush Planning were asked to provide noise and airspace protection assessments for the runway development options under consideration.

The aim of the assessment was to provide information to Council regarding the upgrades required to support Emergency Management Victoria plans to station large air tankers at Ballarat Airport and the impact of those upgrades on proposed land development in the vicinity.

CoB commissioned a study into upgrading the runway at Ballarat Aerodrome following discussions with Emergency Management Victoria regarding the introduction of Large Aircraft Tankers (LAT) for firefighting. The terms of the study required the assessment of options based on impacts to existing infrastructure and the planned development of the Ballarat West Employment Zone (BWEZ).
In the Ballarat Airport Aviation Emergency Services Hub options analysis, delivered to City of Ballarat in October 2016, there were two runway development options that most closely satisfied the assessment criteria – Options 1D & 2B.

Option 1D
A 2000m long runway, 30m wide enclosed in a 300m runway strip, developed over the existing runway (RWY 18/36), with extensions applied to the north and south.

Option 2B
A 2000m long runway, 45m wide enclosed in a 300m runway strip, developed to the east of the existing runway (RWY 18/36).

1.2 Scope and deliverables

To70 were contracted to carry out noise modelling for Ballarat Aerodrome, specifically to produce

ANEC and N-contours. The scope of work required a review of previous noise modelling undertaken by Kneebush Planning in 2010 in order to reproduce noise contours reflective of envisaged changes to infrastructure and traffic forecasts. Consequently, the following outputs have been produced:

ANEC contours for Ballarat Aerodrome in 2050 for the following scenarios:

- Option 1D Runway configuration
- Option 2B Runway configuration
- Option 1D and 2B merged configuration

N60, N65 and N70 contours in 2050 for the following scenarios:

- Option 1D Runway configuration
- Option 2B Runway configuration
- Option 1D and 2B merged configuration

2 Inputs and assumptions

This section provides detail on the inputs and assumptions used for the noise calculations. These have been discussed and verified by CoB, which are detailed in the Ballarat Noise Assessment Assumptions document. Forecasts and aircraft type assumptions are based on the previous noise model produced in 2010 and CoB input.

2.1 General settings

Weather

Average weather parameters in the model have been created from Bureau of Meteorology (BoM) data for the period from 1908-2010, except for average pressure. The average pressure parameter is sourced from BoM data during the period of March 2017- March 2018. The annual average temperature and pressure at Ballarat Aerodrome was sourced from the nearest weather station at Ballarat Aerodrome (station no. 089002). The INM default headwind value was used.

Weather settings are as follows:

Table 1: Weather settings

Parameter	Value
Temperature	13.8°C
Pressure	826.596 mm-Hg
Relative humidity	67.3%
Headwind	14.8 km/h (INM default)

Aerodrome Reference Point (ARP)

Details of the Ballarat Aerodrome ARP is shown below:

Table 2 - ARP data

Description	Latitude	Longitude	Elevation (m)
ARP	-37.511667	143.791667	436.7784

Runway and Helipad Coordinates

To70 has modelled Options 1D and 2B development configurations from the Ballarat Airport Aviation Emergency Services Hub Design documents provided by CoB.

- Option 1D involves extending the existing runway 18/36 to provide a runway field length of 2000m.
- Option 2B involves constructing a new runway East of the existing runway 18/36 with a field length of 2000m. The existing runway 18/36 will be removed once the new runway is completed. Runway 05/23 and 13/31 will remain unchanged.

Table 3 - Runway end data

Option	Description	Latitude	Longitude	Width (m)	Elevation (m)	Displaced Threshold (m)
1D	Runway 18	-37.505607	143.795186	45	436.75	150
	Runway 36	-37.524122	143.791601		442.70	200
2B	Runway 18	-37.505719	143.796098	45	438.27	190
	Runway 36	-37.525214	143.792322		442.38	280
Existing	Runway 05	-37.512592	143.786467	30	434.64	N/A
	Runway 23	-37.507203	143.799078		435.56	N/A
	Runway 13	-37.505439	143.787400		433.12	N/A
	Runway 31	-37.509036	143.791978		435.56	N/A

Helipad

The helicopter landing site (HLS) location was modelled on coordinates received used in the previous noise model.

Table 4 - Helipad data

Description	Latitude	Longitude	Elevation (m)
H1	-37.513451	143.789015	436.78

2.2 Traffic

This section details the traffic inputs that is used in the INM study.

Aircraft mix and INM representatives

Aircraft types used in the noise modelling have been discussed with CoB during the kick-off meeting and are based on historic traffic levels and traffic forecasts. To70 has modelled the forecast aircraft using the following INM equivalents detailed in Table 5 below.

The aircraft types have generally remained the same as per the previous noise model, with slight modifications to reflect likely operations in the future. It is envisioned that the Embraer 170 included in the previous noise study will not operate in the 20-year time horizon of this study. Furthermore, it is expected that two additional aircraft will operate at Ballarat Aerodrome; the Avro RJ85 and Sikorsky Seahawk

Table 5 - INM Aircraft representatives

Class	Aircraft Type	INM Aircraft
RPT	Dash 8-300	DHC830
	Embraer 135	EMB135[1]
Business, Emergency and Military (BEM)	Beech King Air 200	DHC6
	Gulfstream IV	GIV
	Cessna 441 Conquest II	CNA441
	Cessna 208 Caravan	CNA208
	C130 Hercules	C130
	British Aerospace Avro RJ85	BAE146
General Aviation (GA)	Cessna 172 / Piper Warrior	GASEPF
	Cessna 210 / Beech Bonanza	GASEPV
	Piper PA-31 / Beech Baron	BEC58P
Circuit Training	Cessna 172	GASEPF
Helicopters	Bell 407	B407
	Robinson R22	R22
	Sikorsky Seahawk	S61[2]

[1] INM represents this aircraft as the substitute aircraft "EMB145" by default.

[2] Closest INM representative of the Sikorsky Seahawk.

Where substitute aircraft are required for INM modelling, To70 have utilised the aircraft types suggested within the INM tool.

Forecasts

Forecast traffic movements were agreed with CoB; detailing the predicted number of movements for the year 2050. The forecast is determined using a compound growth rate of 1.5% applied on 35,000 movements in 2018. Table 6 shows the forecast annual and daily movements for the airport.

Table 6 - Forecast annual and daily movements for 2050

Class	% of Total	Movements by Class	Aircraft	Movements[1] by Aircraft
RPT	1.50%	845	Embraer 135	422
			Dash 8-300	422
BEM	4.0%	2254	Beech King Air 200	762
			Gulfstream IV	451
			Cessna 441 Conquest II	451
			Cessna 208 Caravan	451
			C130 Hercules	61
			British Aerospace Avro RJ85	79
GA	46.5%	26208	Cessna 172 / Piper Warrior	8736
			Cessna 210 / Beech Bonanza	8736
			Piper PA-31 / Beech Baron	8736
Circuit Training[2]	45.0%	25362	Cessna 172	25362
Helicopters	3.0%	1691	Bell 407	803
			Robinson R22	803
			Sikorsky Seahawk	85
Total	**100.00%**	**56361**		**56361**

[1] In this report a movement is defined as a landing or a take-off

[2] Circuit training movements represent a training aircraft taking-off from a full stop on the runway, then performing a number of touch-and-go operations without stopping and then concluding with a landing to a full stop. In the INM model circuit movements are modelled as CIR/TGO operations which have both a landing and a take-off. As such, the model comprises 12,681 CIR/TGO operations which, in terms of movements, are counted twice, bringing the total circuit training movements to 25,362 as stated in the table.

Usage splits

CoB have indicated the following runway utilisation proportions based on observation of predominant runway utilisation and aircraft performance characteristics, shown in Table 7 and Table 8. The Gulfstream IV, C130 Hercules and BA Avro RJ85 operations have been allocated to runway 18/36 due to aircraft performance characteristics, as the other runways are not suitable for these aircraft to operate on.

Table 7 - Runway usage split

Runway	Usage proportion
05	10.98%
13	3.25%
18	18.36%

Runway	Usage proportion
23	15.64%
31	4.62%
36	47.16%

Table 8 - Runway utilisation by Aircraft

Aircraft	INM ID	05	13	18	23	31	36	TOTAL
Embraer 135	EMB135	0.0%	0.0%	30.0%	0.0%	0.0%	70.0%	100%
Dash 8-300	DHC830	0.0%	0.0%	30.0%	0.0%	0.0%	70.0%	100%
Beech King Air 200	DHC6	14.0%	0.0%	19.0%	17.0%	0.0%	50.0%	100%
Gulfstream IV	GIV	0.0%	0.0%	36.0%	0.0%	0.0%	64.0%	100%
Cessna 441	CNA441	14.0%	0.0%	19.0%	17.0%	0.0%	50.0%	100%
Cessna 208	CNA208	14.0%	0.0%	19.0%	17.0%	0.0%	50.0%	100%
C130 Hercules	C130	0.0%	0.0%	36.0%	0.0%	0.0%	64.0%	100%
BA Avro RJ85	BAE146	0.0%	0.0%	36.0%	0.0%	0.0%	64.0%	100%
GASEPF	GASEPF	11.0%	3.0%	18.0%	16.0%	4.5%	47.5%	100%
GASEPV	GASEPV	11.0%	3.0%	18.0%	16.0%	4.5%	47.5%	100%
BEC58P	BEC58P	11.0%	3.0%	18.0%	16.0%	4.5%	47.5%	100%
GASEPF (Training)	GASEPF	11.0%	3.0%	18.0%	16.0%	4.5%	47.5%	100%
Bell 407	B407	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	100%
Robinson R22	R22	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	100%
Sikorsky Seahawk	S61	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	100%

Table 9 - Daily movements by aircraft type and runway

Aircraft	INM ID	05	13	18	23	31	36	Grand Total
Embraer 135	EMB135	0.000	0.000	0.347	0.000	0.000	0.809	1.156
Dash 8-300	DHC830	0.000	0.000	0.347	0.000	0.000	0.809	1.156
Beech King Air 200	DHC6	0.292	0.000	0.397	0.355	0.000	1.044	2.088
Gulfstream IV	GIV	0.000	0.000	0.445	0.000	0.000	0.791	1.236
Cessna 441	CNA441	0.173	0.000	0.235	0.210	0.000	0.618	1.236
Cessna 208	CNA208	0.173	0.000	0.235	0.210	0.000	0.618	1.236
C130 Hercules	C130	0.000	0.000	0.060	0.000	0.000	0.107	0.167
BA Avro RJ85	BAE146	0.000	0.000	0.078	0.000	0.000	0.139	0.216
GASEPF	GASEPF	2.633	0.718	4.308	3.829	1.077	11.369	23.934
GASEPV	GASEPV	2.633	0.718	4.308	3.829	1.077	11.369	23.934
BEC58P	BEC58P	2.633	0.718	4.308	3.829	1.077	11.369	23.934
GASEPF (Training)	GASEPF	7.643	2.085	12.507	11.118	3.127	33.005	69.485
Bell 407	B407	0.183	0.183	0.183	0.183	0.183	0.183	2.200

Aircraft	INM ID	05	13	18	23	31	36	Grand Total
Robinson R22	R22	0.183	0.183	0.183	0.183	0.183	0.183	2.200
Sikorsky Seahawk	S61	0.019	0.019	0.019	0.019	0.019	0.019	0.233
Grand Total		**16.566**	**4.625**	**27.960**	**23.768**	**6.744**	**72.432**	**154.411**

Day and Night operations

INM calculations weigh night time flights more heavily than day-time flights. Daytime operations are defined as 0700-1900 and night-time are defined as 1900-0700 in the ANEF system. To accurately model noise impacts, a day / night split of operations needs to be defined. The day / night split is assumed to be identical to the previous 2010 noise assessment modelling report, outlined in Table 10.

Table 10 - Daytime and night-time operation split

Description	Proportion
Day	95%
Night	5%

Tracks and usage

This section shows the expected flight paths at Ballarat Aerodrome in 2050, according to inputs received and discussions with CoB. To70 modelled the flight tracks based on the previous Ballarat Aerodrome Noise Modelling Report undertaken in 2010. The figures below illustrate the approach, departure, and circuit tracks that will be used at Ballarat Aerodrome for both option 1D and 2B configurations.

For the flight track usage, the movements were evenly distributed across the relevant tracks for each respective runway. For example, if the Embraer 135 has 1 arrival per day on runway 36. There are five arrival tracks on runway 36. Therefore 1 divided by five equals 0.2 movements per arrivals track.

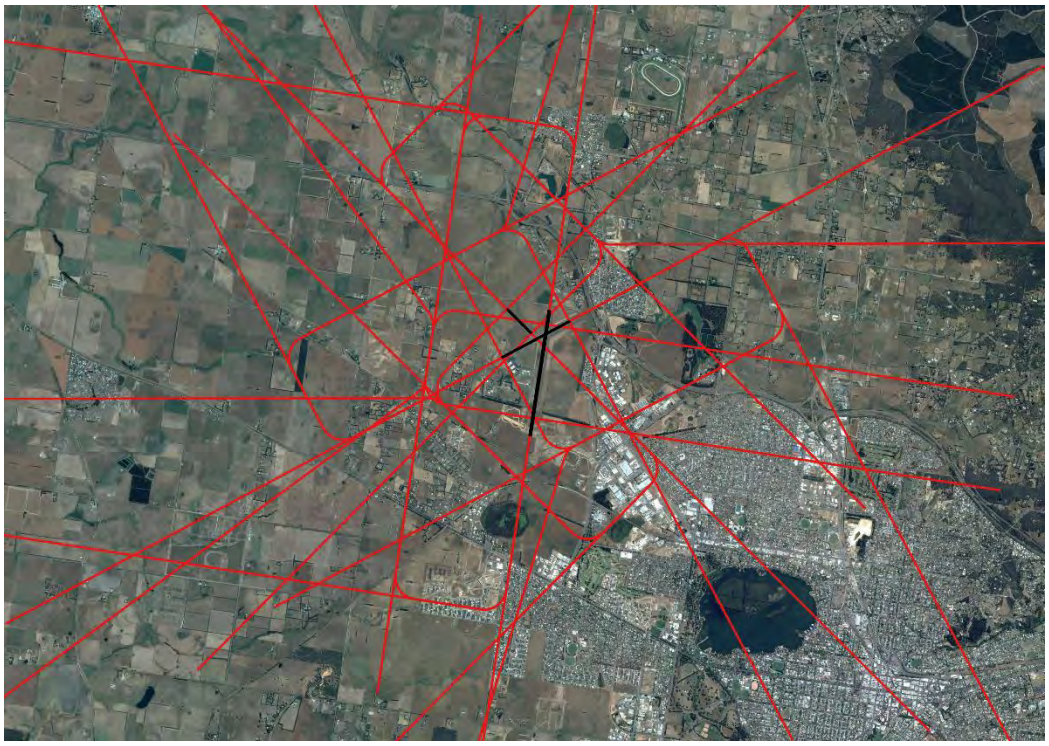


Figure 1 – Option 1D arrival tracks

Figure 2 – Option 1D departure tracks

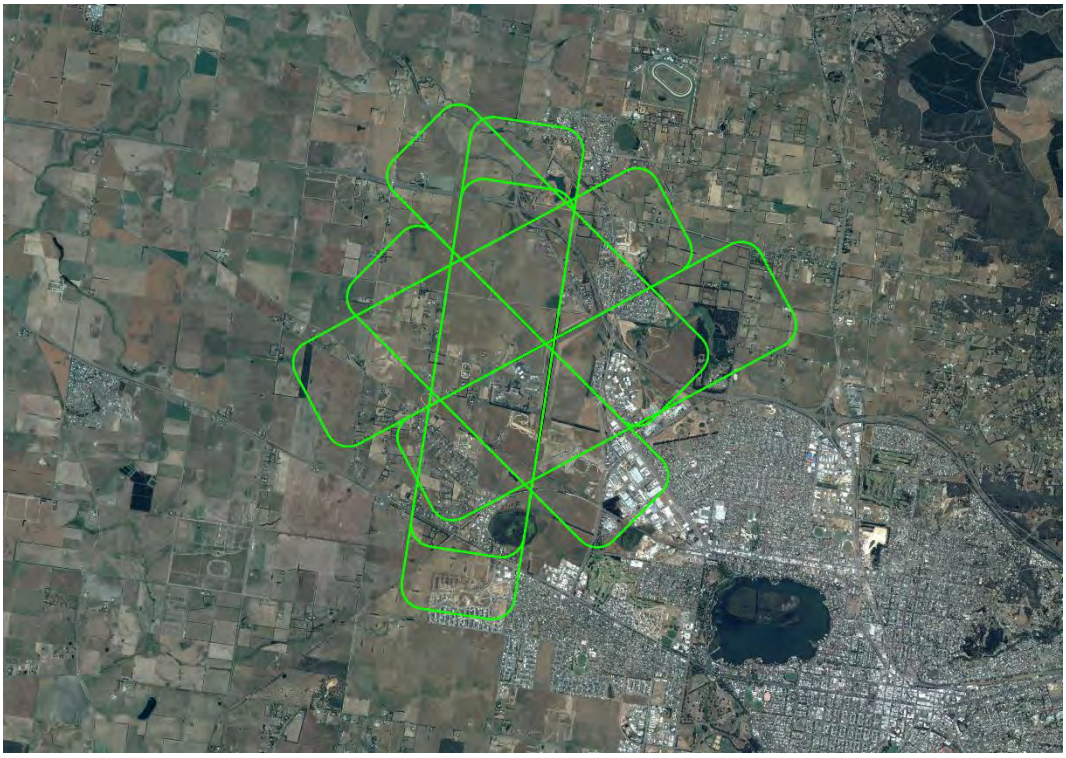


Figure 3 – Option 1D circuit tracks

Figure 4 – Option 2B arrival tracks

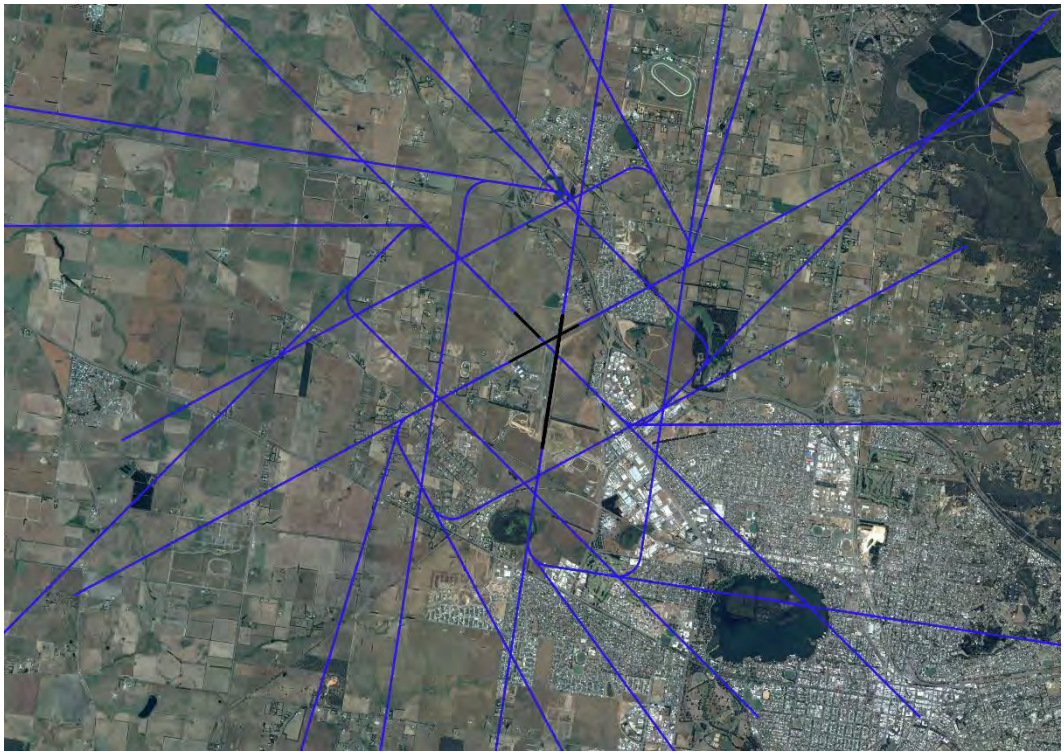


Figure 5 – Option 2B departure tracks

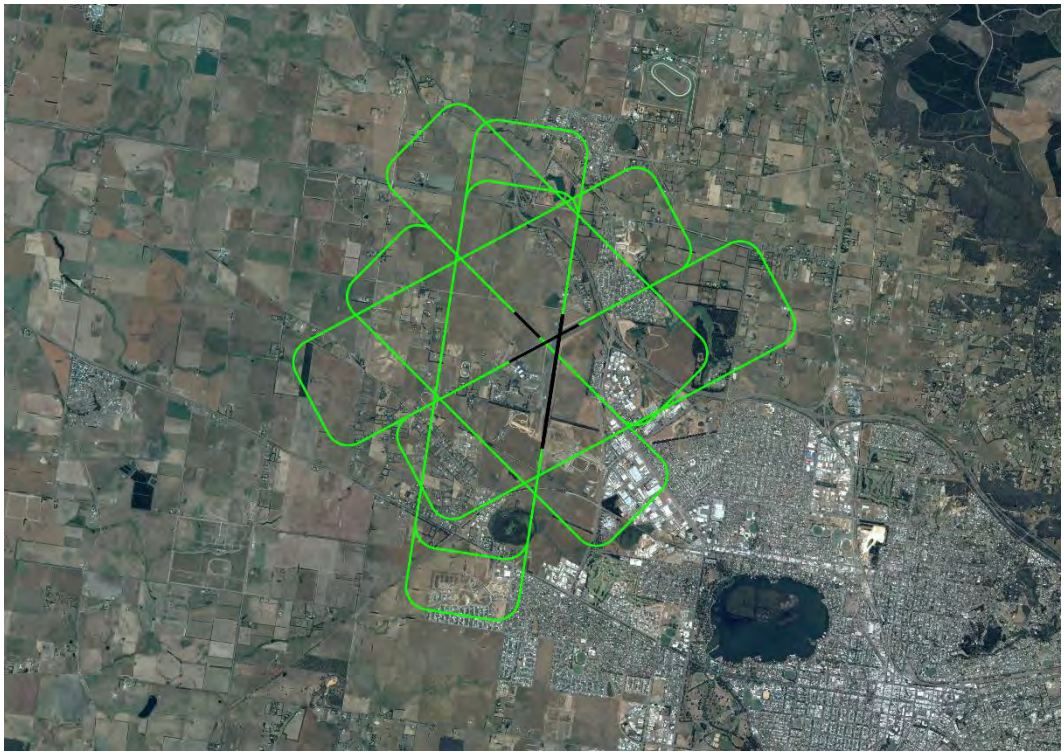


Figure 6 - Option 2B circuit tracks

Figure 7 – Helicopter Tracks

3 Results

In this section, we present the results of the noise modelling and describe the metrics used to generate the contours. To70 has generated the following contours for Option 1D, 2B and merged development scenarios:

- ANEC 2050
- N-contours for 2050

3.1 ANEC results

ANEC contours are used to quantify the noise impact of airport development scenarios. These maps are based on assumptions about the size, shape and demand of aircraft and airport operations, and can relate to the distant future. Because the concepts and scenarios are hypothetical and may never occur, the maps produced have no official status for land-use planning purposes. The ANEC uses the Effective Perceived Noise Level (EPNL) which applies a weighting to account for the fact that by the human ear is less sensitive to low audio frequencies.

The ANEC contours charts are attached in Appendix A. The ANEC contours of the merged scenario shows that the ANEC 20 contour does not extend into any residential areas. The ANEC 20 contour does not extrude beyond the Western Freeway towards the north of the aerodrome. As specified in AS2021:2015, buildings (residences) which fall within the ANEF 20 contour or below are deemed acceptable. Based on the ANEC contours, there is no major impact to nearby dwellings.

3.2 N-Contour results

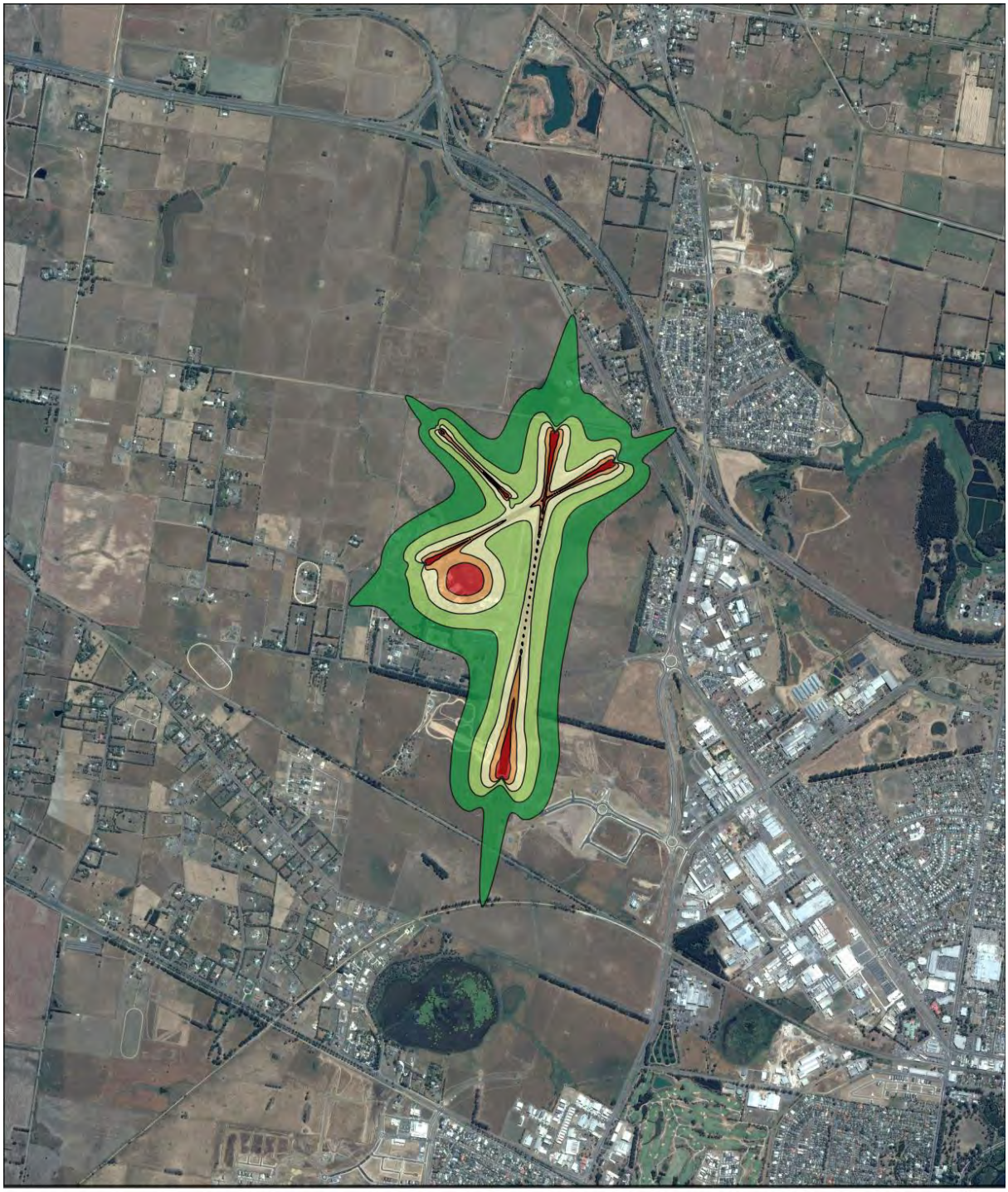
To complement the ANEF maps, Noise-Above contours (N contours) charts show the number of aircraft noise events per day exceeding specific noise levels. N-contours can be used to provide information both on past and planned aircraft operations. This helps communities and individuals to visualise noise impact in specific areas as it takes a person's reaction to noise out of the equation. Further information including a detailed technical explanation of N contours can be found on the Department of Infrastructure, Regional Development and Cities (DIRDC) website at;
https://infrastructure.gov.au/aviation/environmental/transparent_noise/expanding/4.aspx.

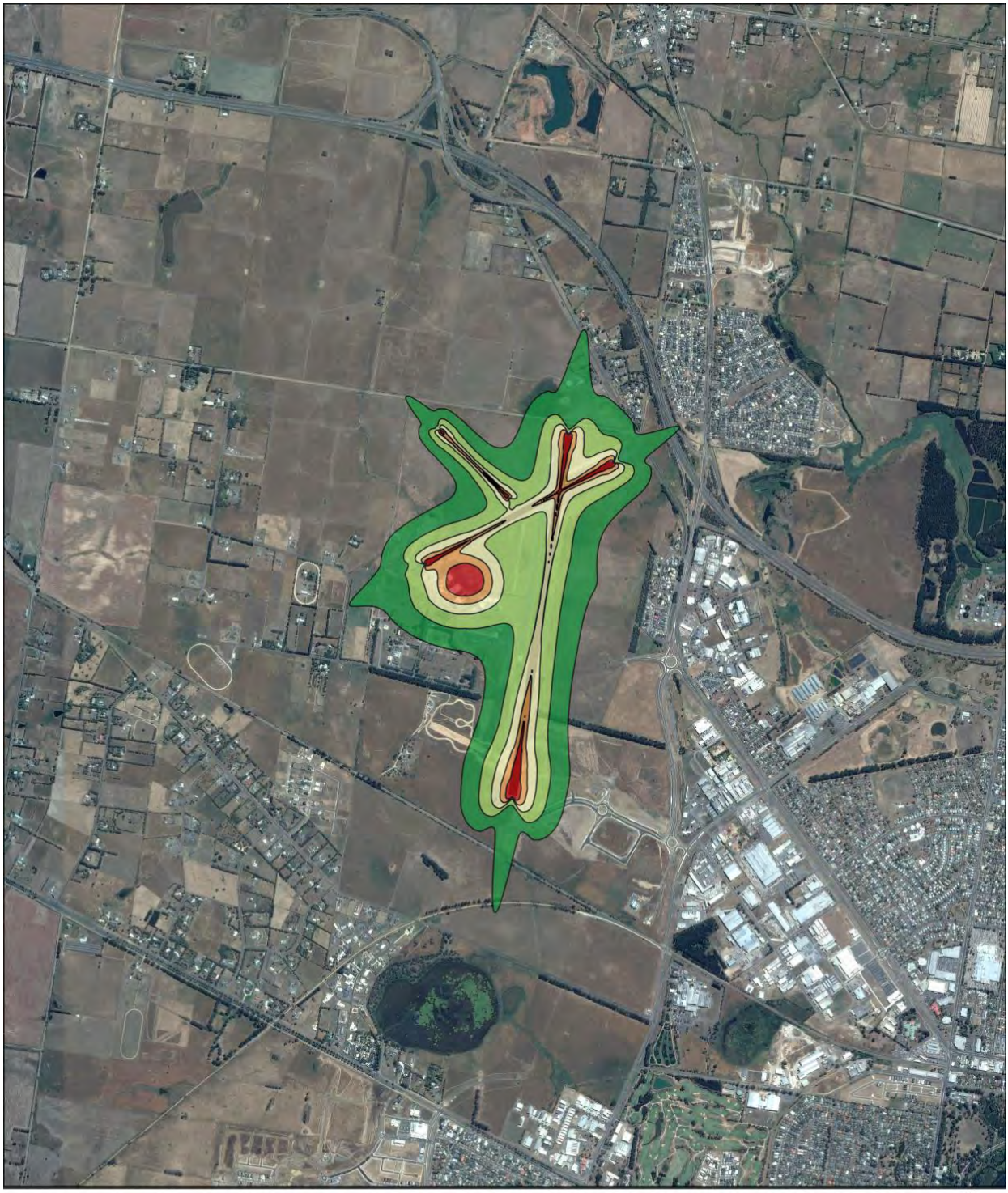
N-contour charts are attached in Appendix B.

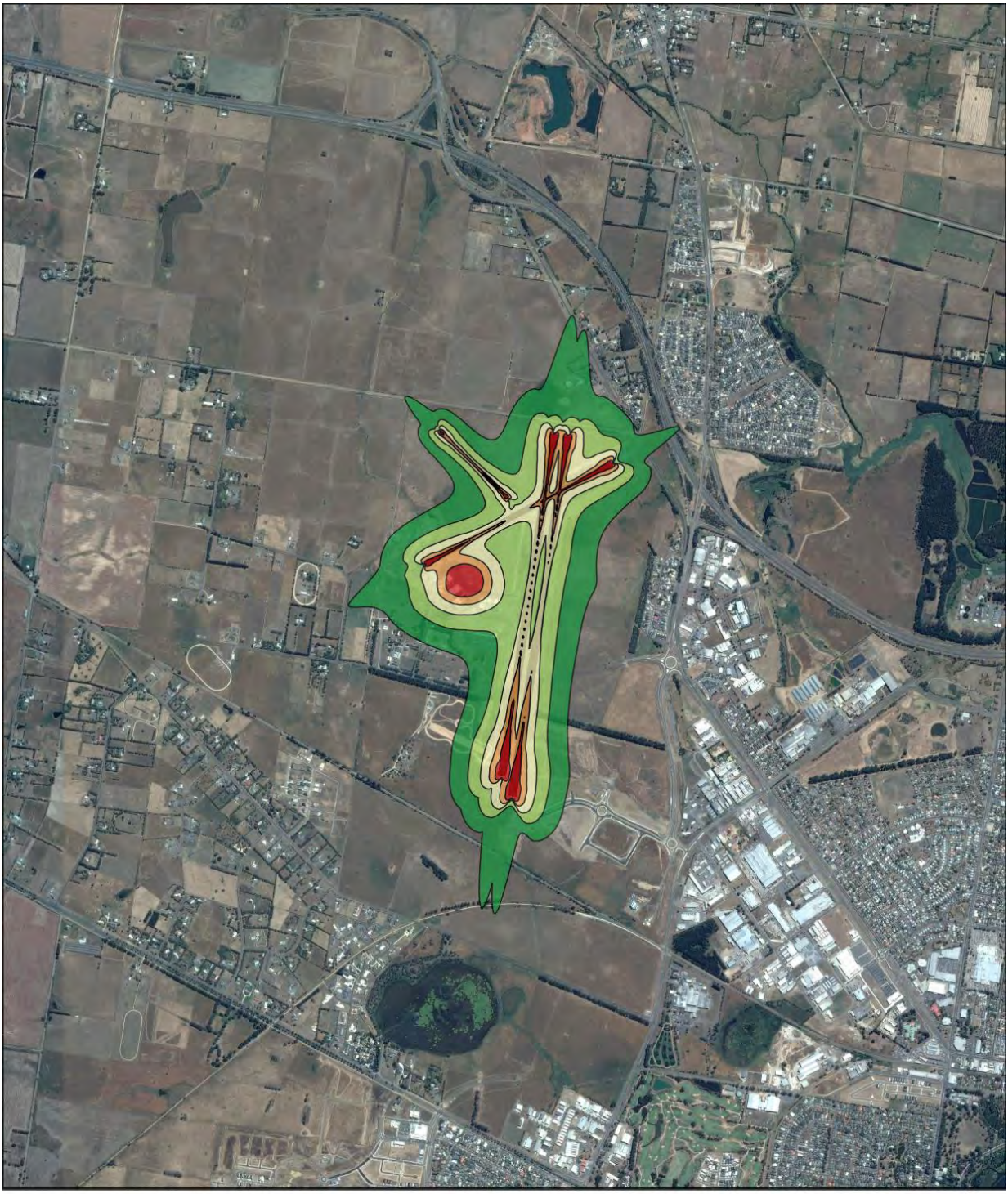
The National Airports Safeguarding Framework (NASF) published by DIRDC outlines the appropriate number of aircraft noise events for each noise level:

- 20 or more daily events greater than 70 dB(A);
- 50 or more daily events of greater than 65 dB(A);
- 100 events or more daily events of greater than 60 dB(A); or
- 6 or more events of greater than 60 dB(A) between the hours of 11pm and 6 am.

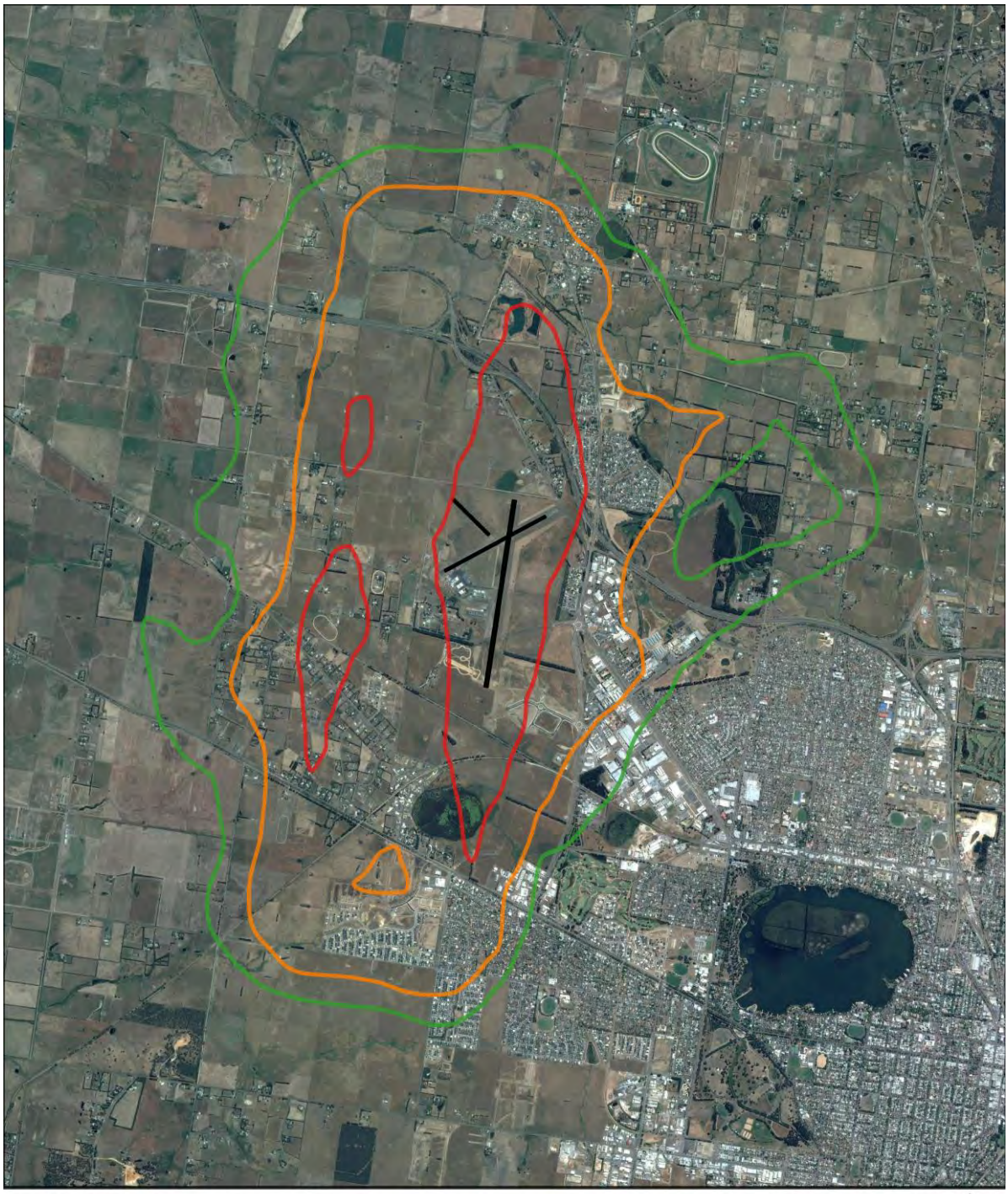
Appendix A: ANEC charts

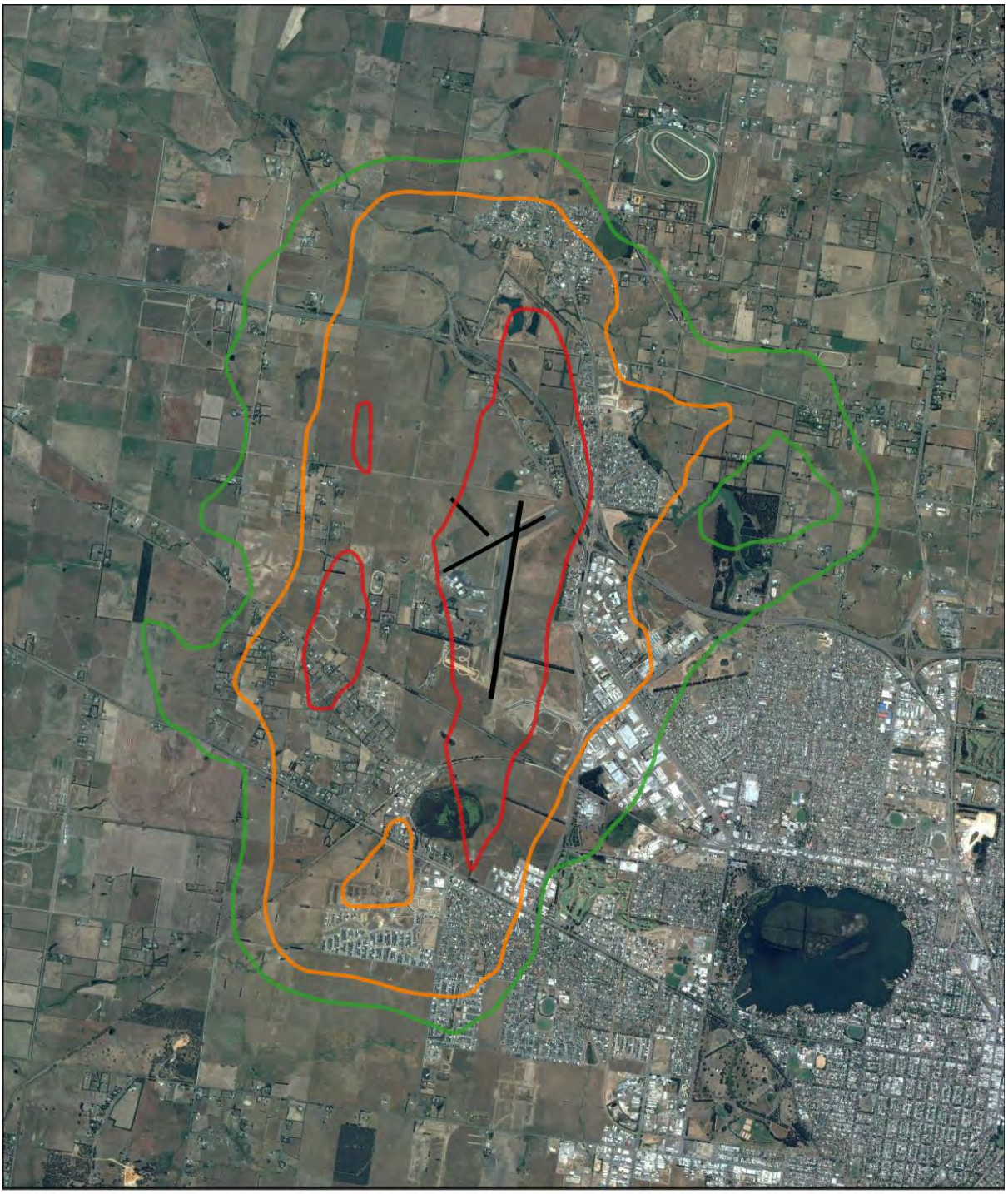


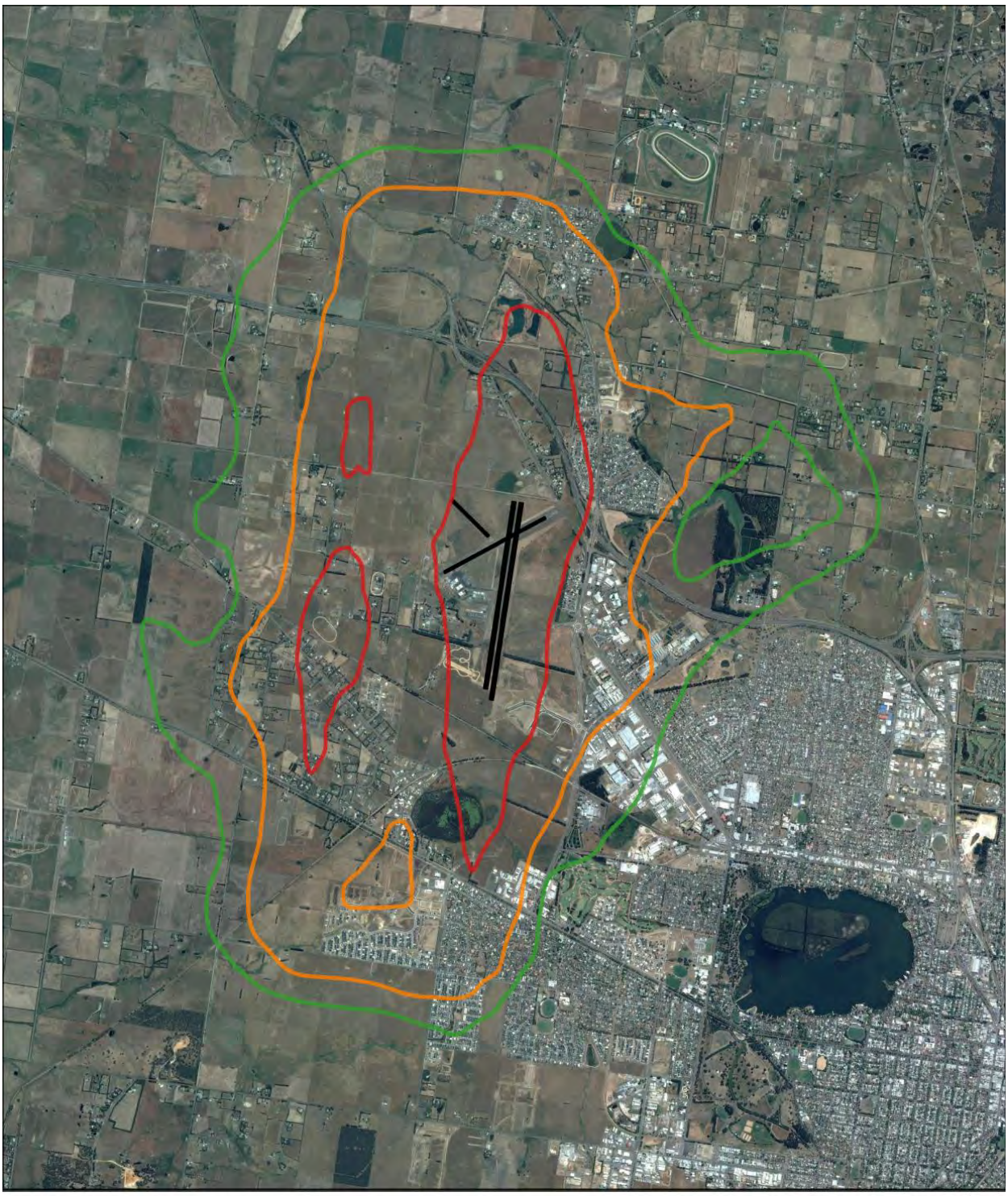

Ballarat Aerodrome
ANEF Option 2B
0
500
1000
1500
2000 m
N
ANEF 20
ANEF 25
ANEF 30
ANEF 35
ANEF 40

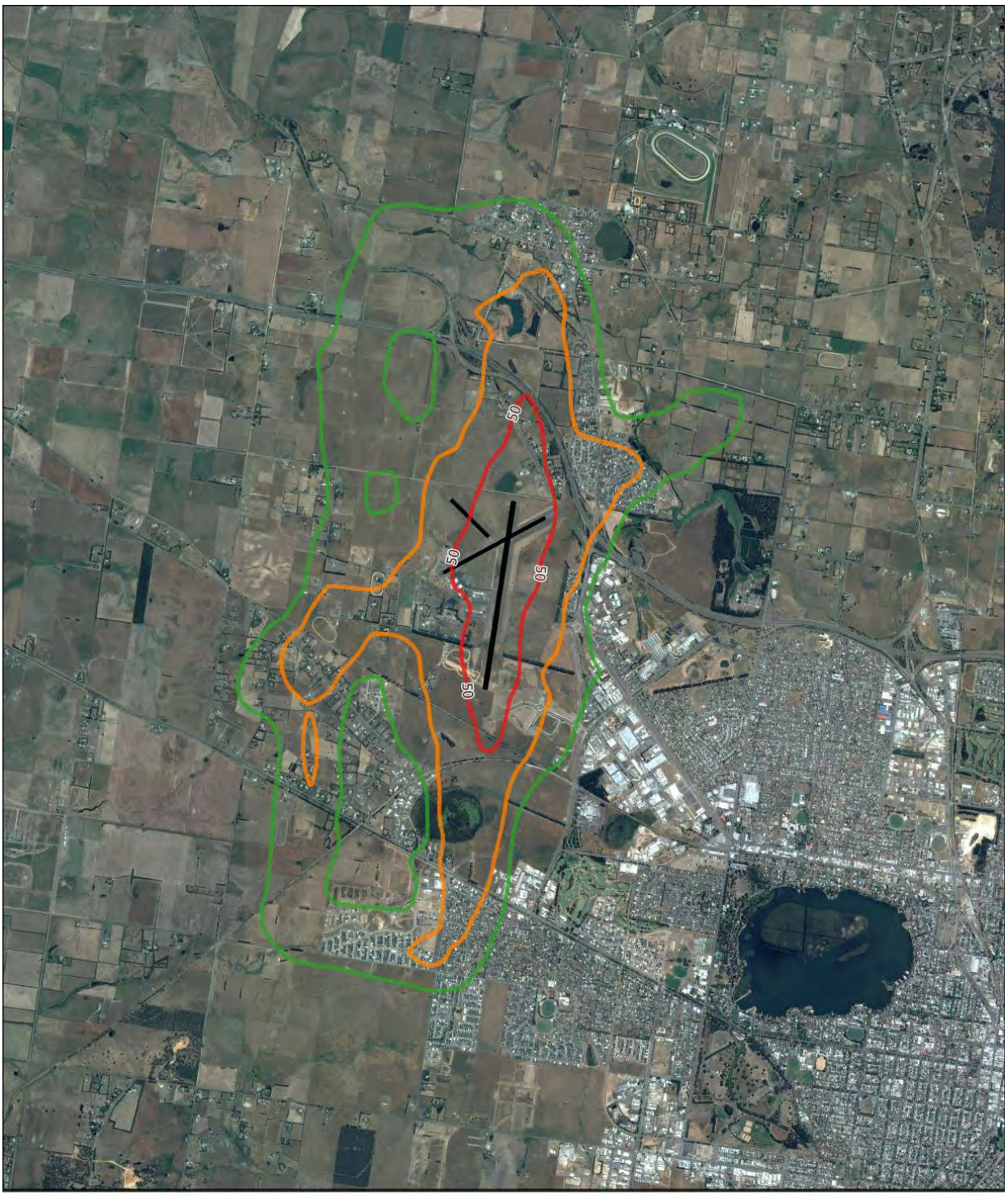

Ballarat Aerodrome
ANEF Merged (Option 1D & 2B)
0
500
1000
1500
2000 m
N
ANEF 20
ANEF 25
ANEF 30
ANEF 35
ANEF 40

Appendix B: N-contour charts




Ballarat Aerodrome
N60 - Option 2B
0
1000
2000 m
10
50
20
N


Ballarat Aerodrome
N60 - Merged (Option 1D & 2B)
0
1000
2000 m
N
10
20
50

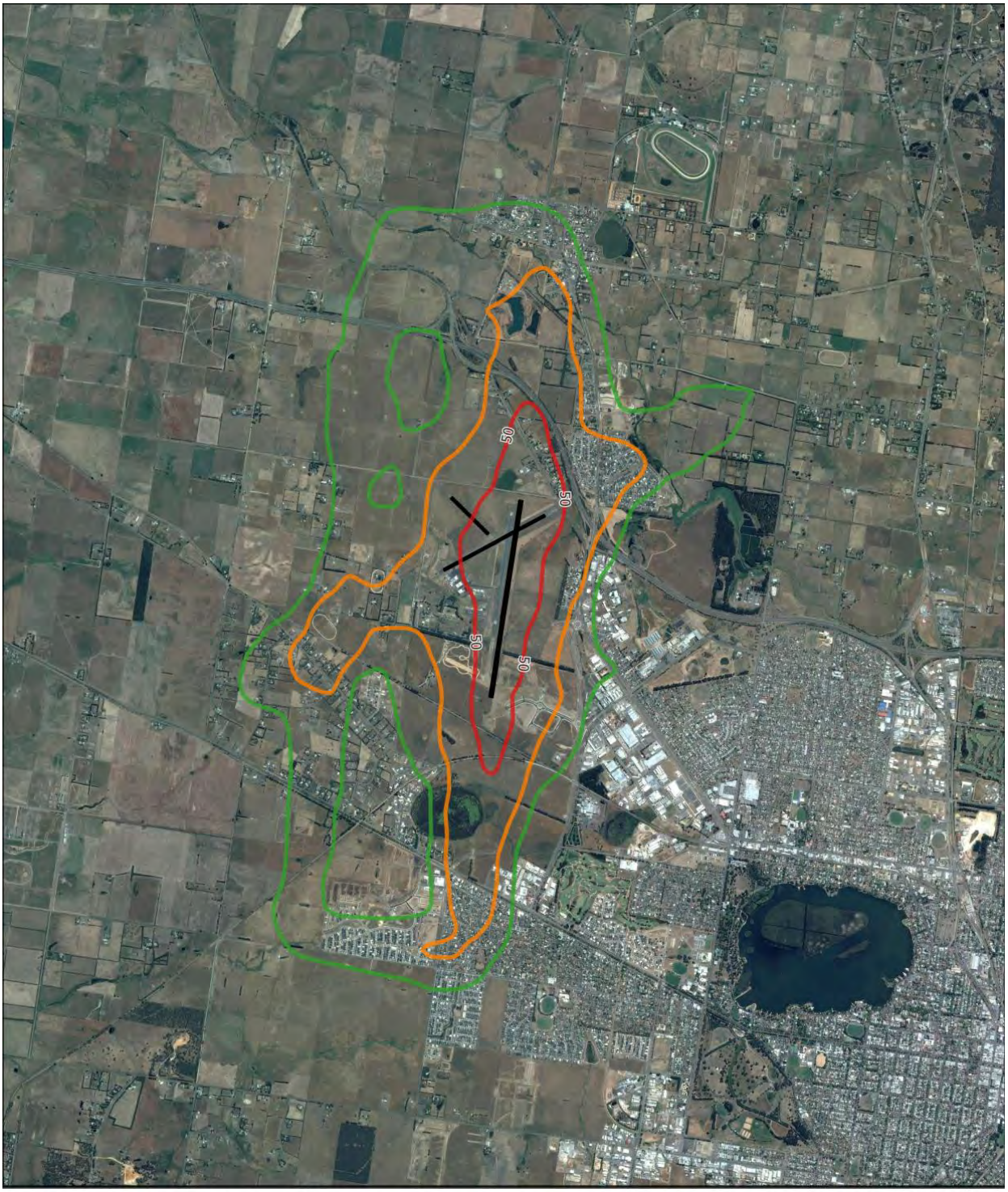


Ballarat Aerodrome
N65 - Option 1D

0 1000 2000 m

10 50
20

N

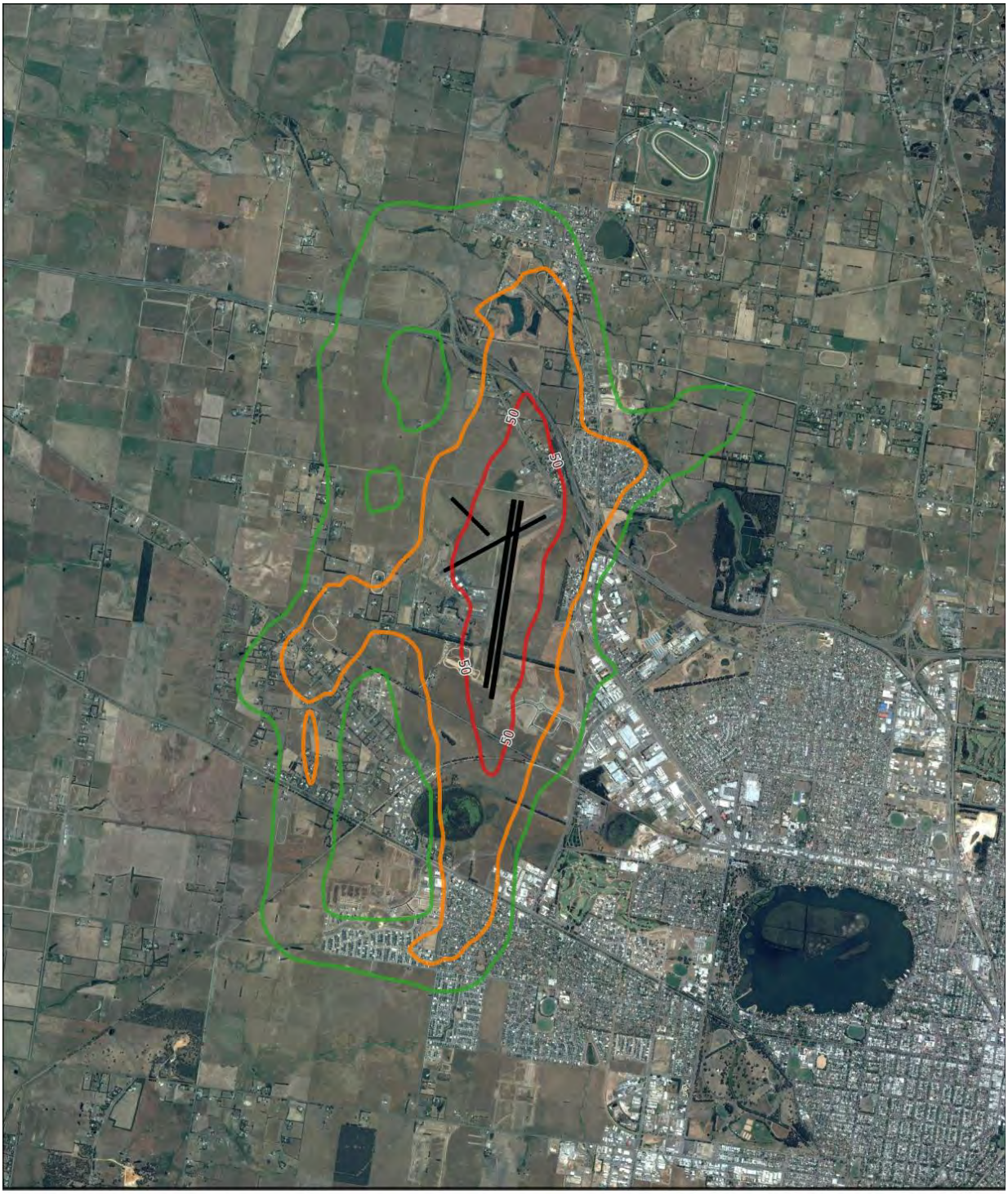


Ballarat Aerodrome
N65 - Option 2B

0 1000 2000 m

N

10 50
20

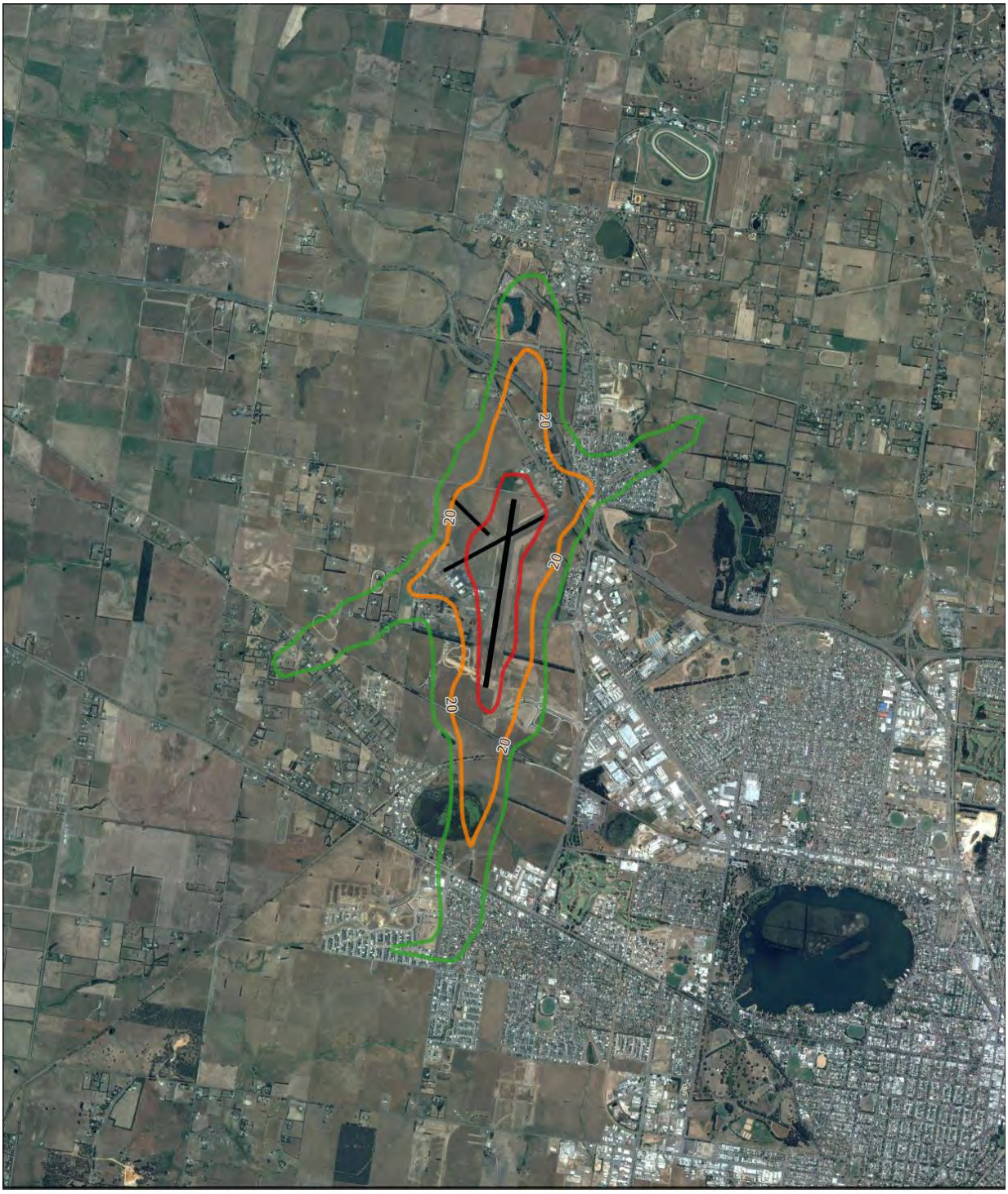


Ballarat Aerodrome
N65 - Merged (Option 1D & 2B)

0 1000 2000 m

10 50
20

N



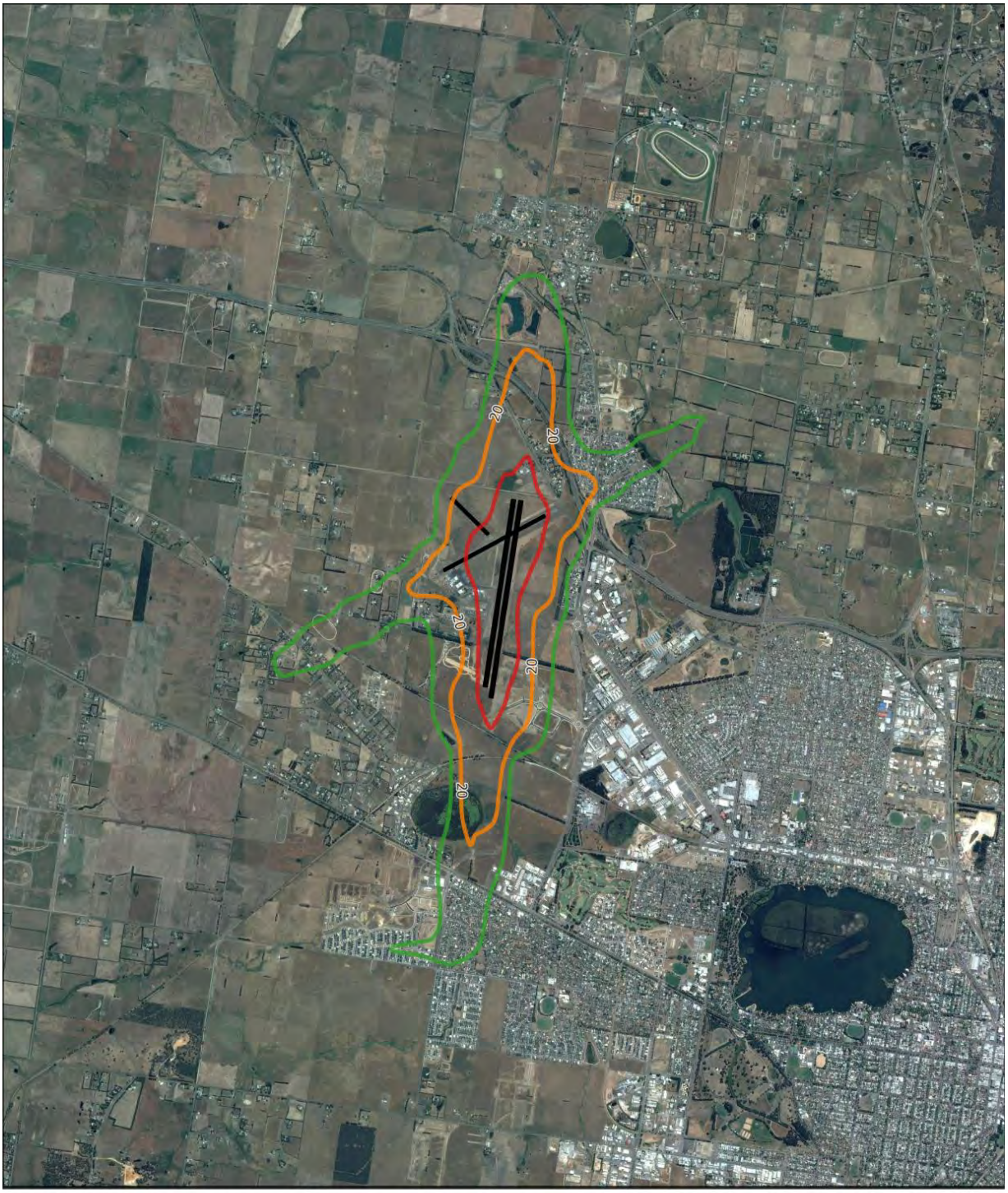
Ballarat Aerodrome
N70 - Option 1D

Ballarat Aerodrome
N70 - Option 2B

0 1000 2000 m

10 50
20

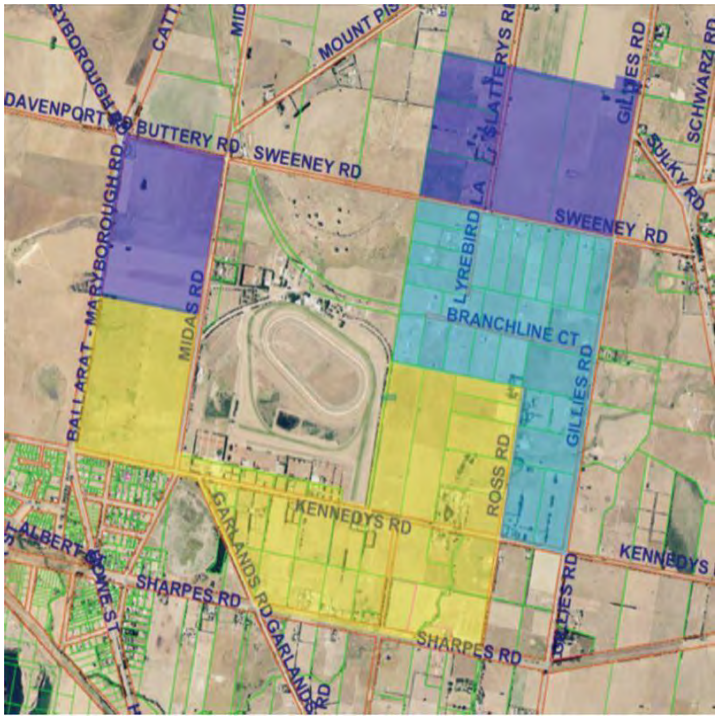
N



Ballarat Aerodrome
N70 - Merged (Option 1D & 2B)

DOWLING FOREST PRECINCT

Property Market Review and Options Analysis



Prepared for Ballarat City Council

Draft Report

February 2019

Contents

Tables

Figures

EXECUTIVE SUMMARY

Project Purpose

The project reviews the property market in the Dowling Forest Precinct, in the context of thoroughbred industry sector activity in the vicinity of the Ballarat Turf Club (BTC), focusing on trends in the land zoned for Special Use Zone Schedule 13 (SUZ13) and Farming Zone (FZ).

The report includes:

- A stocktake of conditions and recent trends in the study area (exploring land use, property market and economic data);
- A summary of consultation with stakeholders and landholders to identify issues and potential opportunities to support development of the precinct; and
- An analysis of options and recommendations to support development of the precinct and address identified issues.

The information is provided to inform Council of future activities and policy options to support future development of the Dowling Forest Precinct, achieve the objectives of the Master Plan and address any issues identified.

Summary of Findings

1 - Investment trends have been positive

This report has found that investment trends for thoroughbred related activity has been positive in recent years.

The investment activity has mainly focused on land that has direct access to the Ballarat racetrack facilities including Ballarat Turf Club land and immediately adjacent private land holdings.

Limited recent thoroughbred related investment has occurred on private land to the south side of Kennedys Road and west side of Midas Road.

The Ballarat Turf Club has been successful in obtaining a range of funding sources from state government and Racing Victoria to upgrade on-track facilities and attract horse trainers.

One key to the success of attraction of some trainers has been the capacity of the Ballarat Turf Club to provide land and build facilities for trainers, who then lease the facilities. This provides a cost advantage over the option of purchasing land and building facilities. This cost advantage - along with direct access to the racetrack and uphill training track - has been key drawcards of the location.

Some trainers that have recently established in the area have purchased and developed private facilities. These trainers have established on land with direct access to the racetrack and uphill training track.

2 - Investment prospects are positive

A number of drivers exist to support ongoing investment activity in the precinct for the foreseeable future.

The investment drivers include the popularity of the uphill training tack, planned installation of synthetic track within approximately 12 months and possible consolidation of training facilities across Victoria into fewer nodes including Ballarat.

Indicative land take projections prepared for this report suggest that around 7 ha of land take may be required for thoroughbred activities over the next 10 year period.

Beyond this outlook period, the precinct may experience an acceleration of land take-up if other Victorian facilities (like Caulfield) close their training facilities and Ballarat continues to become a more successful location and 'magnet' for training.

3 - Supply of land in the precinct is significant

The Ballarat Turf Club and surrounding land zoned for thoroughbred activities has significant available land supply. The land is considered strategic in planning policy and economic development policy.

The available land supply is significant in relation to the estimate of potential future take-up of land for thoroughbred activities. A high level estimate of land being used to full capacity (estimated by the smallest possible lot subdivision per zone) suggests there may be approximately 220 ha of thoroughbred activity land supply. All land may not be taken up for many decades.

Land is rarely subdivided to its full potential so if 50% is assumed as a full capacity estimate, 110 ha of capacity could be deemed reasonably available.

At a short term take-up of 7 ha per 10 years (or 0.7 ha per year on average), the land supply may be sufficient to meet 158 years of demand. Assuming demand in the long term is double the short term estimate, supply may be sufficient to meet about 79 years of demand.

The above estimates assume the Ballarat Turf Club facilities can accommodate ongoing and unlimited demand on its tracks and via scheduling.

An alternative capacity estimate suggests up to 2,250 horses in the Precinct may be considered as the nominal capacity of the area (noting this is not necessarily the view of BTC). It was found that this may translate into a need for up to 36 ha of additional land in the area for training purposes. If so, this would leave 74 ha of effective land capacity not used for training purposes.

It is not possible to estimate supply and demand in this context with precision, however based on available information and estimates used, supply is likely to be available for thoroughbred activities in the precinct for the very long term.

4 - Land with direct access to the racetrack is most in demand

Most recent training facility investment has favoured land with direct horse access to the racetrack and uphill training track. Most of the recent investment has occurred in facilities leased from the Ballarat Turf Club on racetrack land and facilities constructed by private trainers with direct access to racetrack land.

Land located on the south side of Kennedys Road and the west side of Midas Road is considered less attractive to trainers because of the road barrier and relatively high car speed limits, which presents a risk to horses.

This is a key issue which limits the appeal of such land for future thoroughbred training investment unless direct horse access via grade separation can be provided (such as via tunnels).

5 - SUZ13 land performs an important land buffer

The SUZ13 land is strategic for not only land supply reasons but also for land use buffer reasons. Land use buffering is a primary strategic function of land fronting the south side of Kennedys Road, the west side of Midas Road and the eastern boundary of Turf Club land.

SUZ13 activities are unlikely to generate land uses that conflict with thoroughbred industry activities and be impacted by the racetrack activities.

The risk of land use conflicts is greater with other zones in these locations such as Farming Zone or a Rural Residential or similar zone.

6 - The vision for area is generally shared with some differences in detail

Stakeholders that were consulted for this research report generally share a view that the study area precinct is an important and strategic asset for equine related activities and should be supported for such uses.

Differences in opinion relate to the definition of equine activities and the manner in which a strategy to promote such activities should be implemented.

Planning Policy of Council and Ballarat Turf Club generally support the precinct being earmarked for thoroughbred horse racing activities as defined by the Australian Rules of Racing and controlled by the current SUZ13 Planning Scheme Provisions.

An alternative view is that the precinct, particularly and perhaps only limited to the area south of Kennedys Road, should have a more general focus on 'equine' related activities and application of less stringent planning controls should apply to such land.

Equine activities in the general sense could include non-thoroughbred uses such as saddlery, farrier, equine veterinary clinic, equine transport services and the like.

7 - SUZ13 controls are not well understood by all stakeholders

Consultation undertaken with selected stakeholders revealed that aspects of the SUZ13 are not well understood by all stakeholders and that the provisions are confusing for some stakeholders.

A key issue raised is a belief that existing houses within the zone that pre-date the zone can only be sold to persons with an Australian Rules of Racing licence (which is not the case).

8 - SUZ13 land has more stringent conditions on buildings and works compared to the previous Farming Zone

The SUZ13 allows for buildings and works of up to 50 square metres (sqm) to be undertaken without the need for a planning permit. The equivalent control for the Farming Zone is 100 sqm.

9 - Options for consideration: precinct-wide

The following options are identified for consideration for the precinct as a whole. Matters specific to the precinct south of Kennedys Road are considered in the next sub-section.

- 9a - Address misinformation regarding SUZ13 operation.
  - Greater clarity regarding the purpose and operation of the zone is required for land owners, real estate agents and potential property buyers.
- 9b - Change the buildings and works provisions in the SUZ13 to 100 sqm, to match the Farming Zone.
  - This technical change will minimise the differences between the SUZ13 and the Farming Zone.
- 9c - Undertake road and traffic management investigations with a view to slow traffic speeds on Kennedys and Midas Roads and improve access within the precinct generally.
  - Sites in the broader area outside of racetrack land would become more attractive to thoroughbred industry participants if improved horse access and safety is delivered via dedicated paths, tunnels and reduced road traffic speeds.

- 9d - Explore the demand for, and requirements of, a bridal track linking the Dowling Forest racecourse to the Ballarat Town Common.
  - It is possible the trail to the 88 ha parcel of Crown Land may provide additional variety of exercise options which can suit individual thoroughbreds.
  - Such a trail would need to consider matters of transport safety and the impact on the road network, among other management requirements.
- 9e - Should the Ballarat Turf Club acquire a significant land parcel in the area, the model adopted by the Pakenham Racing Club could be rolled out in the Precinct.
  - Explore BTC's willingness to purchase approximately 40 ha of land for ongoing development of the land for horse training purposes.
  - It is possible this quantum of land may meet training needs for the very long term.
  - Such land would need direct access to the racetrack to be considered as a viable location for many trainers. If such land is across a road, a tunnel would be required.

10 - Options for consideration: SUZ13 South of Kennedys Road

The SUZ13 land south of Kennedys Road has been identified as being the most contentious in this review.

- 10a - Activate the area south of Kennedys Road via construction of a horse tunnel and easement to the rear of lots.
  - It is the view here that unless a realistic and tangible plan to construct direct access to the racetrack from this precinct via a tunnel and easement network is established in the near term, the viability of the sub-area for significant thoroughbred uses will be limited over a long period of time.
- 10b - Rezone the area south of the midpoint of Sharpes Road and Kennedys Road to Farming Zone to support broader 'equine' investment and activity.
  - This option would retain the SUZ13 buffer along Kennedys Road and transition an area along Sharpes Road to a broader definition of equine uses.
  - The removal of this 41 ha area would reduce the effective capacity of the broader Precinct by 9 ha, which equates to 13 years' supply under the medium growth scenario.

INTRODUCTION

1.0 INTRODUCTION

1.1 Project Context

Dowling Forest, home of the Ballarat Turf Club, is located approximately 15 kilometres north-west from the Ballarat CBD. The racetrack is surrounded by undulating land and trails, providing an attractive location for thoroughbred trainers and racing related occupants. The racecourse is situated on Crown Land and has the benefit of being encircled by freehold rural land. The location is easily accessed from the Western Highway.

Overall, Dowling Forest is well-placed to encourage activities and practices associated with the thoroughbred industry and this is evidenced by the recent attraction of notable trainers including Matt Cumani and Archie Alexander to the course.

The Dowling Forest Precinct Master Plan was prepared and a final report was adopted by Council in February 2011. The Master Plan (and an accompanying Implementation Report) provides a long term framework to guide the future use, development and subdivision of land in the area adjoining the Dowling Forest Precinct. A Planning Scheme Amendment to the Ballarat Planning Scheme (Amendment C149) was undertaken to implement the Master Plan. An accompanying 'Implementation Report' considered the planning options arising from the Master Plan and among them was the rezoning of selected land areas to Special Use Zone Schedule 13 (SUZ13) and refinements to Farming Zone precincts which had an existing purpose to support horse training facilities. The intention is that land use, subdivision and housing development is directly associated with thoroughbred horse training facility. The Schedule to the zone is shown in **Error! Reference source not found.**.

Table 1: Purpose of SUZ13

Schedule 13 to the Special Use Zone
Thoroughbred Horse Training Facilities
To encourage the use and development of thoroughbred horse training facilities in association with the Dowling Forest Racecourse.
To provide for subdivision of land for use and development as thoroughbred horse training facilities.
To facilitate on-site accommodation for horse trainers and their employees in conjunction with the thoroughbred horse training facilities.
To ensure that thoroughbred horse training facilities are established in a manner which is consistent with surrounding land uses.

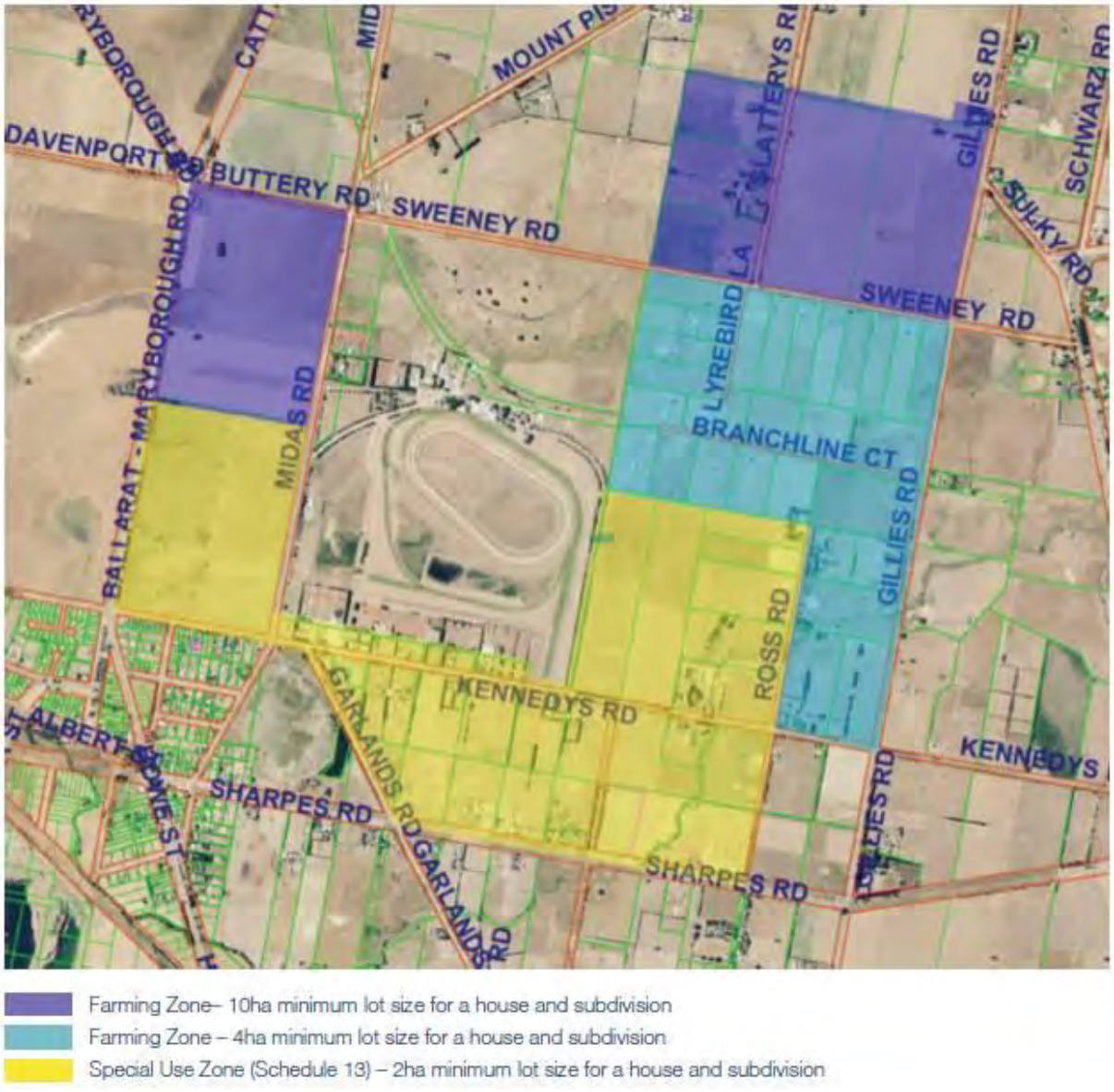
Source: Ballarat Planning Scheme

Whilst there has been growth in training activities at the racetrack, with several trainers locating in the area and others expanding their training facilities, the success of the SUZ13 zoning has been questioned by some members of the community.

This report was commissioned by Ballarat City Council to undertake an audit of the performance of the precinct in recent years and to assess likely future prospects of the precinct. This includes assessment of implications for SUZ13 land. A specific question relates to likely SUZ13 land take-up in the future.

The Study Area is shown in Figure 1.

Figure 1: Study Area



Farming Zone– 10ha minimum lot size for a house and subdivision
Farming Zone – 4ha minimum lot size for a house and subdivision
Special Use Zone (Schedule 13) – 2ha minimum lot size for a house and subdivision

Source: Ballarat City Council

1.2 Project Purpose

The project provides a review of the property market in the Dowling Forest Precinct, in the context of thoroughbred industry sector activity in the vicinity of the Ballarat Turf Club, focusing on trends in the land zoned for Special Use and Farming.

This has involved:

- Undertaking a stocktake of conditions and recent trends in the Study Area (exploring land use, property market and economic data);
- Consultation with stakeholders and landholders to identify issues and potential opportunities to support development of the precinct; and
- An analysis of options and recommendations to support development of the precinct and address identified issues.

The information will be used to inform Council of future activities and policy options to support future development of the Dowling Forest Precinct, achieve the objectives of the Master Plan and address any issues identified.

1.3 Report Structure

This report is structured as follows.

- Section 2 - This section provides a summary of policies, strategies and reports that are relevant to the Dowling Forest Precinct and Thoroughbred Industry sector.
- Section 3 - This section provides a snapshot of the Dowling Forest Racecourse, including recent trends in investment activity, racing activities, employment and an estimate of existing training and stabling capacity on-site.
- Section 4 - This section outlines the results of a land use audit of the Dowling Forest Precinct, and provides projections of future demand for thoroughbred land within the Precinct.
- Section 5 - This section provides information relating to a range of property market measures such as permit and sales activity.
- Section 6 - This section includes an overview of thoroughbred racing facilities at Pakenham and Cranbourne in Victoria.
- Section 7 - This section provides a summary of stakeholder consultation undertaken during the course of this project.
- Section 8 - This section presents overall findings and options based on the analysis and body of work undertaken.

POLICY CONTEXT

2.0 POLICY CONTEXT

2.1 Summary of Documents

This section provides a summary of policies, strategies and reports that are relevant to the Dowling Forest Precinct and the thoroughbred industry sector.

The documents are:

- Racing to 2020 (Racing Victoria Limited, 2008);
- Victorian Country Racecourse and Training Facilities Infrastructure Plan (Racing Victoria and Country Racing Victoria, 2015);
- Dowling Forest Precinct Master Plan (Coffey Commercial Advisory, 2011);
- City of Ballarat, Implementation of Dowling Forest Precinct Master Plan, Ballarat Planning Scheme (Keaney Planning and Research, 2011);
- Planning Panel Report, Amendment C149 to the Ballarat Planning Scheme, Implementation of the Dowling Forest Precinct Master Plan (Planning Panels Victoria, 2012);
- Central Highlands Regional Growth Plan (Victorian Government, 2014);
- Ballarat Planning Scheme Review 2017, Dowling Forest Precinct (Keaney Planning and Research, 2017); and
- Proposed Equine Access Arrangements & Tunnel - Preliminary Feasibility Study, Kennedys Road, Miners Rest (TGM, 2017).

Table 2: Summary of Relevant Documents

Document	Purpose and Findings
Racing to 2020 (Racing Victoria Limited, 2008)	Racing to 2020 has been developed to address and plan for the future of the Victorian thoroughbred racing's future and to ensure its continued vitality, growth and sustainability. The plan provides clear objectives and strategies for industry development over the next ten years and in partnership with clubs, government and businesses aims to support the development and renewal of infrastructure for industry, community and commercial benefit. In particular, the plan seeks to redevelop key country racecourses in partnership with business, government and the community to provide racing, training and community facilities that are environmentally positive. Moreover, the provision and upgrading of infrastructure should provide for integrated racing facilities, an enhanced racing customer experience, new green passive recreation areas and meeting, festival and exhibition spaces. With respect to the plan, future development in the Dowling Forest Racing precinct should be capable of providing for a range of complementary land uses and investment opportunities through the utilisation of appropriate planning controls. The plan also seeks to ensure that racetracks such as Ballarat are developed on a scale matched to demand.

Victorian Country Racecourse and Training Facilities Infrastructure Plan (Racing Victoria and Country Racing Victoria, 2015)	The plan aims to provide for efficient use of industry infrastructure and the need for the plan was identified in Racing Victoria's three-year Strategic Plan, released in 2013. The plan seeks to provide country racing clubs, owners, trainers and industry participants with a clearer understanding of the future direction across country Victoria and aims to deliver optimum facilities and financial strength for individual clubs and the broader industry. The report identifies that there are 40 tracks across Victoria which conduct training operations and 28 of these receive a share of $8.3 million which is invested across country tracks through the Training Track Maintenance Fund. While several tracks are identified as being transitioned out of this fund, Ballarat will be one of the venues likely to receive ongoing funding. Ballarat may also benefit from industry capital expenditure from Racing Victoria (RV) and Country Racing Victoria (CRV) which will be focused on racing and training infrastructure, as opposed to customer facilities which will be largely a club responsibility. It is highlighted that RV and CRV will continue to support a suitable geographic spread of funded training venues across Victoria and will work with clubs to investigate options to reduce operating costs for venues and users. The report specifies that the following activities will be undertaken: ■ Locations which have sufficient land to expand their facilities will be further developed; ■ All usage (racing, training and trialling) will be considered in venue-use planning; ■ Capacity will be built through new developments and better spread of use; and ■ Other solutions will be investigated for management and use of training facilities. It is noted that the earlier Victorian Racecourse and Training Facilities Infrastructure Plan (May 2009) reported that the 'Vision' for the Ballarat Turf Club was to accommodate a capacity of between 1,500 and 3,000 horses. The 2015 version is silent of such a vision.
Dowling Forest Precinct Master Plan (Coffey Commercial Advisory, 2011)	This report sets out how the Dowling Forest Precinct can develop and redevelop into the future. The master plan sets out key objectives and strategies to manage development and change over time. This report found that the Dowling Forest Precinct is of strategic significance to Ballarat and the thoroughbred industry in Victoria and should be developed for that purpose. The master plan notes that very few thoroughbred training centres are adjacent to large tracts of freehold land, which makes the training operations of Dowling Forest fairly unique and presents an opportunity to grow the thoroughbred training operations. The report presented a range of recommendations to that end including Planning Scheme changes to support the racing industry and recommendations to improve access and infrastructure around the racetrack to facilitate growth in the industry. The report states that Ballarat has a number of advantages over other training facilities around Victoria including availability of land around the Racecourse for trainers and has capacity and plans for growth. The straight uphill training track is a key advantage of the facility over others in the state.
City of Ballarat, Implementation of Dowling Forest Precinct Master Plan, Ballarat	This report considered the planning implementation options for the Master Plan. The report assessed that a number of developments in the area were of a rural residential nature and not related to the racing industry as intended by the Planning Scheme and

Planning Scheme (Keaney Planning and Research, 2011)	Master Plan. The report recommended the following changes to the Planning Scheme: ■ Rezoning of some parcels of Farming Zone to Special Use Zone Schedule 13; and ■ Modifications to the schedule to the Farming Zone. The intention of the SUZ13 is to link 'dwelling' and 'subdivision' around the racecourse to activity directly associated with the horse training or racing industry. A challenge in drafting this provision was to define horse training or racing industry. The provision adopted the test of the occupant of the proposed dwelling or subdivision to be a holder of an Australian Rules of Racing licence. This would be enforced via a Section 173 legal agreement upon proponents and land of dwelling construction and subdivision in the zone.
Planning Panel Report, Amendment C149 to the Ballarat Planning Scheme, Implementation of the Dowling Forest Precinct Master Plan (Planning Panels Victoria, 2012)	The Planning Panel endorsed proposed changes to the Ballarat Planning Scheme to: ■ Implement the Special Use Zone Schedule 13 to enable a smaller lot size (2 ha) specifically for thoroughbred horse training use subject to such properties being owned or occupied by registered racing industry persons. This would be controlled by use of a Section 173 legal agreement between Council and the subdivision proponent and subsequent land owners; and ■ The Farming Zone in the precinct, within the 4 ha and 10 ha areas, be refined to better achieve the intent of horse training related development but without the limitation to be used by registered racing industry persons. The Planning Panel considered a number of issues in relation to the proposed changes to planning provisions. Most objectors generally supported the outcome being pursued (i.e. development of an equine precinct) but argued that the proposed controls are unworkable, too restrictive and unfair. In particular, limiting development to thoroughbred industry participants was considered to be too limited and a broader definition of equine industry should be adopted. The Panel considered the issues of demand for horse training facilities based on information presented to it. The information was indicative and could not provide a definitive conclusion to possible future outcomes. The Panel concluded that there is enough information to suggest the industry could grow and as such the proposed zoning changes were supported.
Central Highlands Regional Growth Plan (Victorian Government, 2014)	The Central Highlands Regional Growth Plan provides a regional approach to land use planning in the Central Highlands. It covers the municipalities of Ararat, Ballarat, Golden Plains, Hepburn, Moorabool and Pyrenees and identifies opportunities to encourage and accommodate growth and manage change over the next 30 years. The plan acknowledges that Ballarat is the key regional service and employment centre for western Victoria and specifically nominates the development of Dowling Forest as a specialist horse training facility as a key employment growth opportunity for the region.
Ballarat Planning Scheme Review 2017, Dowling Forest Precinct (Keaney Planning and Research, 2017)	This report provides a statutory planning review of Farming Zone land within the Dowling Forest Precinct (and not the Special Use Zone Schedule 13). Selected land surrounding the Ballarat racecourse is zoned Farming Zone (FZ) along with a schedule that allows subdivision into either 4 ha (coloured blue in strategic planning maps) or 10 ha (coloured purple) where the land is used for the purpose of 'horse stables'. Where land is not used for horse stables, the default minimum lot size is 40 ha. Where land is used for horse stables and is greater than 4 ha and 10 ha, no permit is

	required for a dwelling. Otherwise, a permit for a dwelling is required. The review found that non-horse related rural residential developments have been developed in the area, against the intention of the zone. Examples include: ■ A 10-lot subdivision in Branchline Court; and ■ A 7-lot subdivision in Sweeneys Road where a legal agreement was made to ensure the land was used for horse stables; the new lots exceeded 10 ha provision thereby making a 'dwelling' a Section 1 (as of right) use.
Proposed Equine Access Arrangements & Tunnel - Preliminary Feasibility Study, Kennedys Road, Miners Rest (TGM, 2017)	The report is a preliminary desktop feasibility study on improving the safety of horses, staff and traffic along Kennedys Road, Miners Rest. An assessment of suitable access and egress arrangements is provided for the potential provision of an equine tunnel to the Ballarat Turf Club horse training facilities. The study provides a brief overview of the existing conditions, the provision of effective access and egress the potential geometry options and the most probable location for a tunnel and offers preliminary cost estimates for the major construction elements. The report finds that the location of the tunnel is best suited to either the Ballarat Turf Club frontage, immediately east of the Archie Alexander training operation at 274 Kennedys Road or further east on the alignment of Bones Lane to the north. With a usage of approximately 350-400 horses per day a single tunnel is recommended in the report, at Kennedys Road, providing for two-way horse traffic to the Ballarat Turf Club facilities. Preliminary cost analysis indicate that construction costs for such infrastructure could be in the order of $1.72-$1.83 million, including estimated land acquisition costs of around $175,000-$250,000.

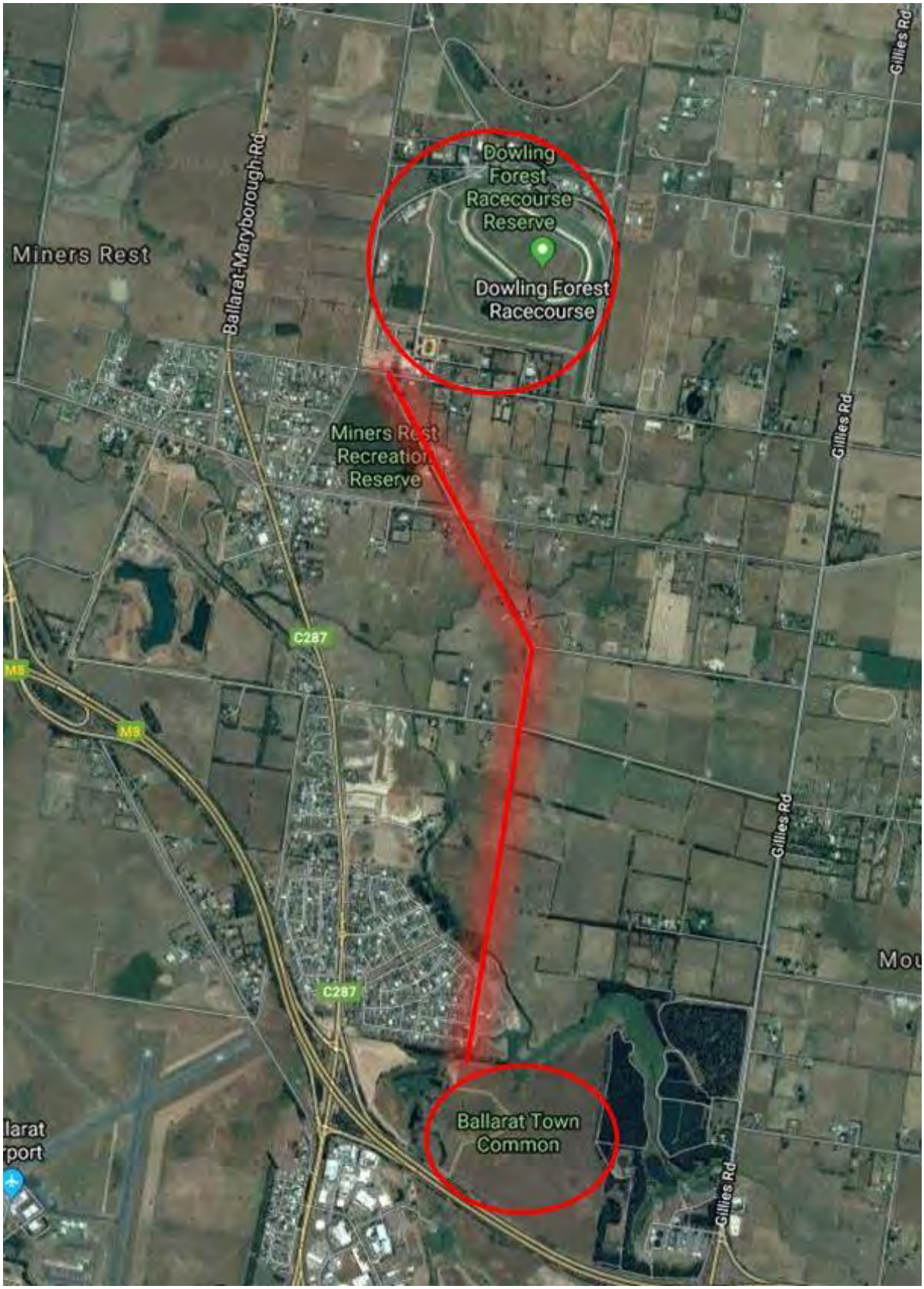
2.2 Bridal Track Concept

Suggestions have been made by racing industry stakeholders that the opportunity exists to enhance linkages between the Dowling Forest racecourse and the 88 ha area known as the "Ballarat Town Common". This Crown Land reserve abuts the Western Freeway to the south of the racetrack, near the Macarthur Park residential subdivision.

Ballarat City Council is the Committee of Management for the reserve, which is located approximately 3.5 km from the racecourse, and it is understood that the site has several significant impediments to future development including flooding, environmental significance and erosion susceptibility.

With limited alternative uses for the Ballarat Town Common, the Ballarat Turf Club, local racehorse trainers and Racing Victoria could potentially implement a network of horse exercise trails or routes which make use of existing road reserves that are integrated with the development pattern of the MacArthur Park township. The demand for establishing such trails would require further investigation, as would the impact on the road network and traffic management requirements.

Figure 2: Indicative Bridal Track Concept



DOWLING FOREST RACECOURSE

3.0 DOWLING FOREST RACECOURSE

3.1 Site Context

Ballarat Racecourse is situated on approximately 180 ha of land. The racecourse was established at the Dowling Forest site in 1972 and is now one of the premier provincial tracks in Victoria, with the track holding approximately 30 race days each season. The racecourse is operated by the Ballarat Turf Club (BTC), which was formed in 1854. Ballarat racecourse's main race day is the Ballarat Cup which is run in November each year. Land managed by BTC is shown in Figure 3.

Figure 3: Dowling Forest Racecourse and Surrounding Area

Source: Nearmap

Ballarat has fast become one of the largest training centres in Victoria, with around 530 horses in work, largely attributable to the ongoing growth of Darren Weir but aided by the recent attraction of trainers Archie Alexander, Matt Cumani and Mitch Freedman. Some of the recent training facility investment has occurred on private land between Kennedys Road and BTC land. The amount of horses trained at the complex has risen from 300 to 530 in the last four years, according to Ballarat Turf Club figures.

The key racing and training facilities that currently exist at BTC include:

- The racetrack;
- Grandstand and patron hospitality facilities;
- A sand track (1,600m x 7m);
- 1,400m uphill synthetic track;
- Inside grass track (1,550m x 18m);
- Viscoe track (1,620m);
- Jog track (1,400m);
- Jumps lane (500m laneway consisting of hurdle lane, steeple lane and logs);
- One undercover horse walker;
- Bull ring;
- Horse pool;
- Old Hill Track granite sand surface (1,200m); and
- On-site veterinary clinic.

3.2 On-Course Investment

Since 2010, Dowling Forest has continued to grow as both a renowned provincial racing and training venue and as a major employer in the City of Ballarat. Significant investment and been made to improve the racing surface and the on-course facilities. Major capital investments are summarised in Table 3 and include works funded from such bodies as State Government, Racing Victoria and the Ballarat Turf Club.

One of the key projects at Dowling Forest has been the installation of a 1,400m uphill all weather straight training track which was constructed in late 2010 and is a unique piece of training infrastructure at a Victoria public racecourse. The cost of the facility was $2.3 million. The uphill track is a key racing asset that features electronic sectional timing, trainer's box at the 1,000m mark, and pull off points at 1,200m, 1,300m and 1,400m points. The uphill training track has greatly improved Ballarat Turf Club's ability to deliver an optimum training surface for thoroughbred racing and is understood to have been a key attractor for new trainers to Ballarat.

In recent times, Dowling Forest has attracted trainers such as Matt Cumani with the $1.3 million development of a 40-horse stable and associated facilities, while Mitch Freedman now occupies new $1 million facility which include 35 stables, a 12-horse walker, treadmill, sand roll and day yards.

Table 3: Major Investment at Dowling Forest Racecourse, 2010-2018

Year	Project	Cost
2010	Uphill Synthetic Training Track	$2,300,000
2013	Darren Weir Training Complex Extension	$250,000
2013	Facilities Upgrade (including new viewing decks)	$200,000
2014	Installation of Big Screen	$220,000
2014	Course Proper Upgrade	$1,300,000
2014	Training Centre Upgrade (tracks, rails, schooling lane)	$220,000
2015	Raceday Horse Stalls Upgrade and Veterinary Facilities	$1,040,000
2016	Matt Cumani Stable Complex	$1,300,000
2017	Mitch Freedman Stable Complex	$1,000,000
2017/2018	Walkers/Treadmill project (4 Equine Walkers & 1 Treadmill)	$470,000
Total		**$8,300,000**

Source: Ballarat Turf Club

3.3 New Synthetic Track

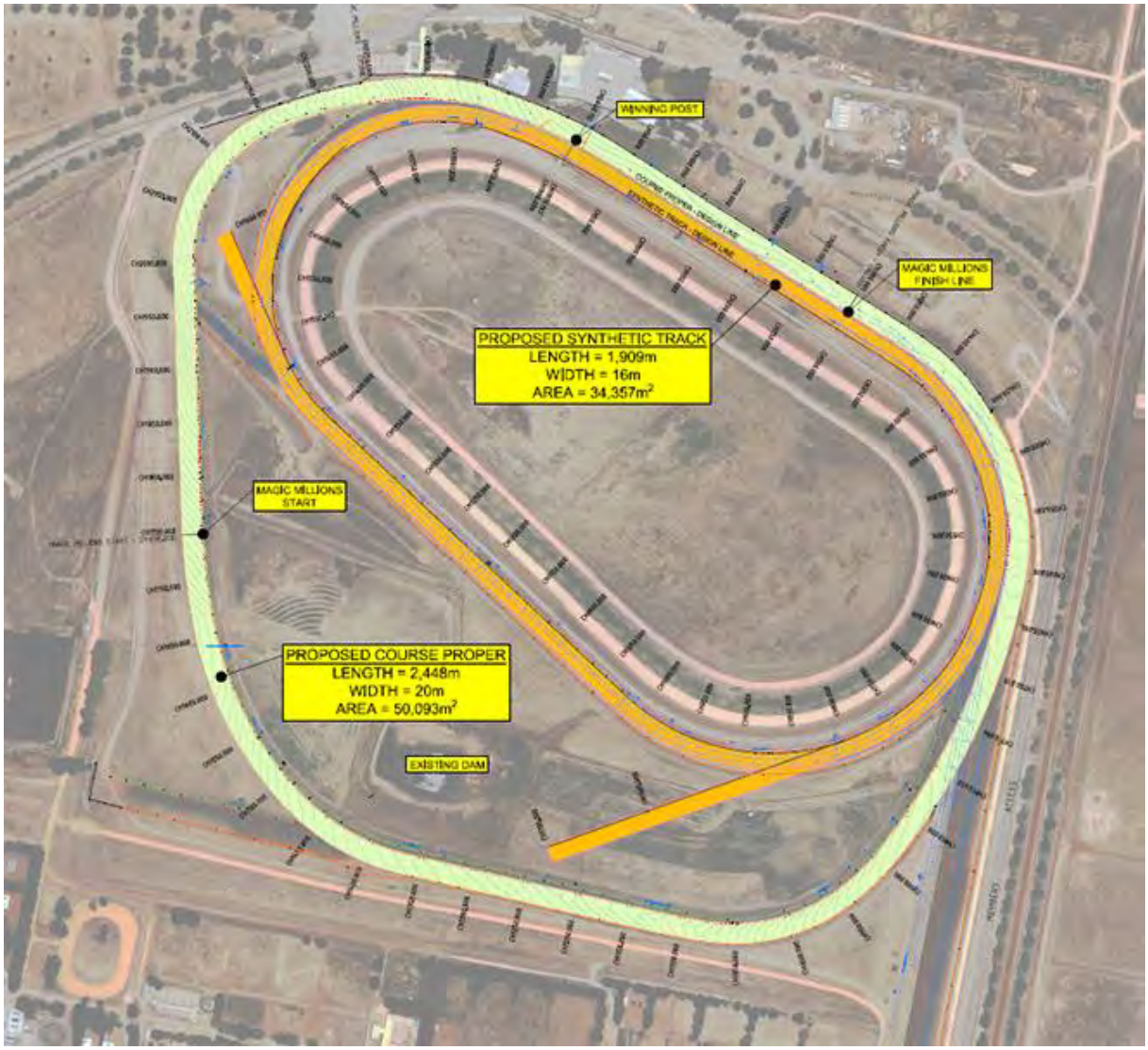
Ballarat Turf Club has recently been successful in its bid for Dowling Forest to become Victoria's newest synthetic racing venue, with work on a new $9 million track to commence after the Ballarat Cup meeting in November 2018 with a view for synthetic racing to be underway from May 2019. The new circuit will complement an existing grass racing surface.

Pakenham and Geelong are the current synthetic racing venues in Victoria, though Geelong's synthetic track will cease operation after September 2018. Ballarat has been scheduled to host 11 synthetic meetings in season 2018-19, and its allocation of race days is set to climb from around 30 to about 40 per season when Geelong's synthetic track is closed.

On top of race days, the facility (shown in Figure 4) would also be used extensively for training and would help increase the club's current resources and racetrack surface offering, which has been accommodating a significant increase in horse population over the past four years.

This major project planned for the racecourse is expected to encourage subsequent capital investment in the range of facilities at the track, and it is understood that a key part to the Ballarat Turf Club's push for the new track was its proximity to most major training centres in Victoria.

Figure 4: Proposed Ballarat Synthetic Track



Source: Ballarat Turf Club

3.4 Job Trends

A portion of the total employment provided at Dowling Forest racecourse is identified by the Australian Bureau of Statistics under their 4-digit occupation 'Animal Attendants and Trainers'. These participants are classified under the definition that they "train, feed, groom and care for animals." It is emphasised that significant additional employment is provided at the racecourse in jobs such as office-based employees, track maintenance staff, cleaners, and other such ancillary occupations. Nonetheless, the data shown in Table 4 provides a snapshot of trends in the 'core' racing jobs which are largely provided in the Dowling Forest precinct.

The number of jobs in City of Ballarat has increased by 3% per annum between 2011 and 2016, with around 45,800 jobs provided in the municipality. By comparison, Animal

Attendants and Trainers jobs have significantly exceeded this rate of growth, with total jobs increasing by 11% per annum from 58 jobs in 2011 to 98 jobs in 2016.

Table 4: Animal Attendants and Trainers Jobs in City of Ballarat, 2011-2016

Jobs in Ballarat (C)	2011	2016	Total Change	AAGR
Animal Attendants and Trainers Jobs	58	98	+40	+11%
Total Jobs in Ballarat (C)	39,010	45,790	+6,780	+3%

Source: ABS Census of Population and Housing, 2011 and 2016
Note: AAGR=Average Annual Growth Rate
Note: These 'core' racing jobs represent a share of total employment at the racecourse

Industry guides indicate that the following broad employment benchmarks may be appropriate to provide an overview of total employment at the Dowling Forest racecourse:

- One direct job per three horses in work; and
- One indirect job per 10 horses in work.

Applying these benchmarks, the Dowling Forest racecourse provides approximately 230 jobs at the current time, noting that approximately 530 horses are currently in work at the racecourse. Around 180 of these jobs would likely be provided at or near the racetrack, while a further 50 jobs would comprise indirect jobs provided in other locations. The total level of employment has increased sharply from the estimated 130 jobs that were provided in 2014 to around 230 jobs in 2018. See Table 5.

Table 5: Estimate of Jobs Supported by BTC, 2014-2018 (Indicative Only)

Estimate of Jobs and Horses in Work	2014	2018	Total Change	AAGR
Direct Jobs	100	180	+80	+16%
Indirect Jobs	30	50	+20	+14%
Total Jobs	130	230	+100	+15%
Horses in Work	300	530	+230	+15%

Source: Estimate using quoted benchmarks, HillPDA 2018
Note: AAGR=Average Annual Growth Rate

3.5 Recent Growth in Race Starters

The performance of racing can be measured in many ways, however the continual improvement at Ballarat in recent times is reflected in the total number of race starters.

The number of starters of Ballarat-trained racehorses has increased significantly over the past four years - approximately 1,900 more starters in 2017/18 compared with 2013/14 at an average annual growth rate of 15%. This rate of growth is the highest of any track in Victoria and significantly exceeds the State-wide average growth of +1% per annum.

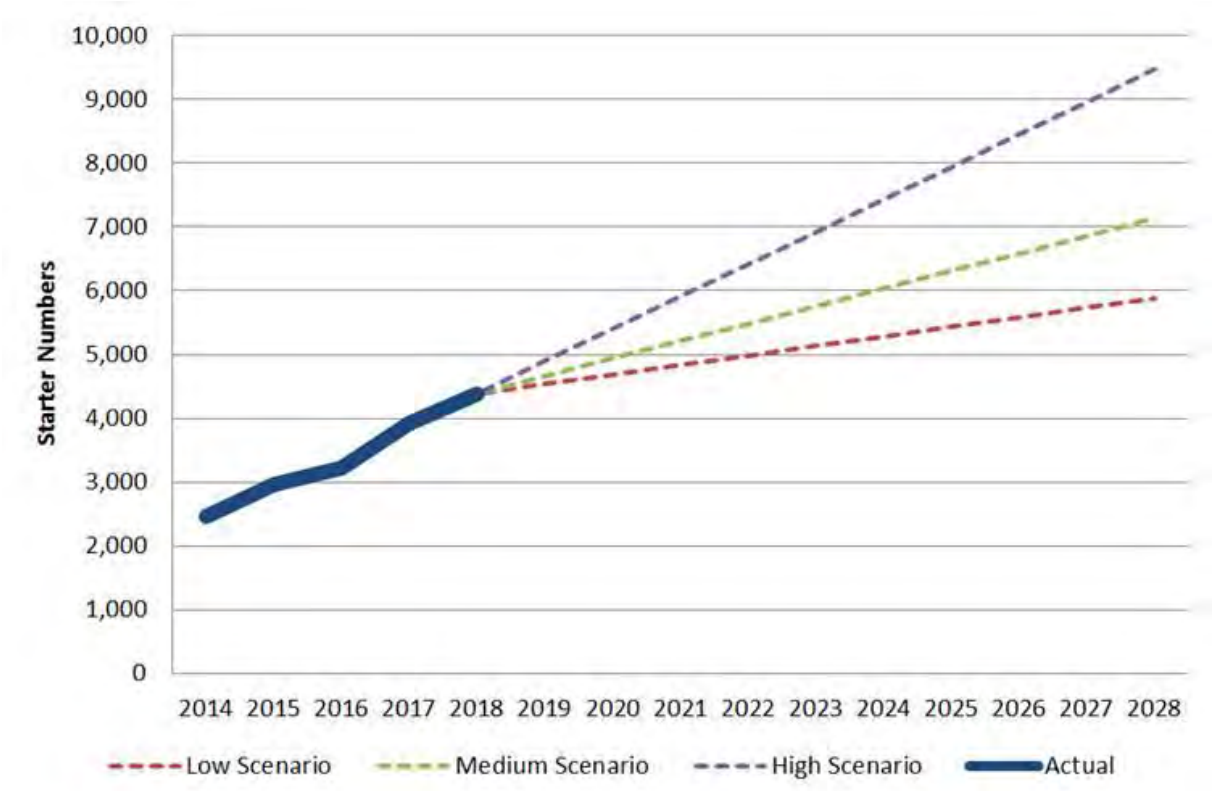
This information is shown in Table 6.

Table 6: Number of Race Starters by Thoroughbred Club, 2013/14-2017/18

Training Location	2013/14	2014/15	2015/16	2016/17	2017/18	AAGR 2014-2018
Cranbourne	7,230	7,156	6,547	6,673	6,900	-1%
Flemington	4,893	4,723	4,604	5,352	5,374	+2%
Ballarat	**2,468**	**2,965**	**3,232**	**3,928**	**4,386**	**+15%**
Caulfield	4,832	5,042	4,813	4,363	3,826	-6%
Mornington	4,176	4,354	4,221	4,205	3,807	-2%
Warrnambool	1,897	1,865	2,038	2,315	2,825	+10%
Bendigo	1,389	1,405	1,510	1,514	1,258	-2%
Kyneton	1,663	1,517	1,008	1,222	1,252	-7%
Wangaratta	770	916	907	1,011	1,174	+11%
Geelong	1,504	1,578	1,503	1,259	1,145	-7%
Pakenham	692	385	722	924	921	+7%
Seymour	1,205	1,261	1,315	1,126	831	-9%
Sale	688	804	790	759	800	+4%
Swan Hill	533	538	592	778	696	+7%
Moe	749	819	666	628	639	-4%
Wodonga	811	711	676	660	625	-6%
Echuca	616	565	595	583	520	-4%
Stawell	561	678	667	626	497	-3%
Benalla	665	779	736	566	494	-7%
Horsham	333	411	392	367	412	+5%
Kilmore	365	385	479	494	358	-1%
Tatura	409	295	347	259	335	-5%
Colac	157	164	163	209	217	+8%
Hamilton	335	343	163	140	161	-17%
Bairnsdale	227	271	216	164	112	-16%
Top 25 Sub Total	**39,168**	**39,930**	**38,902**	**40,125**	**39,564**	**+0%**
Balance	3,315	4,044	4,982	4,682	4,237	+6%
Total Starters	**42,483**	**43,974**	**43,884**	**44,807**	**43,801**	**+1%**

Source: Racing Victoria
Note: AAGR=Average Annual Growth Rate

Figure 5: Number of Starters, Trends and Projections, 2014-2028



3.6 Forecast Growth in Starters and Possible Land Take-Up

Growth is forecast to continue at Ballarat having regard for the upcoming development of the synthetic surface and also the increased pressures associated with metropolitan training venues especially Caulfield. In this context, if starters of Ballarat-trained thoroughbreds were to increase over the next decade at a more moderate annual rate of 5% (compared with the current 15%), this would result in around 7,150 starters and in the order of 860 horses in work at the track at 2028 – a +330 increase on the 530 horses which are currently trained at the track.

A forward growth rate of 5% has been selected for this purpose having regard to:

- An assessment that the 15% past trend was off a lower base and that future growth would be more modest in annual average change terms;
- The relativity of total starters at other training venues, noting that Cranbourne has the most starters in the state at a stable 6,900; and
- Noting that the assessed 5% growth rate for Ballarat could take it to position of number one in Victoria at 7,150 starters (using the 2018 benchmark).

The recent addition of the Cumani and Freedman facilities have been developed at an overall average land area per stable of 210 sqm per box (including ancillary facilities). Adopting this rate would result in a further 7 ha of land required to accommodate a

potential demand for an additional 330 horses to be trained at the track over the coming decade. This information is shown under the Medium Scenario in Table 7.

Table 7: Land Demand Forecast Scenarios to 2028, Dowling Forest Racecourse

Year	Low Scenario (3% AAGR)		Medium Scenario (5% AAGR)		High Scenario (8% AAGR)	
	Race Starters	Horses in Work	Race Starters	Horses in Work	Race Starters	Horses in Work
2014	2,468	300	2,468	300	2,468	300
2018	4,386	530	4,386	530	4,386	530
2028	5,890	710	7,140	860	9,470	1,140
Change 2018-2028	+1,504	+180	+2,754	+330	+5,084	+610
Av. Land Area per Stall*		210 sqm		210 sqm		210 sqm
Estimated Land Demand to 2028		3.78 ha		6.93 ha		12.81 ha

Source: HillPDA
Note: AAGR=Average Annual Growth Rate
* Ratio based on recent development of Mitch Freedman and Matt Cumani facilities

3.7 Land Capacity at BTC

According to Ballarat Turf Club, the existing onsite vacant land which is available for the development of further stables is 3 ha, as shown in Figure 6.

Indicatively, this represents enough land to accommodate a further 140 horses. Beyond this point, BTC would then be required to reconfigure or redevelop existing onsite facilities or areas to meet a share of future demand.

BTC has indicated that all existing stables at the course are full and in operable condition. Further, the Club has suggested that redevelopment of existing facilities would result in a *reduction* in capacity, as the trainers will not accept the smaller dimensions of stables that were considered standard in the past. For example, most of the old stables at the racecourse are 3.5m x 3.5m, however modern stable facilities have more generous dimensions of 6.5m x 4.5m.

In addition to the larger size requirements of stables, BTC advises that trainers now require extra space for other equine related infrastructure such as day yards, sand rolls, walkers, treadmills, and the like. The older-style stables do not have these items. Any redevelopment would need to provide for such, thereby reducing capacity even further.

The existing 3 ha supply of vacant land at the racecourse (as identified in Figure 6) is likely to satisfy demand for the coming five year period to 2023, after which time alternative options would be required.

The lack of infill options at the racetrack identified by BTC would mean that demand for stables over the upcoming five-year period could potentially be accommodated on racecourse land but beyond this period it is likely that off-site facilities would be required.

Figure 6: Dowling Forest Oncourse Land Vacancy, 2018 (Indicative Only)

Source: HillPDA (in consultation with Ballarat Turf Club)

3.8 Track Training Capacity

According to the Ballarat Turf Club, the ability for the various training surfaces at the racecourse to handle further significant increases in racehorses wishing to undertake trackwork is very limited. Part of the attraction of the facilities has been their capacity to handle horse traffic throughout the year, and this was boosted by the installation of the uphill track in 2011.

The upcoming installation of the synthetic track will significantly boost the capacity for the track to cater for morning track workers, with the new track estimated to allow for an increase of around 20 extra meetings to be run annually and increase the resilience of the current racing infrastructure to cater for an increase of 350 horses.

It is estimated by BTC that around 25% of the horses that use the tracks each day are not stabled either on course or with direct access to the course.

The development will aim to accommodate an increase in trainers seeking to relocate as metropolitan training facilities are rationalised. It is anticipated that, once there is increased capacity from the installation of the synthetic track, additional trainers and horses will be encouraged to locate at the site.

A forecast increase of +33 racehorses in work at the track each year (under the 'medium scenario' in Table 7) would mean that the development of the synthetic track will ensure that sufficient training capacity is provided at Ballarat racecourse for around eight years, noting the synthetic track can cater for an increase of around 350 horses and a quarter of these (i.e. approximately 88 horses) will likely be floated to the track from off course locations.

Beyond this eight year timeframe, additional trackwork options would need to be provided at the racecourse to cater for demand.

3.9 Other Benchmarks for Track Training Capacity

It was noted in the Planning Panel report that some stakeholders (Country Racing Victoria) consider BTC being capable of accommodating in the range of 1,500 to 3,000 horses in work in the long term. Some of these horses would be located in the Dowling Forest Precinct (estimated at 75%) and others would be floated into the BTC facility (estimated at 25%).

The following assessment provides a land take guide using this range of horses:

- 1,500 to 3,000 horses in work may equate to 1,125 to 2,250 horses in work located in the Precinct;
- Accounting for the 530 horses in work at 2018, this equates to net change of 595 to 1,720 horses in the Precinct; and
- At 210 sqm per horse, this equates to net change in additional land take of approximately **13 ha to 36 ha** in the Precinct.

This assumes the BTC facilities can handle this level of demand in terms of surface management and facility scheduling.

LAND USE AUDIT AND CAPACITY

4.0 LAND USE AUDIT AND CAPACITY

4.1 Existing Land Uses: Dowling Forest Precinct

A land audit was undertaken in May 2018 for parcels in the Dowling Forest Precinct. This classified land by main industry sector according to the nature of the occupying businesses/use or, in the case of the racecourse landholdings, the land available for future development as identified by representatives of the BTC.

Land used for thoroughbred-related purposes in the Precinct supports a wide range of activities, ranging from traditional horse training facilities, to agistment and stabling-related activities.

Approximately 24% of all land in the Precinct is occupied by businesses associated with traditional thoroughbred-related activities, with the largest lot being Lot 2 Ballarat-Maryborough Road, Miners Rest of approximately 51 ha of land. This amounts to approximately 44% of the thoroughbred-related occupied land (116.2 ha), and the land-holdings are strategically located on the western side of Midas Road, adjacent to the racecourse's main entrance.

Approximately 60% of the land is occupied by a range of businesses or uses not considered as 'core' thoroughbred-related activities, and these include predominantly rural residential accommodation, mixed farming and grazing, and a birds of prey conservation centre.

This information is summarised in in Table 8 and in Figure 7.

Table 8: Existing Land Uses, Dowling Forest Precinct, 2018

Precinct	Thoroughbred		Other		Vacant		Estimated Total	
	Lots	Area	Lots	Area	Lots	Area	Lots	Area
SUZ13 South of Kennedys Road	3	20.4 ha	15	58.5 ha	3	13.0 ha	21	91.9 ha
SUZ13 North of Kennedys Road	8	91.8 ha	5	32.4 ha			13	124.2 ha
Farming Zone (4 ha Min.)	1	4.0 ha	26	120.7 ha	1	4.4 ha	28	129.1ha
Farming Zone (10 ha Min.)			8	81.6 ha	6	60.5 ha	14	142.1 ha
Ballarat Turf Club Vacant Land					2	3.0 ha	2	3.0 ha
Total Estimate	**12**	**116.2 ha**	**54**	**293.2 ha**	**12**	**80.9 ha**	**78**	**490.3 ha**

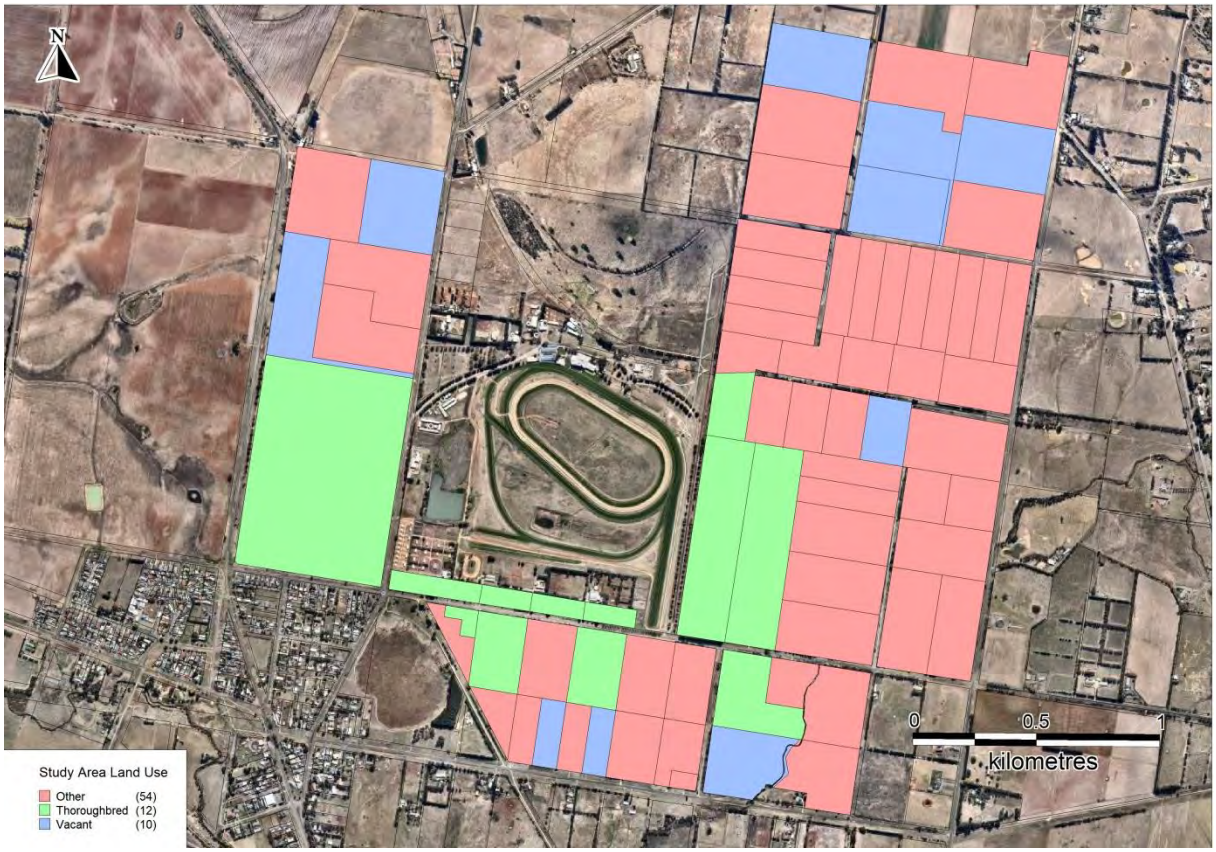
Source: HillPDA; Ballarat City Council

A broad pattern can be interpreted in Figure 7 in terms of how the precinct has developed over time and how the existing parcels may potentially be developed in the future.

Very few vacant parcels exist on racecourse land and land with immediate access to the racecourse or having the benefit of easy access without needing to float horses to the track via road.

Parcels which are located at the rear of the precinct, or in awkward land pockets, may require key road or tunnel infrastructure to be developed in order to activate the land, and these areas would most likely represent longer term opportunities.

Figure 7: Existing Land Uses, Dowling Forest Precinct, 2018



Source: HillPDA; Ballarat City Council

4.2 Existing Land Occupancy and Vacancy Status

In the raw data, a land parcel is counted as occupied if it has some form of activity on it, such as a house and stable or an agistment facility. Land is deemed vacant if there is no land use activity ascribed to it.

Vacant land of 81 ha accounts for 16% of the total land supply in the Dowling Forest Precinct, noting that this figure does not take into consideration constraints on existing vacant parcels, such as access, native vegetation (if any), ownership constraints, and the like. Underutilised land is also not reflected in these figures.

Approximately 61 ha of this vacant land exists in the Farming Zone precinct with a minimum subdivision of 10 ha. Having regard to the distance and logistics involved in accessing the track from these parcels, it is likely that these parcels represent long term development options compared with more conveniently located options which are closer to the track.

Nonetheless, the land zoned for thoroughbred activities in the Dowling Forest Precinct has significant available land supply. A summary of the total area by occupied and vacant land stocks for the Dowling Forest Precinct is shown in Table 9.

Table 9: Land Status, Dowling Forest Precinct, 2018

Precinct	Occupied		Vacant		Total	
	Lots	Area	Lots	Area	Lots	Area
SUZ13 South of Kennedys Road	18	79 ha	3	13 ha	21	92 ha
SUZ13 North of Kennedys Road	13	124 ha	0	0 ha	13	124 ha
Farming Zone (4 ha Min.)	27	125 ha	1	4 ha	28	129 ha
Farming Zone (10 ha Min.)	8	82 ha	6	61 ha	14	142 ha
Ballarat Turf Club Vacant Land	NA	NA	2	3 ha	2	3 ha
Total Estimate	**66**	**409 ha**	**12**	**81 ha**	**78**	**490 ha**

Source: HillPDA; Ballarat City Council
Note: Totals subject to rounding

4.3 Estimate of Land Capacity for Development

A preliminary assessment of 'full land capacity' is provided below. This is undertaken to recognise that infill development could potentially occur on both vacant land and underutilised occupied land within the Dowling Forest Precinct.

The theoretical exercise is intended to provide high level estimates of how many lots and the quantum of land that could be developed if the precinct was subdivided to its maximum capacity. The analysis does not take into account topography, drainage, access, non-visual encumbrances, land banking or decision-making process of individual landowners. The assessment is provided as a guide only.

The methodology for undertaking this analysis involved the application of the following equation to each of the 78 lots which currently comprise the Dowling Forest Precinct:

Individual lot area ÷ **Minimum lot size allowed under zoning (i.e. 2 ha, 4 ha or 10 ha)** - **1 (if occupied) or 0 (if vacant)**

The result for each lot was then rounded down to the nearest whole number to remove part-lot results.

For example, an occupied lot of 12 ha in an area which could be subdivided to a minimum lot size of 4 ha would be assessed as being capable of delivering an additional 2 lots of 4 ha each (or 8 ha in total). If vacant, that lot could be subdivided to 3 lots and 12 ha in total.

Using this approach, a high level estimate of land being used to full capacity (estimated by the smallest possible lot subdivision per zone) suggests there may be around 220 ha of thoroughbred activity land supply.

Land is rarely subdivided to its full potential. There are many reasons for this, such access limitations, native vegetation, flooding, topography, ownership constraints and land holder aspirations.

For the purpose of this assessment, it is assumed that 50% of potential land development capacity is unavailable for a range of reasons and as such it is assessed that a full capacity estimate for the precinct is a further 110 ha of land deemed reasonably available.

It is highlighted that the largest lot in the Dowling Forest Precinct is Lot 2 Ballarat-Maryborough Road, Miners Rest of approximately 51 ha of land and, given this lot is identified as currently being occupied, that parcel alone could potentially provide 24 lots and 48 ha of additional land for thoroughbred-related activity if subdivided at the allowable land area of 2 ha under the SUZ13.

Table 10: Indicative Capacity Estimate, Dowling Forest Precinct, 2018

Precinct	Potential Additional Lots (No)			Potential Additional Lot Area (ha)		
	Occupied Land	Vacant Land	Total	Occupied Land	Vacant Land	Total
SUZ13 South of Kennedys Road	18	5	23	36 ha	10 ha	46 ha
SUZ13 North of Kennedys Road	49	0	49	98 ha	0 ha	98 ha
Farming Zone (4 ha Min.)	2	1	3	8 ha	4 ha	12 ha
Farming Zone (10 ha Min.)	0	6	6	0 ha	60 ha	60 ha
Ballarat Turf Club Vacant Land	NA	4	4	NA	3 ha	3 ha
Total Estimate	**69**	**16**	**85**	**142 ha**	**77 ha**	**219 ha**
Effective Capacity (at 50%)			**42.5**			**109.5 ha**

Source: HillPDA; Ballarat City Council

4.4 Possible Take-Up of Land

At a short term take-up of 7 ha per 10 years (or 0.7 ha per year on average), the land supply in the broader Dowling Forest Precinct may be sufficient to meet approximately 158 years of demand (at the effective land capacity guide).

Assuming demand is doubled to 1.38 ha per annum, the effective land supply of the Dowling Forest Precinct could absorb 79 years of demand.

The various scenarios are shown in the table below.

It is not possible to estimate supply and demand in this context with precision, however based on available information and estimates used, supply is likely to be available for thoroughbred activities in the precinct for the very long term.

Table 11: Years' Land Supply, Dowling Forest Precinct

Scenario	Low Scenario	Medium Scenario	High Scenario	High Scenario II Doubling of Medium Scenario
Annual Land Take Up	**0.38 ha/pa**	**0.69 ha/pa**	**1.28 ha/pa**	**1.38 ha/pa**
Study Area				
Effective Capacity (109.5 ha)	290 years	158 years	85 years	79 years
SUZ13 Only				
Effective Capacity (72 ha)	190 years	104 years	56 years	52 years

Source: HillPDA

4.5 Take-Up Using the Alternative Capacity Estimate

The above estimates assume the BTC facilities can accommodate ongoing and unlimited demand on its tracks and via scheduling.

It was noted earlier that up to 2,250 horses in the Precinct may be considered by some stakeholders as the nominal capacity of the area (noting this is not necessarily the view of BTC). It was found that this may translate into a need for up to 36 ha of additional land in the area for training purposes.

If this is accepted, the training capacity may be reached as follows:

- Medium Scenario at 0.69 ha/pa: 52 years and leaving 74 ha of effective land capacity not used for training; and
- High Scenario II Doubling of Medium Scenario at 1.38 ha/pa: 26 years and leaving 74 ha of effective land capacity not used for training.

PROPERTY MARKET INFORMATION

5.0 PROPERTY MARKET INFORMATION

5.1 Permit Activity

A review of Council's permit register provides an overview of activity over the past decade. The information summarised in Table 12 indicates that planning and building permit activity has been reasonably evenly spread across the Racecourse, SUZ13, FZ (4 ha) and FZ (10 ha) areas over this time. Eight planning permits have been issued for activities on racecourse land, while seven permits have been approved for applications in the SUZ13 precinct.

Table 12: Permit Application Activity, Dowling Forest Precinct and Racecourse, 2008-2018

Application Type	Racecourse	SUZ13	FZ (4 ha)	FZ (10 ha)	Total
Planning Applications					
Completed		1	1		2
Permit Approved	8	7	6	7	28
Secondary Consent	1				1
Statement of Compliance				1	1
Vicsmart Permit Issued		1		1	2
Lodged	1				1
Awaiting Referral Responses				1	1
Application Refused		1			1
Application Withdrawn	3	2		1	6
Lapsed	1		1	1	3
Planning Applications Total	14	12	8	12	46
Building Permit Applications					
Completed		1		4	5
Occupancy Permit Issued	1	1	3	4	9
Final Certificate Issued	3	7	9	12	31
Approved	3	3		5	11
Cancelled			1		1
Lapsed	1	1			2
Building Permit Applications	8	13	13	25	59
Total	22	25	21	37	105

Source: Ballarat City Council

Approved planning applications granted on SUZ13 land between 2008 and 2018 are shown below:

- Development of a horse round yard;
- Construction of a garage associated with a use of the existing dwelling;
- Construction of garage;

- Extension of existing dwelling and construction of a shed;
- Construction of a hay shed;
- Skillion to existing shed;
- Alterations and addition to a dwelling; and
- Development of a veranda and decking in association with a dwelling.

Building permit details for applications on SUZ13 land between 2008 and 2018 are shown below:

Completed

- Horse stables to be erected on a vacant allotment.

Final Certificate Issued

- Construction of hay/storage shed;
- Detached garage;
- Detached sheds (animal shelter);
- Horse barn and feed shed;
- Non-habitable out building (animal shelter);
- Skillion attached to treadmill building; and
- Verandas attached to existing dwelling.

Occupancy Permit Issued

- Extension to existing dwelling including attached verandas, carport and free standing shed.

Approved

- Additions and alterations to a detached dwelling;
- Construction of shed; and
- Construction of veranda attached to an existing dwelling.

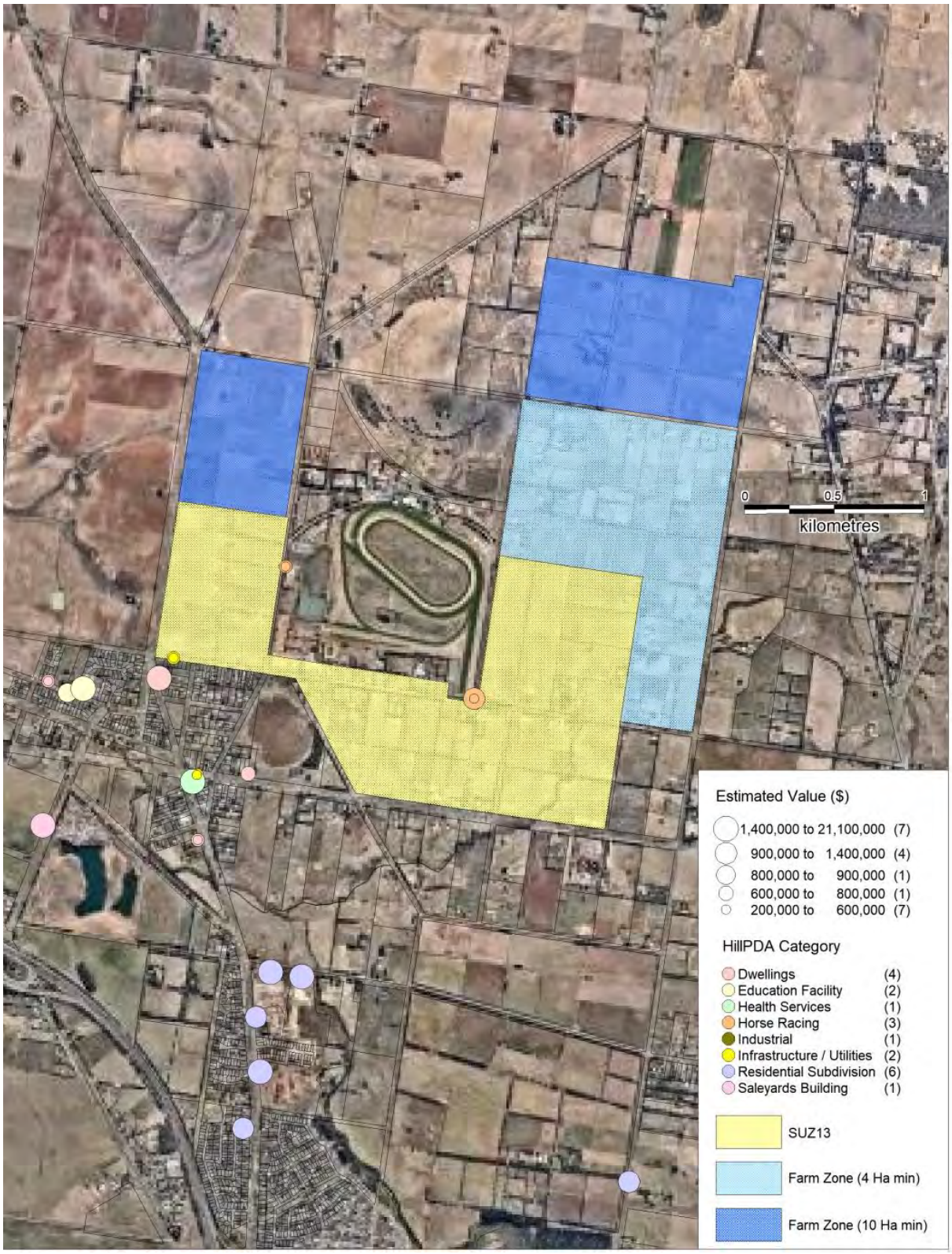
This information shows that limited permit application activity has been occurring off the racecourse site, in the SUZ13 area, over the past decade.

Further investigations into the level of investment and types of permits issued in the Dowling Forest Precinct and the broader Miners Rest area have been summarised in Figure 8.

Permit activity from 2011 onwards identifies that while limited investment activity has occurred in the precinct overall, horse racing-related investment has been focused on the racecourse site.

Several residential subdivisions have occurred beyond the precinct, approximately 1.7 km south of the racecourse.

Figure 8: Investment Activity, Dowling Forest Precinct and Beyond, 2011-2020



Source: Cordell Connect, May 2018

5.2 Property Sales

A total of 48 rural properties were sold within 4 km of the racecourse between January 2013 and May 2018, with a further 13 transactions occurring with undisclosed sales prices. These included sales in non-urban zonings such as the Farming Zone, Rural Living Zone, Special Use Zone Schedule 13 and Special Use Zone Schedule 15. At a high level, the overall average rates per sqm for these sales are shown in Table 13.

Sales of rural type properties around the racecourse have predominantly been on Farming Zone land, with around $17m invested across 37 sales. Since 2013, six disclosed sales have occurred in the SUZ13 precinct with this limited sample size showing an overall average rate of $10 per sqm.

Table 13: Properties sold within 4 km of Racecourse, 2013-May 2018

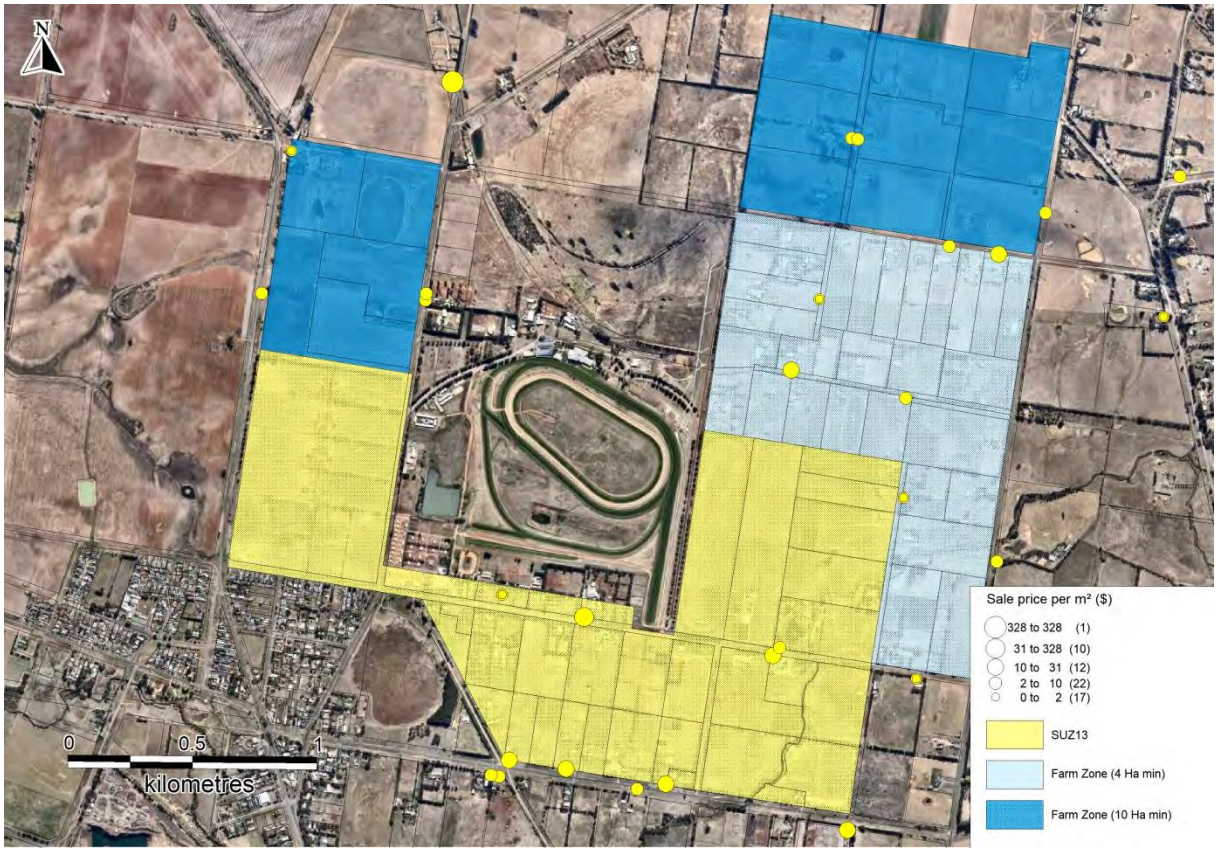
Zone	Sales	Sum of Sale Price	Sum of Land Size	Av. $ / sqm
Farming Zone	37	$17,378,810	409.9 ha	$4
Rural Living Zone	4	$2,134,000	5.0 ha	$42
Special Use Zone - Schedule 13*	6	$3,075,000	30.4 ha	$10
Special Use Zone - Schedule 15	1	$1,850,000	23.1 ha	$8
Total	**48**	**$24,437,810**	**468.5 ha**	**$5**

Source: RP Data, May 2018

*Records with reported prices

The location of these sales is identified in Figure 9, though definitive conclusions are difficult to draw based on this sample size of somewhat differing property types (including undisclosed price sales) over a five-and-a-half year timeframe.

Figure 9: Recent Property Sales, Study Area and Immediate Surrounds, 2013-May 2018



Source: RP Data, May 2018

Limited SUZ13 sales activity has occurred in the local real estate market in recent years, and therefore little information exists regarding land prices. However, the seven sales in the SUZ13 precinct (including one sale of an undisclosed amount) are identified in the table below and show that prices ranged between $3 per sqm and $54 per sqm. The highest rate ($54 per sqm) was achieved for the site at 274 Kennedys Road, Miners Rest which significantly benefits from immediate access to the racecourse and the opportunity to lease an adjoining lot with training infrastructure from Ballarat Turf Club.

Table 14: Properties sold within SUZ13 Zone, 2013-May 2018

Street Address	Property Type/Category	Land Size (sqm)	Sale Price	$/SQM	Sale Date
143 Sharpes Road, Miners Rest	Farm	38,094	$387,500	$10	Sep-17
81 Sharpes Road, Miners Rest	Land	27,578	$420,500	$15	Oct-15
274 Kennedys Road, Miners Rest	House	15,599	$850,000	$54	Apr-15
318 Kennedys Road, Miners Rest	Farm	15,733	Undisclosed		Jan-15
195 Kennedys Road, Miners Rest	House	32,000	$500,000	$16	Jun-14
103 Sharpes Road, Miners Rest	House	28,238	$357,000	$13	Mar-14
208 Kennedys Road, Miners Rest	Land	163,425	$560,000	$3	Nov-13

Source: RP Data, May 2018

The sample of property sales within 4 km of the racecourse and which are sized between 1 to 5 ha indicate that prices are broadly comparable between SUZ13 and FZ land, while RLZ sales have achieved slightly higher rates per sqm by comparison.

Overall, given the low volume of sales in the area and significant time gaps between sale records and that no inspections have been undertaken in this study, it is not possible to draw strong conclusions regarding price variation by zone from available data.

Table 15: Properties sold within 4 km of Racecourse, Sample of 1 to 5 hectare properties, 2013-May 2018

Zone / Year	Type	Land Size	Sale Price	Av. $ / sqm
Special Use Zone - Schedule 13				
2014	House	28,238sqm	$357,000	$13
2014	House	32,000sqm	$500,000	$16
2015	Land	27,578sqm	$420,500	$15
2015	House	15,599sqm	$850,000	$54
2017	Farm	38,094sqm	$387,500	$10
Average				*$18*
Farming Zone				
2013	Land	17,018sqm	$173,000	$10
2013	Land	24,280sqm	$605,000	$25
2013	House	40,041sqm	$290,000	$7
2014	House	19,597sqm	$694,000	$35
2014	Farm	36,559sqm	$540,000	$15
2014	Farm	38,713sqm	$770,000	$20
2014	Farm	39,760sqm	$1,290,000	$32
2014	House	40,493sqm	$425,000	$10
2014	Land	45,460sqm	$320,000	$7
2015	Farm	13,618sqm	$485,000	$36
2015	Farm	40,118sqm	$855,000	$21
2016	Land	24,957sqm	$90,000	$4
2017	Farm	17,463sqm	$360,000	$21
2017	Farm	19,020sqm	$795,000	$42
2017	House	20,026sqm	$720,000	$36
2018	House	48,562sqm	$590,000	$12
Average				*$19*
Rural Living Zone				
2013	Farm	20,037sqm	$620,000	$31
2018	Farm	20,234sqm	$655,000	$32
Average				*$32*

Source: RP Data, May 2018

5.3 Properties Currently for Sale

Nine properties are currently for sale within 4 km of the racecourse in SUZ13 and FZ areas. The two properties which are currently for sale in the SUZ13 precinct and the current number of days which they have been listed for sale, or 'on the market', are:

- 299 Kennedys Road, Miners Rest: 975 days; and
- 81 Sharpes Road, Miners Rest: 430 days.

These two SUZ13 properties have been on the market for a significantly longer timeframe than the average FZ property (117 days). A transaction can be delayed by various issues such as state of the market, asking price, general desirability of an area, specific site conditions and the nearby social amenities. It is extremely difficult to attribute with confidence which factors are impacting the sale-ability of a property, however it is noted that the time taken to sell the two SUZ13 properties which are currently on the market is well in excess of a year each.

Table 16: Properties for sale within 4 km of Racecourse, SUZ13 and FZ, July 2018

Zone	No. of Properties	Average Land Size	Average Days on Market
SUZ13	2	4.5ha	703
FZ	7	8.6ha	117
Total	**9**	**7.7ha**	**247**

Source: RP Data, July 2018

CASE STUDIES

6.0 CASE STUDIES

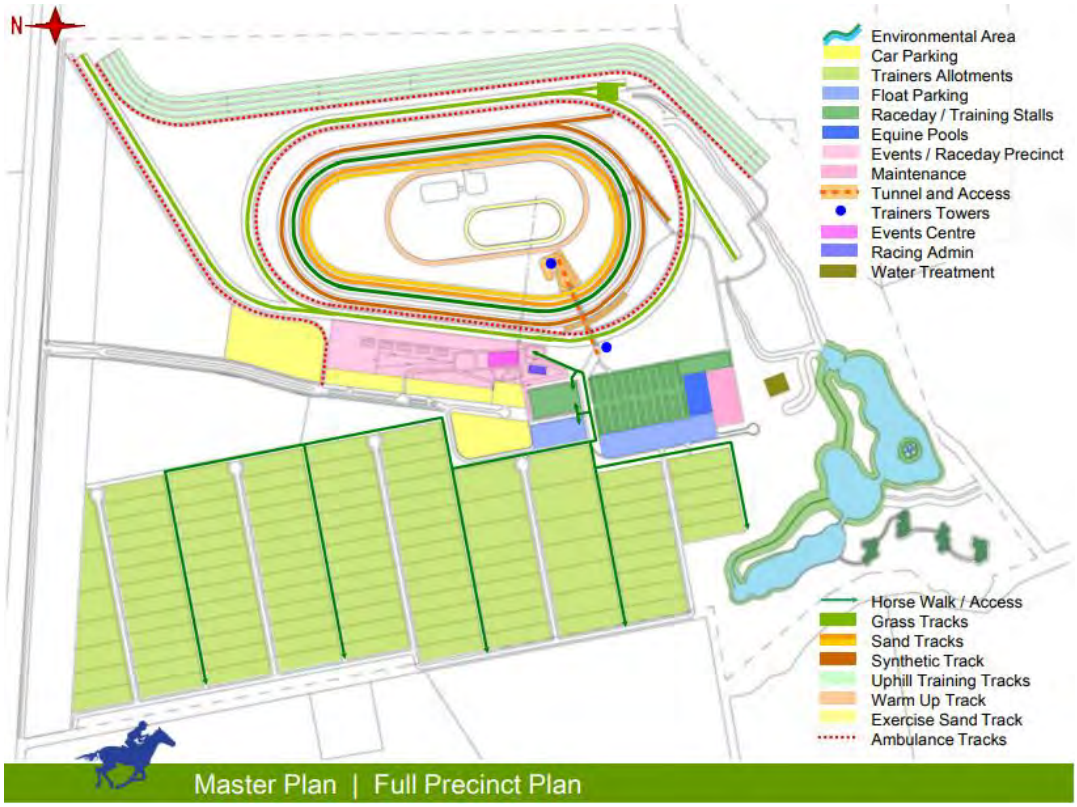
6.1 Pakenham Racing Club

Pakenham Racing Club relocated from facilities which were in Pakenham to Tynong in 2015 with a brand new course, now known as Racing.com Park. Tynong is approximately 70 km south-east of Melbourne. When fully developed, the new racecourse will have the potential to train up to 1,000 horses.

Pakenham Racing Club has a masterplan for the Pakenham Racecourse in order to guide the future land use, upgrades and development activities of the site. The racecourse, which is zoned Special Use Zone, aspires to be not just a racing and training centre, but a fully integrated employment, residential, and equine-related commercial and retail precinct that is complimentary to racing and training activities at the site.

A key component of the masterplan for the new Pakenham Racecourse, Racing.com Park, was the creation of the "Trainer Allotments" precinct. This zoning, spanning 60 ha, allows for lot purchasers (with ownership unrestricted) to build stabling infrastructure and a dwelling on a clear title, aimed at ensuring a functional investment for years to come. The trainer allotments range in size generally from 0.5-1.2 ha and aim to encourage trainers to locate in the precinct, representing a more cost effective and sustainable business model.

Figure 10: Tynong Racecourse and Training Facility



Source: Pakenham Racing Club

6.2 Cranbourne Racecourse

The Cranbourne Racecourse is located around 45 km south-east of Melbourne, accessible via the South Gippsland Highway and approximately 15 minutes from Dandenong and Frankston. By starter numbers, the Cranbourne Racecourse is the largest training complex in Victoria and boasts a synthetic training track which enables horses to train all year round.

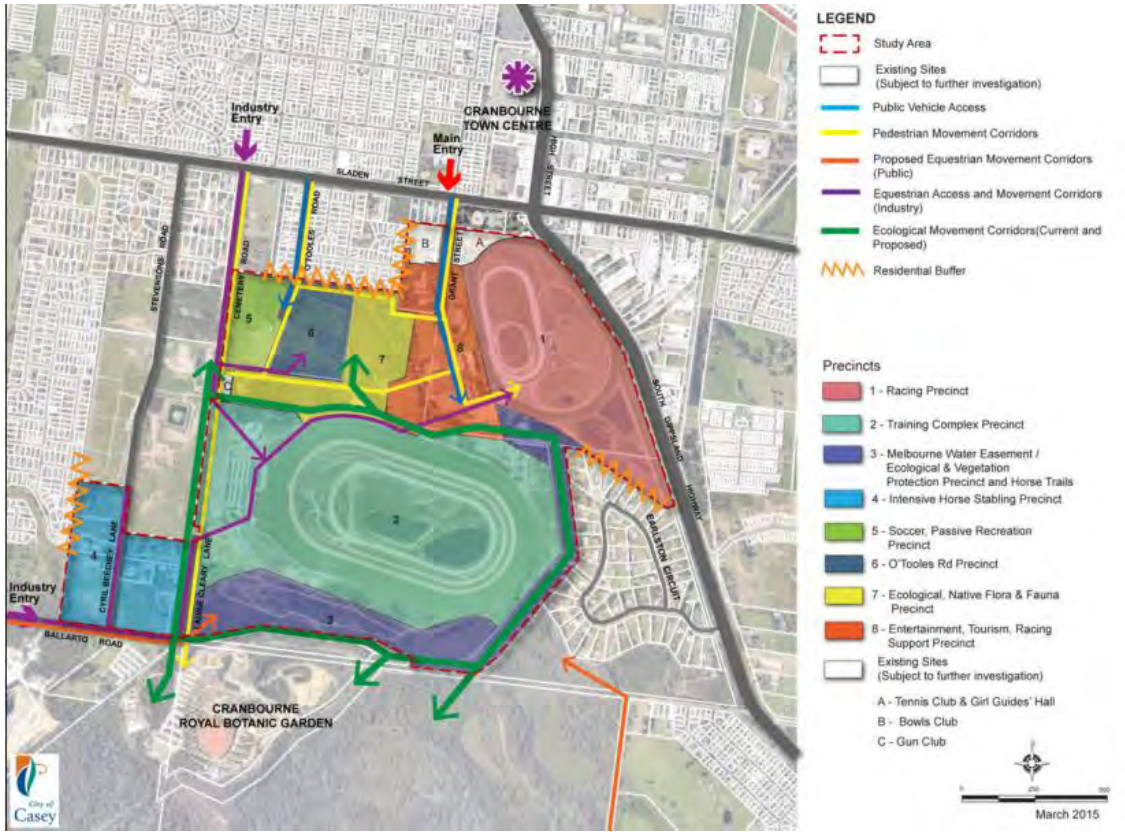
The course accommodates over 140 licensed trainers and over 1,400 horses in training. With such high usage of horses per day the Cranbourne training operation has two separate tunnels which allow for one-way access and egress arrangements to the facilities.

Cranbourne Racecourse comprises thoroughbred, harness and greyhound racetracks along with several other sports nearby, and one of the key considerations for the precinct is to ensure development considers the impact on the other racing codes' ability to expand.

Council are seeking to replace some nearby sporting facilities with racing related uses that are more compatible with the surrounding racing industry land uses. Other potential sources of land use conflict are the residential interface to the south-east of the racecourse precinct.

An Intensive Horse Stabling precinct is located at Cranbourne racecourse with uses not compatible with horse stabling being discouraged from establishing within the designated area. Development of this area must appropriately respond to the residential interface to the west of the precinct.

Figure 11: Cranbourne Racecourse and Training Facility



Source: Casey City Council (Cranbourne Racing Complex and Surrounds Investment and Development Plan)

CONSULTATION

7.0 CONSULTATION

7.1 Consultation Program

A series of one-to-one meetings were held with selected stakeholders in person and over the phone during the period 28-30 May 2018. This method enabled consultation with a diverse range of stakeholders who are representative of the cross-section of relevant stakeholders on detailed or specific issues; for example, to discuss the SUZ13 controls or discuss trends and emerging challenges which are currently or will in the future impact on thoroughbred activity at Dowling Forest.

Parties involved in the stakeholder consultation program are identified below:

- Racing-Related Stakeholders
  - Archie Alexander (trainer)
  - Darren Weir (trainer)
  - Matt Cumani (trainer)
  - Michelle Payne (trainer)
  - Ballarat Turf Club
  - Racing Victoria
  - Ballarat Veterinary Practice
  - OTI Racing
  - Wyndholm Park
- Real Estate Agents
  - Harcourts Ballarat
  - Blue Ribbon Ballarat
  - Petrie Real Estate
- Others
  - Ballarat City Council
  - SUZ13 Action Group
  - Keaney Planning and Research
  - Hansen Partnership
  - Lifestyle Rural Residential.

A total of 17 consultations were conducted with people from a variety of racing backgrounds and with several parties involved with the property market in the local area.

The consultations asked people about their specific experiences which may be of relevance to the Dowling Forest Precinct. The findings have informed the work of this report.

A summary of the findings from the consultation process is provided below:

7.2 Racing-Related Stakeholders

- The racing industry and Ballarat Turf Club (BTC) have worked very hard to develop significant assets at Ballarat racecourse. Very strong growth has been experienced in training activity and Ballarat is the fastest growing training centre in Australia, with about 78% growth in starter numbers experienced over the past four years or so.
- BTC is continuing to strengthen Ballarat racecourse's position as the premier training facility in western Victoria and is pursuing a range of improvements and projects which will further boost what is a state-of-the-art racing and training complex.
- The racecourse is a significant economic generator and increases the diversity of jobs in the Ballarat region. The industry requires a wide range of skill levels, from low-skilled manual tasks to highly specialised breeding and veterinary care. The racing industry often gives opportunity for those who may struggle to find meaningful long term employment in other industry sectors.
- Land with direct access to the racetrack is most in demand. Trainers who locate their operations on-site save in trucking and labour costs. Bigger trainers cannot practically cross Kennedys Road with their large team, so a tunnel would be required in order to attract a trainer of any significant size to that part of the precinct.
- Ballarat's key advantages are varied, however they include:
  - Affordability;
  - Proximity to Melbourne, Adelaide and many regional Victorian tracks;
  - Uphill/straight training track;
  - Upcoming installation of synthetic track;
  - Consolidated complex and network of trainers;
  - Spacious country-style environment;
  - Non-metropolitan location;
  - Training is allowed until 11.30am at the track compared with around 8.30am in metropolitan areas;
  - Presence of a natural hill adjoining the racetrack;
  - Opportunity to lease stables without a significant capital outlay;
  - Confidence that Darren Weir is having success from the location; and

  - Suitable climate is good for training horses (but perhaps a little cold for spelling).

- Potential conflicts which may arise if the horse/residential interface is not managed appropriately include:
  - Racecourse impacts on residential uses may include:
    - Smells (i.e. horse manure);
    - Treadmill noise (from machinery starting at 6am);
    - Dust caused by horse activity and/or dry tracks;
    - Car or truck movements, and deliveries to the site; and
    - All the risks associated with having a horse break loose.
  - Residential impacts on racecourse uses may include:
    - Increased traffic along Kennedys Rd (non-racing people tend to have little horse sense);
    - Spooking horses with car/motorbike noise and movement nearby; and
    - Road safety (i.e. kids with balls, horses could run across road).
- A range of views exist as to the capacity of the racetrack surface for training horses, however the installation of the synthetic track will significantly boost the capacity for the track to cater for morning track workers. The upcoming development of the synthetic track is estimated to allow an increase of around 20 extra meetings to be run annually and increase the resilience of the current racing infrastructure to cater for an increase of 350 horses, to accommodate an increase in trainers seeking to relocate as metropolitan training facilities are rationalised. It is anticipated that, once there is increased capacity from the installation of the synthetic track, additional trainers and horses will be encouraged to locate at the site.
- Upon closure of Caulfield as a training facility, approximately 3,800 starters will need to relocate somewhere. Ballarat will be well placed to attract those trainers and, while they will be given five years' notice before they have to move, Ballarat could support the relocation of trainers from Caulfield.
- Cranbourne is presently the largest training facility by starter numbers but is currently at capacity, so therefore Pakenham and Ballarat are likely to be the key options for Caulfield trainers.
- Access to the track from beyond the racecourse land is provided only via float (via Midas Road entrance) or via the east gate through the adjoining Payne property which fronts Kennedys Road. Providing safe access and egress to the track, and direct access without the need to float horses in for training will be a key consideration for racing participants seeking to establish themselves in Ballarat.

- A key issue for current trainers is the volume and speed of traffic moving along Kennedys Road and improvements to signage, particularly along that road, would be beneficial. An upgrade to the general appearance of major roads around the racecourse in order to promote the sense of an "entranceway" to the racing precinct would be appreciated.
- The uphill track was widely lauded as "the best thing that has happened to Ballarat racecourse", revolutionising the training methods and attracting numerous other trainers. The Pro-Ride training surface, the lack of turning, and the natural landscape on the incline are all great for horse's legs.
- For stable employees, work is generally from 4-10am and then 2-5pm, so they need to go home in between those times which could provide demand for smaller accommodation options in nearby Miners Rest township or on the periphery of the racecourse land.
- Opportunity could be explored for other industry participants, such as farriers, to buy land and set up business in the SUZ13 area also. Associated activity such as vets, feed merchants, floating companies, could be permitted in the SUZ13 area.

7.3 Real Estate Agents

- A diversity of opinion exists in terms of the impacts of the SUZ13 generally, with some agents viewing the zoning as a positive given it provides the opportunity to subdivide land, however the perceived lack of certainty has been leading to tentative decision making and this may have had a negative impact on values.
- Some of the advantages of the SUZ13 area from a real estate perspective are a lack of native vegetation which is present in other precincts; suitably sized allotments with real estate enquiry for hobby farms being generally for lots of 2-8 ha in size; and traffic flows to/from Miners Rest township are separate from Racecourse traffic (i.e. racecourse traffic generally travels along Kennedys Road, whereas Miners Rest traffic tend to use Howe Street).
- Disadvantages of the SUZ13 area from a real estate perspective are a common and widespread misunderstanding and lack of clarity regarding the controls; limitations on landowners in terms of their ability to extend existing dwellings; a perception of stigma with the zoning and some agents have been using a lack of SUZ13 zoning as positive 'marketing spin' for those allotments which they are selling beyond the SUZ13 area; and a lack of access across Kennedys Road decreases the appeal and marketability of the SUZ13 lots which are south of Kennedys Road.
- The thoroughbred industry includes diverse socio-economic participants. There are wealthy owners/trainers but there are a lot of trainers who are "on the brink".

- 'Equine' participants would outbid the 'thoroughbred' participants easily. If the controls were modified for 'equine' then it would be harder to define those participants and it would make it very hard for thoroughbred industry to acquire land. Equestrian uses generally want to go toward Smythesdale.
- It was suggested that banks have been asking for a higher deposit than usual for SUZ13 land. Comment from a finance broker indicated that deposit requirements for rural residential properties is 10%, but training facilities are treated as commercial lending and this requires a 30% deposit, irrespective of the specifics of the zone.
- Some potential buyers have considered purchasing land on the south side of Kennedys Road but a lack of access to the track was seen as a deal-breaker. Horses could previously have been ridden onto the track directly from the south side of Kennedys Road however the change in access arrangements to the track has significantly restricted the appeal of lots in the precinct. A solution such as a tunnel would boost the attractiveness of land on that side of the road. The tunnel across Kennedys Road would be the priority option as there are already a number of thoroughbred participants in that area. It is understood that 'ride on' access to the racecourse was stopped to address significant health and safety concerns for horses accessing the facilities across Kennedys Road.

7.4 Other/General Findings

- The vision for the area is generally shared among all stakeholders with some differences in the detail of how best to execute this vision.
- A general lack of clarity exists among stakeholders regarding permissible and non-permissible uses. Improved explanation and communication with all parties would alleviate many existing concerns.
- The SUZ13 controls have been based off the Pakenham racecourse model which is Crown Land, however by replicating the Pakenham model on privately owned land it has not factored in the benefits of control that are afforded to Crown Land.
- It was suggested that a Rural Residential zoning with a minimum lot size would provide appropriate lot sizes for equine uses and protection of racecourse interface. Several stakeholders suggested the size of lots would be best maintained at 6 ha in the SUZ13 area for buffer and encroachment purposes.
- Ballarat is a track that has room to expand and that is a rare and significant advantage compared with other clubs such as Geelong which is landlocked and cannot expand.
- It was suggested that Council could consider Garlands Road being used as a path to the Town Common, which could provide further training options for horses based in the Dowling Forest Precinct.

- The closure of Midas Road would improve access to what could potentially be additional training land to the west of the racecourse, while a tunnel across Kennedys Road was broadly acknowledged as the priority of all the tunnel options raised during consultation.

SYNTHESIS OF FINDINGS AND OPTIONS

8.0 SYNTHESIS OF FINDINGS AND OPTIONS

8.1 Findings

The findings of the analysis and consultation process are summarised below.

Table 17: Key Findings for Dowling Forest Precinct

Topic	Findings
Investment trends have been positive	This report has found that investment trends for thoroughbred related activity has been positive in recent years. The investment activity has mainly focused on land that has direct access to the Ballarat racetrack facilities including Ballarat Turf Club land and immediately adjacent private land holdings. Limited recent thoroughbred related investment has occurred on private land to the south side of Kennedys Road and west side of Midas Road. The Ballarat Turf Club has been successful in obtaining a range of funding sources from state government and Racing Victoria to upgrade on-track facilities and attract horse trainers. One key to the success of attraction of some trainers has been the capacity of the Ballarat Turf Club to provide land and build facilities for trainers, who then lease the facilities. This provides a cost advantage over the option of purchasing land and building facilities. This cost advantage - along with direct access to the racetrack and uphill training track - have been key drawcards of the location. Some trainers that have recently established in the area have purchased and developed private facilities. These trainers have established on land with direct access to the racetrack and uphill training track.
Investment prospects are positive	A number of drivers exist to support ongoing investment activity in the precinct for the foreseeable future. The investment drivers include the popularity of the uphill training tack, planned installation of synthetic track within approximately 12 months and possible consolidation of training facilities across Victoria into fewer nodes including Ballarat. Indicative land take projections prepared for this report suggest that around 7 ha of land take may be required for thoroughbred activities over the next 10 year period. Beyond this outlook period, the precinct may experience an acceleration of land take-up if other Victorian facilities (like Caulfield) close their training facilities and Ballarat continues to become a more successful location and 'magnet' for training.
Supply of land in the precinct is significant	The Ballarat Turf Club and surrounding land zoned for thoroughbred activities has significant available land supply. The land is considered strategic in planning policy and economic development policy. The available land supply is significant in relation to the estimate of potential future take-up of land for thoroughbred activities. A high level estimate of land being used to full capacity (estimated by the smallest possible lot subdivision per zone) suggests there may be approximately 220 ha of thoroughbred activity land supply. All land may not be taken

Topic	Findings
	up for many decades. Land is rarely subdivided to its full potential so if 50% is assumed as a full capacity estimate, 110 ha of capacity could be deemed reasonably available. At a short term take-up of 7 ha per 10 years (or 0.7 ha per year on average), the land supply may be sufficient to meet 158 years of demand. Assuming demand in the long term is double the short term estimate, supply may be sufficient to meet about 79 years of demand. The above estimates assume the Ballarat Turf Club facilities can accommodate ongoing and unlimited demand on its tracks and via scheduling. An alternative capacity estimate suggests up to 2,250 horses in the Precinct may be considered as the nominal capacity of the area (noting this is not necessarily the view of BTC). It was found that this may translate into a need for up to 36 ha of additional land in the area for training purposes. If so, this would leave 74 ha of effective land capacity not used for training purposes. It is not possible to estimate supply and demand in this context with precision, however based on available information and estimates used, supply is likely to be available for thoroughbred activities in the precinct for the very long term.
Land with direct access to the racetrack is most in demand	Most recent training facility investment has favoured land with direct horse access to the racetrack and uphill training track. Most of the recent investment has occurred in facilities leased from the Ballarat Turf Club on racetrack land and facilities constructed by private trainers with direct access to racetrack land. Land located on the south side of Kennedys Road and the west side of Midas Road is considered less attractive to trainers because of the road barrier and relatively high car speed limits, which presents a risk to horses. This is a key issue which limits the appeal of such land for future thoroughbred training investment unless direct horse access via grade separation can be provided (such as via tunnels).
SUZ13 land performs an important land buffer	The SUZ13 land is strategic for not only land supply reasons but also for land use buffer reasons. Land use buffering is a primary strategic function of land fronting the south side of Kennedys Road, the west side of Midas Road and the eastern boundary of Turf Club land. SUZ13 activities are unlikely to generate land uses that conflict with thoroughbred industry activities and be impacted by the racetrack activities. The risk of land use conflicts is greater with other zones in these locations such as Farming Zone or a Rural Residential or similar zone.
The vision for area is generally shared with some differences in detail	Stakeholders that were consulted for this research report generally share a view that the study area precinct is an important and strategic asset for equine related activities and should be supported for such uses. Differences in in opinion relate to the definition of equine activities and the manner in which a strategy to promote such activities should be implemented. Planning Policy of Council and Ballarat Turf Club generally support the precinct being earmarked for thoroughbred horse racing activities as defined by the Australian Rules of

Topic	Findings
	Racing and controlled by the current SUZ13 Planning Scheme Provisions. An alternative view is that the precinct, particularly and perhaps only limited to the area south of Kennedys Road, should have a more general focus on 'equine' related activities and application of less stringent planning controls should apply to such land. Equine activities in the general sense could include non-thoroughbred uses such as saddlery, farrier, equine veterinary clinic, equine transport services and the like.
SUZ13 controls are not well understood by all stakeholders	Consultation undertaken with selected stakeholders revealed that aspects of the SUZ13 are not well understood by all stakeholders and that the provisions are confusing for some stakeholders. A key issue raised is a belief that existing houses within the zone that pre-date the zone can only be sold to persons with an Australian Rules of Racing licence (which is not the case).
SUZ13 land has more stringent conditions on buildings and works compared to the previous Farming Zone	The SUZ13 allows for buildings and works of up to 50 sqm to be undertaken without the need for a planning permit. The equivalent control for the Farming Zone is 100 sqm.

8.2 Options

The following options are identified for consideration for the precinct as a whole. The SUZ13 land south of Kennedys Road has been identified as being the most contentious in this review and therefore matters specific to the precinct south of Kennedys Road are considered separately in the table below.

Table 18: Options for Consideration: Dowling Forest Precinct

Option	Consideration
Precinct-Wide	
Address misinformation regarding SUZ13 operation	Greater clarity regarding the purpose and operation of the zone is required for land owners, real estate agents and potential property buyers.
Change the buildings and works provisions in the SUZ13 to 100 sqm, to match the Farming Zone	This technical change will minimise the differences between the SUZ13 and the Farming Zone.
Undertake road and traffic management investigations with a view to slow traffic speeds on Kennedys and Midas Roads and improve access within the precinct generally	Sites in the broader area outside of racetrack land would become more attractive to thoroughbred industry participants if improved horse access and safety is delivered via dedicated paths, tunnels and reduced road traffic speeds.

Explore the demand for, and requirements of, a bridal track linking the Dowling Forest racecourse to the Ballarat Town Common.	It is possible the trail to the 88 ha parcel of Crown Land may provide additional variety of exercise options which can suit individual thoroughbreds. Such a trail would need to consider matters of transport safety and the impact on the road network, among other management requirements.
Explore BTC's willingness to purchase approximately 40 ha of land for ongoing development of the land for horse training purposes	Should the Ballarat Turf Club acquire a significant land parcel in the area, the model adopted by Pakenham could be rolled out in the Precinct. It is possible this quantum of land (i.e. 40 ha) may meet training needs for the very long term. Such land would need direct access to the racetrack to be considered as a viable location for many trainers. If such land is across a road, a tunnel would be required.
SUZ13 South of Kennedys Road	
Activate the area south of Kennedys Road via construction of a horse tunnel and easement to the rear of lots	It is the view here that unless a realistic and tangible plan to construct direct access to the racetrack from this precinct via a tunnel and easement network is established in the near term, the viability of the sub-area for significant thoroughbred uses will be limited over a long period of time.
Rezone the area south of the midpoint of Sharpes Road and Kennedys Road to Farming Zone to support broader 'equine' investment and activity	This option would retain the SUZ13 buffer along Kennedys Road and transition an area along Sharpes Road to a broader definition of equine uses. The removal of this 41 ha area would reduce the effective capacity of the broader Precinct by 9 ha, which equates to 13 years' supply under the medium growth scenario.

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Attachment 10 - Summary table of response to submissions on the draft Miners Rest Township Plan (updated March 2019)

Summary of submissions	Response in Final Miners Rest Township Plan
Town Centre	
A defined and vibrant town centre is definitely needed. Identified as a priority by the community Commercial activity (not industrial) would be suitable in the mixed-use area of Miners Rest. Land is located next door to IGA with access from Howe Street and would be perfect suited (and has been rumoured for years)	Many of the public realm improvements have been identified in the MRTP. The improvements to the existing commercial premises in Miners Rest are the responsibility of individual land owners and / or operators. Improved traffic movements along Howe Street are outlined in the MRTP and would be supported in conjunction with advocating to VicRoads, given Howe Street is the responsibility of VicRoads.
Miners Rest is severely lacking connectivity by footpaths (all weather) and even driveway access from Howe Street. Howe Street looks terrible at the best of times in the township and requires immediate street beautification works and major safety upgrades	Noted
Buildings near IGA are an eyesore and should be demolished	Noted
Flood Mitigation	
How will council protect land that is identified as flood prone from further development considering that currently development is happening on the corner of Cummins Road and Howe Street that is definitely flood prone? Council recently conducted flood mitigation works due to the impact the wetlands were having on flooding towards residential properties in the area. This will be tested with the next big rain event.	It is recognised this is an important issue for residents across Miners Rest and actions relating to this have been elevated to **Immediate priority**. These comments are noted and the proposed changes to the Miners Rest Township Plan are outlined as follows. Information has been included in the plan showing completed flood mitigation works. Strategy 18: Reduce flooding impacts within the Township. • Action 34: Develop a strategic flood mitigation plan, and associated implementation plan, with consideration of an integrated solution that includes creek rehabilitation • Action 35: If consistent with the strategic flood mitigation plan, investigate the opportunities for flood mitigation in the development of any linear reserve along Nelson Street • Action 36: Where possible, ensure that any flood mitigation works provide multiple benefits such as open space and creek function and environmental health • Action 37: Seek funding and implement the strategic flood mitigation plan as funding becomes available

	In relation to Nelson Street, the plan recommends: • Undertake a strategic review of Nelson Street road reserve to integrate into new development, and potential flood mitigation if required
Areas for growth and new housing Community members tend to support the landscape views that have been highlighted as having important character to the town and wholeheartedly support balanced development to retain this character – what is not justifiable is that only the average 700 metre square blocks are being considered to accommodate future development. The most recent (700 m2) development is the problem that has already changed the character of the town! The community is supportive of land development as long as it is done correctly, meaning not impact to the creek, flow of water or existing residents, land sizes need to be kept at a respectful size (minimum suggestion of 800sqm), incorporate appropriate infrastructure for residents (e.g zone a section for a cafe), not have fences on main roads	It's important to note that the DELWP Practice Note: Applying the Rural Zones, states; "The existing size or pattern of lots in an area should not be the sole basis for deciding to apply a particular zone. For example, it is not appropriate to decide that the Rural Living Zone should be applied to an area simply because it comprises small lots. Traditionally, farms have comprised multiple lots, sometimes contiguous, sometimes in different locations. The fact that an area may comprise many lots does not mean that it cannot be used productively or should not be included in a zone that supports and protects farming".
Suggested that the 'quarry site' together with the land presently subject to a Planning Permit application is strategically located to facilitate the achievement of the aims for the Miners Rest Township.	This recommendation will be retained because the land is not required in the short-medium term and earlier development of the land would reduce benefits of investment in existing infrastructure. More like long term = 10+ years
Residential development of the 'quarry site' may offer opportunities for the permit applicants to contribute towards a significant part, possibly all of the vital funding for flood mitigation works to allow the Burrumbeet Creek 'high-flow' bypass channel to be constructed so as to present a natural interface and an aesthetically vibrant landscape for residents	The City of Ballarat has commenced discussions with the landholder to progress a solution /design for subdivision plans for the area to maximise environmental, aesthetic and functional benefits for residents.
It is understood that the detailed land supply and demand analysis indicates the potential for at least 500 additional residential allotments on existing residentially zoned land, which equates to over 12 years supply.	Noted
Future residential zoning is also limited by flooding risk, aircraft noise and the provision of reticulated water and sewerage infrastructure. The understanding is therefore that residential development may require improvements to existing roads and paths only, rather than construction of new road infrastructure.	Noted
Object to retaining Farming Zone within the Strategic Settlement Area We wish to object to retaining the Strategic Settlement Area within the Farming Zone (FZ) or to be designated for rural/agricultural land for the rationale provided within this submission.	Objection Noted. There are a number of reasons underpinning the decision to retain the current zoning and use:

Should support for the inclusion of the Strategic Settlement Area not be supported for residential growth, the area should be investigated for inclusion within a more suitable zone such as the Rural Living Zone (RLZ). Based on overall City development, 10 minute city proposal, it makes no sense that property south of the Racing precinct (Sharpes Rd to Cummins Rd) remain earmarked to sustain future equine development, when property north, east south and west of the racing precinct, has less likely chance of meeting with future urban sprawl. Object to nominating Strategic Settlement Areas as a buffer for the equine area	• the Rural Living Zone is not considered as a more suitable zone given the rationale outlined above and in the MRTP and Background and Information Analysis report. • the City has an abundance of land zoned for Rural Living, and the need for further allocation of land would need to be identified through a settlement strategy • the area currently acts as an important buffer between the existing town and the Dowling Forest Precinct. This buffer will continue to be important as the planning and development of the northern growth front proceeds (timelines unconfirmed) • part of the area is flood prone and is covered by a Water Catchment overlay (ESO3) which restricts the density of dwellings and subdivision • Some of the area is still actively farmed and contains some lots that may have potential over the long term for ongoing farming (particularly through consolidation).
Object to nominating the Strategic Settlement Area for landscape views. Sufficient open landscape views can continue to be ascertained via acquisitions relating to the proposed primary school and sports grounds which will achieve the realistic sight lines sought from the corner of Cummins Road and Howe Street.	Objection Noted
Burrumbeet Creek Environmental improvements for Burrumbeet Creek should also happen regardless of draft planning. The days of neglecting environmental resources have since passed. The creek can accommodate flood mitigation and a clean-up at the same time. The creek needs significant work done to it. It needs to be dredged out and have a good clean out, removing debris, rubbish etc. The creek is barely accessible in its current state - The creek also floods regularly with minimal rain, one would suggest the developments upstream have had an impact downstream? Walking tracks and connectivity could then become an asset to the community if it done correctly in the first place and maintained moving forward (Positive response to connected walking trails and Burrumbeet Creek Linear Parkland) The Miners Rest Wetlands are used for recreational walking, however are generally badly maintained with mowing, weeds etc.	The following adjustments have been made to the MRTP strategies and actions relating to Burrumbeet Creek and its environmental improvement to reflect the role • Amended Section 4.3.3 - Strategy 3 to: Improve the function and protect the environmental and biodiversity values of Burrumbeet Creek. – • Amended Action 5 to: The City of Ballarat to collaborate with "the community, landowners," Wadawurrung/Wathaurung Aboriginal Corporation, "DELWP and Glenelg Hopkins" Catchment Management Authority to develop "a creek rehabilitation" and environmental protection and management program" **(Immediate to short term**) • Amended Action 6 to: Undertake works on the City of Ballarat managed land to improve function of and environmental benefits along Burrumbeet Creek. **(Immediate to short term**) • Council to undertake a broader review of its maintenance program of recreational walking paths/tracks based on priorities and funding.

	• Council to review its policy on footpath materiality (all weather) surfaces, particularly for the town centre and key walking / cycling corridors.
Traffic Management Traffic management and speed reduction is a vital necessity. We fully support the reduction in speed and traffic management around the area. Only those that live on the existing 100km per hour speed zones, know the danger that we see on the road and take into our hands every day, as we enter or leave our driveways. The traffic has increased in our eight year time frame, and it will increase more	• Replaced "main thoroughfares" with "local roads" of Sharpes Road, Cummins Road, Gillies Road and Miners Rest Road. • Replaced 'Undertake' with "'Investigate' sealing and upgrading Cummins Road from Howe Street to Gillies Road 'in consideration of the wider road network'". • Amended the legend and second caption of the road network figure/map: Insert "'Investigate sealing' and upgrading Cummins Road from Howe Street to Gillies Road".
Relocation of Primary School Residents concerned that their home will be the site of the new primary school and feel as though there has been a lack of communication and empathy from council regarding the issue	The plan no longer identifies a preferred location for the school, but notes that: *The community and school have successfully lobbied for State Government funding to upgrade the Miners Rest Primary School. This project will be led by the Victorian School Building Authority, in partnership with the school and community. The upgraded facility will include a local community sports facility.* *It has not been confirmed whether the school will be upgraded on the current site or alternative site. This plan recommends criteria for selection of an alternative site if this is the preferred option for the State government.*
Potential for a relocated primary school to be located south of Cummins Road, west of Howe St	The land is subject to noise contours and associated guidelines indicate that sensitive uses, such as a school, would not be appropriate
Identified as a priority by the community	Noted
It is important that sporting facilities be co-located with the school.	Noted
The current primary school is landlocked, therefore it makes no sense to retain its current position as it will only inhibit the wonderful opportunities that a new location would provide	Noted
Proximity to proposed primary school - The area is within a prime location to be serviced by the preferred area nominated for a primary school. Housing adjacent to this infrastructure provides for sound planning.	The proposed relocation of the primary school is as yet undetermined

Improved Pedestrian Safety Howe Street movement corridor and crossings: The proposals in the Plan for an improved network of shared paths, bike trails and footpaths are supported. This includes the shared paths proposed along Howe Street and proposed changes to the service roads. There is in-principle support for the proposed crossings on Howe Street. However, it would be useful to clarify the rationale for the proposed indicative locations It is suggested that specific reference to crossings on Howe Street are removed so as not to raise expectations until there is more clarity around their use and the user destinations.	Given a decision to relocate the existing school and location is yet to be determined at this time by the Department of Education/State Government, the Miners Rest Township Plan allows flexibility for the existing school location and change over time. This means the Miners Rest Township Plan needs to maintain proposed indicative locations for crossings to improve pedestrian movement and safety crossing Howe Street, including improving connections for residents and students to the existing primary school, the Miners Rest Community Park and/or the potential preferred location for new community sports facilities and potential school relocation to the east. For these reasons, the MRTP is not proposed to change. Pursuit of a (school) time based speed reduction on Ballarat-Maryborough Road (Howe Street) in the vicinity of the school crossing is encouraged. Promotion of this was recently rejected by VicRoads.
Management of Traffic Speeds Management of traffic speeds Proposals to alter speed limits on any road are subject to VicRoads approval. The scope of works relating to VicRoads plans for the Midland Highway have been revised recently which may require some details on the map on page 39 to be amended. These include: Please remove reference to the speed limit change from 1OOkm/h to 80km/h in the legend, as this is not approved There is an existing 80kmlh speed limit for the rail crossing at Sulky and from the Western Freeway to mid-point after Olliers Road Intersection improvements are being planned with Cummins Road I Frasers Road The intersection with Olliers Road I Millers Road is under review No intersection upgrade is planned for Sims Road I Rose Hill Road There is no central barrier being planned for the Midland Highway north-east from the Blackmore Road I Kellys Lane intersection.	Remove reference to the speed limit change from 100km/h to 80km/h in the legend, as this is not approved by the VicRoads/Minister. Add a yellow dot "Intersection improvements" at the Cummins Road I Frasers Road intersection with Midland Highway. - Remove yellow dot at the midblock between Olliers and Cummins Road. - Remove the yellow dot at Sims Road and Rose Hill Road intersection with Midland Highway. Remove the purple shading and legend notation "Flexible safety barrier in median 100km/hr) for the section of Midland Highway north east of Blackmore Road / Kellys Lane intersection.
Sporting Facilities Sporting facilities are desperately required for Miners Rest. In addition to football and/or cricket fields, perhaps consideration could be given to working in conjunction with the Victorian Netball Association who expressed interest in	Noted and supported by the plan, which includes strategy and actions: • Strategy – Develop an active sports facilities hub in Miners Rest

additional indoor facilities to cater for this increasingly popular sport. (this facility would be a separate entity to the one currently being constructed in Norman Street). Government sporting grants could be available to pursue this project. Many families travel outside Miners Rest to other "clubs" to cater for their children's or their needs for football netball. If Miners Rest had fantastic facilities to cater for these, Miners Rest could establish its own clubs also	• Investigate funding mechanisms to develop an active sports facilities hub (**Immediate priority**) • Confirm and secure a preferred site for development of an actives sports facility (oval) (**Short to medium priority**) The plan identifies three potential sites for this facility. Planning for sporting facilities (role, number and type) would be considered in more detail and grants that may be available from State Government would be pursued by Council at an appropriate time as part of future decision making, applications, planning and implementation
Equine Precinct Community members are happy to see the racing industry grow in Miners Rest but not at the detriment of the Township the two must grow together and consider each other's situations. Much longer term locals are trapped by equine precinct restrictions. Expanding the precinct beyond current boundaries must consider those residents / farmers. It is inevitable that the equine industry will expand	The land within the Special Use Zone 13 is considered strategic in planning policy and in economic development policy for the municipality. In response to issues raised by landholders during the consultation on the Township Plan, the City of Ballarat recently commissioned HillPDA Consulting to prepare a Dowling Forest Precinct Property Market Review and Options Analysis report (Feb 2019). This project involved review of the property market, in the context of the thoroughbred racing industry sector activity, in the vicinity of the Ballarat Turf Club, focusing on the trends in land zoned for Special Use and Farming. Based on the findings of the HillPDA report and extensive discussions with landowners and key stakeholders in the precinct, City of Ballarat has engaged Spiire to review the planning controls in the precinct. This review is underway and a report will be presented to Council by July 2019 with recommendations for any changes to the planning controls and an associated implementation plan. Amendments to the plan have included: • an Introduction section discussing the interrelated studies including the Dowling Forest Precinct to explain differing but interlinked strategic considerations, processes, timelines and next steps in relation to the response outlined at left. Support and celebrate the equine industry polled second last of 11 priorities (cumulative results of the two workshops).
Central Victoria Livestock Exchange CVLX has huge potential to harm the appeal of Miners Rest as an attractive residential centre. There is much that can be done to minimise / prevent this becoming an issue for the community. Soften its visual impact by ground works, tree planting along the highway etc.. CVLX has a planned life of 30years, what protections can the council planners provide to ensure it has minimum visual and amenity impact.	The plan has been amended to include: "The construction of the facility as completed in October 2018. There have been a number of issues that the community has raised during the commissioning period of the facility, including odour and traffic management. These issues are being managed and addressed by the facility, EPA and

	Council. The facility is required to comply with all of the conditions of the approved Development Plan and Works Approval". The CVLX does or will include site perimeter landscaping and tree planting on private land which the CVLX site occupies. Tree planting along the Sunraysia Highway would be subject to VicRoads tree planting policies and available funding of Transport for Victoria. The site is approximately 2km away from the township of Miners Rest and the existing trees in the vicinity of the CVLX in the Sunraysia Highway road reserve will continue to grow and soften visual impact over time.
Tree Lined Boulevard A defined and vibrant town centre is definitely needed. Due to the proximity of Miners Rest to Stockland and Wendouree, the Creek St concept would not be viable. Howe St area should be defined and enhanced with a few more select shops (based on commercial need such as Chemist, Doctor and perhaps Bakery). There could be improvements to existing areas that would enhance the town centre, without the need to develop a new town centre. There has been positive feedback about the tree lined boulevard and beautifying the street with landscaping Suggestion of planting mature trees	 Noted. Many of the public realm improvements have been identified in the MRTP. The improvements to the existing commercial premises in Miners Rest are the responsibility of individual land owners and / or operators. Improved traffic movements along Howe Street are outlined in the MRTP and would be supported in conjunction with advocating to VicRoads, given Howe Street is the responsibility of VicRoads. Noted Noted

Miners Rest Township Plan

PRIORITY ACTION PLAN

March 2019

CITY OF BALLARAT


HENDERSON'S
GRAND JUNCTION


MINERS REST SOLDIERS' MEMORIAL

What you said

The City of Ballarat is partnering with the Miners Rest community to deliver The Draft Miners Rest Township Plan. During the development of the plan, the community told us what they love, imagine and want to retain for Miners Rest.

You told us that you love the quiet and peaceful country town feel, with wide open views to the surrounding rural landscape, and its close proximity to Ballarat. You love that the town provides a family-oriented and diverse community. You want to retain the rural nature and small town feel of Miners Rest, with large lot sizes, access to local commercial facilities, parklands and open space.

"ITS "VILLAGE" FEEL. ITS SENSE OF COMMUNITY. ITS HISTORY."

LOVE:

- The country atmosphere and local environment of the town, with it being quiet and peaceful.
- The sense of community spirit, with diverse age groups, from young families to retirees.
- Close proximity to Ballarat but still feels like a country town.
- Being family-orientated and a positive place to raise children, as it is relaxed, safe and has a caring community.
- The open rural landscapes and wider views to Mount Rowan and towards the Pyrenees.
- The pub, supermarket, corner store and post office as positive town assets.
- Miners Rest provides country living with city access and being a 'satellite' community to Ballarat with no industry or commercialisation.

"WOULD LOVE TO SEE THE MINERS REST TOWNSHIP EXPAND WITH SHOPPING FACILITIES AND CAFES."

IMAGINE:

- Provision of more retail shops, cafes, chemist, doctors surgery etc.
- Provision of a sporting hub including sports ovals, netball courts, bowling club, leisure centre, gym, swimming pool/waterpark, café etc.
- Provision of improved park facilities including, paths and play equipment (swings, slides, toilet blocks, BBQ equipment, drinking taps etc.).
- Development of more walking and bike tracks to connect different parts of the town, as well as Ballarat and the surrounding region (including from MacArthur Park into Miners Rest, and open Nelson Street past the quarry to connect to the school).
- Implementation of better traffic management within and surrounding the town, including more formalised roads.
- Provision of a true town centre/village centre to provide a focal point for the town.

"I LOVE THE COUNTRY VILLAGE FEELING AND THE BEAUTY OF THE DOWLING FOREST RACECOURSE AND THE HORSES."

RETAIN:

- The rural nature, community focus and small town feel.
- The friendly, safe and thriving country feel.
- Parklands and open spaces.
- Large blocks, avoiding high-density housing.
- Existing commercial facilities.

Miners Rest Township Plan
Aim and vision

AIM OF THE PLAN

The Miners Rest Township Plan seeks to:

- Establish a long-term community vision for Miners Rest
- Develop a prioritised action plan and responsibilities for implementation
- Guide the City of Ballarat and other authorities to prioritise investment in the town
- Provide a sound basis for community and the City of Ballarat to apply for grants or lobby for funding
- Identify potential changes to the Ballarat Planning Scheme to implement land use planning actions to achieve the vision.

VISION - MINERS REST IN 2040

- A family-orientated rural township with a friendly and inclusive community spirit
- A compact and contained township functioning as a separate 'satellite' settlement to Ballarat
- A rural township character which is positively influenced by the surrounding open rural landscape
- A township with ample commercial uses and activities to meet the day-to-day needs of the local community and businesses
- A vibrant, inviting and attractive township with well-designed, tree-lined streetscapes and pedestrian/cycling connections linking major community hubs
- A township recognised and celebrated for its significant equestrian industry
- A township with ample public transport options and the safe management of vehicle traffic.