

Appendix 1 – Community Infrastructure Demand & Supply Estimates for Miners Rest Structure Plan

Note: the following estimates exclude service and facility demand generated by communities located outside the Miners Rest-Mitchell Park small area

Community Infrastructure Category	Provision ratio / participation Rate	Description of measure	Year				
			2016	2021	2026	2031	2036
Public Open Space (hectares)	5.0%	Ballarat Planning Scheme	Not available	Not available	Not available	Not available	Not available
Organised Sport Facility & Participation Estimates							
Indoor and outdoor recreation facilities							
Indoor recreation centres / courts	10,000	Total population per court	0.4	0.5	0.5	0.6	0.6
Active open space	1.50	Hectares of active open space per 1,000 people	4.3	4.7	5.2	5.6	6.1
Council aquatic / leisure centre memberships	3.4%	% of Population who are members of a Council aquatic / leisure centre	146	161	176	192	208
Council aquatic / leisure centres	60,000	Total population per facility	0.1	0.1	0.1	0.1	0.1
Outdoor Sports							
Cricket ovals	4,500	Total population per playing field	1.0	1.1	1.2	1.3	1.4
Football ovals	4,500	Total population per playing field	1.0	1.1	1.2	1.3	1.4
Lawn bowls	10,000	Total population per green	0.4	0.5	0.5	0.6	0.6
Outdoor netball courts	3,500	Total population per court	1.2	1.4	1.5	1.6	1.7
Soccer fields	5,000	Total population per playing field	0.9	0.9	1.0	1.1	1.2
Tennis courts	2,000	Total population per court	2.1	2.4	2.6	2.8	3.1
Organised Sport Participation							
Participation in Sport & Leisure: People aged 15 and over							

Final Report

Community Infrastructure Category	Provision ratio / participation Rate	Description of measure	Year				
			2016	2021	2026	2031	2036
Total participating in organised sport	28.0%	% of people aged 15 + years and over participating in organised sporting activity	901	994	1100	1207	1311
Walking for exercise	24.3%	As above	782	863	955	1047	1138
Fitness/Gym	17.6%	As above	567	625	692	758	824
Cycling/BMXing	8.8%	As above	283	312	346	379	412
Jogging/Running	7.8%	As above	251	277	306	336	365
Swimming/Diving	7.7%	As above	248	273	303	332	361
Golf	4.6%	As above	148	163	181	198	215
Tennis (indoor and outdoor)	4.2%	As above	135	149	165	181	197
Netball (indoor and outdoor)	3.5%	As above	113	124	138	151	164
Basketball (indoor and outdoor)	3.2%	As above	103	114	126	138	150
Australian Rules football	2.0%	As above	64	71	79	86	94
Cricket (outdoor)	2.0%	As above	64	71	79	86	94
Soccer (outdoor)	1.9%	As above	61	67	75	82	89
Yoga	1.9%	As above	61	67	75	82	89
Bush walking	1.8%	As above	58	64	71	78	84
Lawn bowls	1.4%	As above	45	50	55	60	66
Martial arts	1.4%	As above	45	50	55	60	66
Dancing/Ballet	1.3%	As above	42	46	51	56	61
Fishing	0.9%	As above	29	32	35	39	42
Surf sports	0.6%	As above	19	21	24	26	28
Football sports	0.2%	As above	6	7	8	9	9

Final Report

Community Infrastructure Category	Provision ratio / participation Rate	Description of measure	Year				
			2016	2021	2026	2031	2036
Participation in Sport & Leisure: Children aged 5 to 14							
At least one organised sport	61%	% of people aged 5 to 14 years and over participating in organised sporting activity	410	471	504	532	567
Swimming and diving	19%	As above	131	151	162	171	182
Soccer (outdoor)	7%	As above	49	57	61	64	68
Australian Rules football	16%	As above	105	121	129	136	145
Netball	8%	As above	54	62	67	70	75
Basketball	14%	As above	94	108	116	122	130
Tennis	10%	As above	70	80	86	91	97
Martial arts	6%	As above	43	49	52	55	59
Gymnastics	5%	As above	37	42	45	48	51
Cricket (outdoor)	5%	As above	32	37	40	42	45
Rugby League	Not available	Not available	Not available	Not available	Not available	Not available	Not available
Athletics, track and field	3%	% of people aged 5 to 14 years and over participating in organised sporting activity	23	26	28	30	32
Rugby Union	Not available	Not available	Not available	Not available	Not available	Not available	Not available
Touch football	Not available	Not available	Not available	Not available	Not available	Not available	Not available
Soccer (indoor)	Not available	Not available	Not available	Not available	Not available	Not available	Not available
Hockey	1%	% of people aged 5 to 14 years and over participating in organised sporting activity	9	11	12	12	13
Other organised sports	9%	As above	60	69	74	78	83
Early Years Services							
Kindergartens							

Final Report

Community Infrastructure Category	Provision ratio / participation Rate	Description of measure	Year				
			2016	2021	2026	2031	2036
% of 4 year olds participating in 4 year old Kindergarten	107%	% of all eligible children participating in 4 Year Old Subsidised Kindergarten	83	90	94	101	108
Total number of enrolments in 4 year old sessional Kindergarten	75%	% of participating children (see above) enrolled at a Sessional Kindergarten service	63	67	71	75	81
Number of Kindergarten rooms when proposed policy changes are implemented	66	Number of sessional Kindergarten rooms required if 1 Kindergarten room accommodates 66 enrolments per week	0.9	1.0	1	1	1
% of 3 year olds participating in 3-year-old Kindergarten	30%	% of all 3 year old children participating in 3 Kindergarten	26	25	26	28	30
Total number of enrolments in 3-year-old Kindergarten	100%	% of participating children (see above) enrolled at a Sessional Kindergarten service	26	25	26	28	30
Number of Kindergarten rooms when proposed policy changes are implemented	66	Number of sessional Kindergarten rooms required if 1 Kindergarten room accommodates 66 enrolments per week	0.4	0.4	0.4	0.4	0.5
Maternal & Child Health							
Number of MCH sessions per week	60	1 session per 60 children aged 0-3 years	5	5	6	6	7
Number of MCH consulting units	10	Number of MCH consulting units required based on number of sessions per week (see above)	0.5	0.5	1	1	1
Playgroup							
Number of 2 hr playgroup sessions per week	50	Total number of children aged 0-3 years required to generate demand for a 2 hour playgroup session per week	6	6	7	7	8
Early Childhood Intervention Services							
Number of early childhood intervention sites	60,000	Total population per facility	0.1	0.1	0	0	0

Final Report

Community Infrastructure Category	Provision ratio / participation Rate	Description of measure	Year				
			2016	2021	2026	2031	2036
Occasional Child Care							
Number of occasional child care places	4.4	Total number of licensed places per 1,000 children aged 0 to 4 years	2	2	2	2	2
Number of occasional child care centres	30	Total number of facilities required based on number of licensed places generated (see above)	0.1	0.1	0	0	0
Long Day Child Care Centres							
Number of Long Day Child Care places	255	Total number of licensed places per 1,000 children aged 0 to 4 years	101	104	101	101	101
Number of Long Day Child Care centres	120	Total number of facilities required based on number of licensed places generated (see above)	0.8	0.9	0.8	0.8	0.8
Community Centres, Meeting spaces, Neighbourhood Houses & Libraries							
Local multipurpose community centre	3,000	Number of dwellings per local facility	0.5	0.6	1	1	1
multipurpose community meeting space	30	Total number people per sqm of Council community meeting space	143	158	173	188	204
Neighbourhood Houses							
Number of Neighbourhood Houses	35,000	Population (approximate) per facility	0.1	0.1	0	0	0
Libraries							
Number of library loans annum	6.6	Total loans per person	28,334	31,258	34247	37264	40333
Number of library visits per annum	4.9	Total visits per person	21,036	23,206	25426	27665	29944
Number of library facilities	35,000	Number of people per library facility	0.1	0.1	0.1	0.2	0.2
Education Enrolment & Facility Estimates							

Final Report

Community Infrastructure Category	Provision ratio / participation Rate	Description of measure	Year				
			2016	2021	2026	2031	2036
Primary Schools							
Govt Primary Enrolment	56.8%	% of 5-11 year old population	290	327	344	363	388
Catholic Primary Enrolment	26.1%	% of 5-11 year old population	133	150	158	167	178
Non Govt Primary Enrolment	10.4%	% of 5-11 year old population	53	60	63	67	71
Total Primary Enrolment	93.4%	% of 5-11 year old population	477	538	566	598	638
Govt Primary School	3,000	Total number of dwellings per facility	0.5	0.6	1	1	1
Catholic Primary School	5,000	Total number of dwellings per facility	0.3	0.4	0	0	0
Govt Specialist School	60,000	Total population per facility	0.1	0.1	0	0	0
Secondary Schools							
Govt Secondary Enrolment	38.0%	% of 12-17 year old population	122	141	163	174	184
Catholic Secondary Enrolment	30.1%	% of 12-17 year old population	96	112	129	138	146
Non Gov Secondary Enrolment	19.0%	% of 12-17 year old population	61	71	82	87	92
Total Secondary Enrolment	87.1%	% of 12-17 year old population	279	324	375	400	422
Catholic Secondary School	15,000	Total number of dwellings per facility	0.1	0.1	0	0	0
Govt Secondary School	9,000	Total number of dwellings per facility	0.2	0.2	0.2	0.2	0.3
TAFE							
TAFE Full-Time Enrolment (15 to 24)	2.2%	% of 15-24 year old population	11	12	14	15	16
TAFE Full-Time Enrolment (25+)	0.3%	% 25 + year old population	7	8	9	10	11
TAFE Part-Time Enrolment (15 to 24)	2.6%	% of 15-24 year old population	13	14	16	18	19
TAFE Part-Time Enrolment (25+)	0.8%	% 25 + year old population	22	24	26	29	32
Universities							
University Full-Time Enrolment (15 to 24)	19.1%	% of 15-24 year old population	97	104	117	130	138

Final Report

Community Infrastructure Category	Provision ratio / participation Rate	Description of measure	Year				
			2016	2021	2026	2031	2036
University Full-Time Enrolment (25+)	1.4%	% 25 + year old population	37	41	45	50	54
University Part-Time Enrolment (25 to 24)	2.1%	% of 15-24 year old population	11	11	13	14	15
University Part-Time Enrolment (25+)	1.7%	% 25 + year old population	45	50	55	61	66
Justice & Emergency Services							
Number of CFA sites	Not available	Not available					
Number of Ambulance sites	Not available	Not available					
Number of SES sites	Not available	Not available					
Number of Police station sites	Not available	Not available					
Law Courts							
Number of Courtrooms	30,000	Total population per Courtroom	0.1	0.2	0.2	0.2	0.2
Number of Law Court Facilities	400,000	Total population per Law Court Facility	0.00	0.00	0.0	0.0	0.0
Primary & Acute Health Services							
Number of public and private hospital beds	3.6	Number of public and private beds per 1,000 people (Australian hospital statistics 2012–13)	15	17	19	20	22
Number of public hospital beds	2.4	Number of public beds per 1,000 people (Australian hospital statistics 2012–13)	10	11	12	14	15
General practices	0.50	GP clinics per 1,000 people. Department of Health & Human Services Modelling, GIS and Planning Products Unit, 2011	2	2	3	3	3
Dental services	0.20	Dental services per 1,000 people. Department of Health & Human Services Modelling, GIS and Planning Products Unit, 2011	1	1	1	1	1

Final Report

Community Infrastructure Category	Provision ratio / participation Rate	Description of measure	Year				
			2016	2021	2026	2031	2036
Pharmacies	0.20	Pharmacies per 1,000 people. Department of Health & Human Services Modelling, GIS and Planning Products Unit, 2011	1	1	1	1	1
Projected hospital admissions	447.4	Admissions per 1,000 people. Department of Health & Human Services Modelling, GIS and Planning Products Unit, 2011	1,921	2,119	2,322	2,526	2,734
Emergency presentations	411.6	Presentations per 1,000 people. Department of Health & Human Services Modelling, GIS and Planning Products Unit, 2011	1,767	1,949	2,136	2,324	2,515
Drug & alcohol clients	6.3	Clients per 1,000 people. Department of Health & Human Services Modelling, GIS and Planning Products Unit, 2011	27	30	33	36	38
Mental health clients	17.1	Clients per 1,000 people. Department of Health & Human Services Modelling, GIS and Planning Products Unit, 2011	73	81	89	97	104
Aged Care & HACC							
Aged Care							
Number of residential aged care beds	80	Number of beds per 1000 people aged 70 years +	17	21	27	32	37
Number of Community Aged Care Packages	45	Number of Community Aged Care Packages per 1000 people aged 70 years +	9	12	15	18	21
HACC Services							
All HACC services for those aged 0 to 69 years	127	Number of HACC clients aged 0-69 years per 1,000 people	27	34	43	51	58
All HACC services for those aged 70+ years	395	Number of HACC clients aged 70+ years per 1,000 people	83	106	133	158	182

Final Report

Community Infrastructure Category	Provision ratio / participation Rate	Description of measure	Year				
			2016	2021	2026	2031	2036
Total HACC clients			110	140	175	209	241

Figure 10 - Kindergartens & Maternal & Child Health Centres

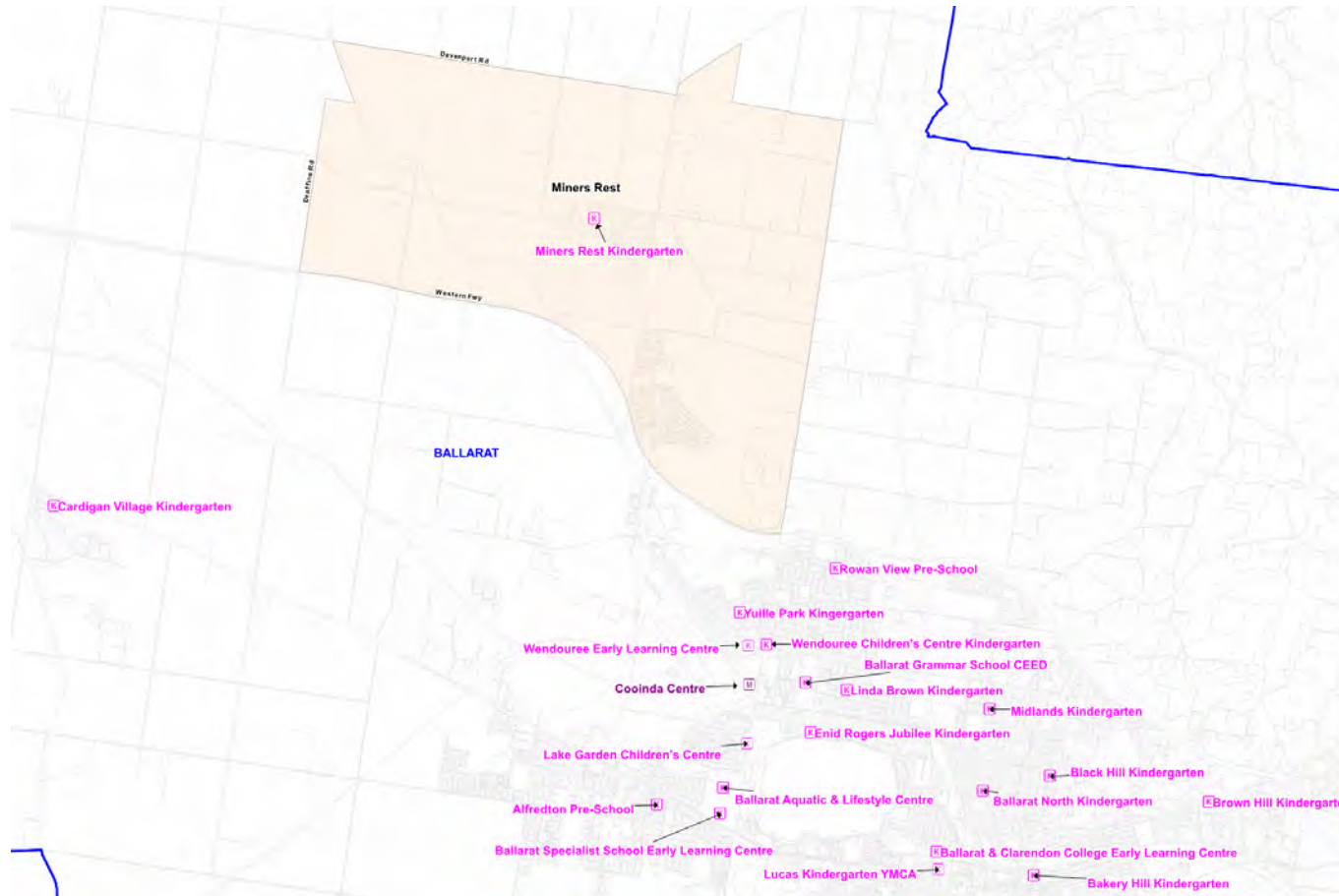


Figure 11 - Library, Arts & Cultural Facilities

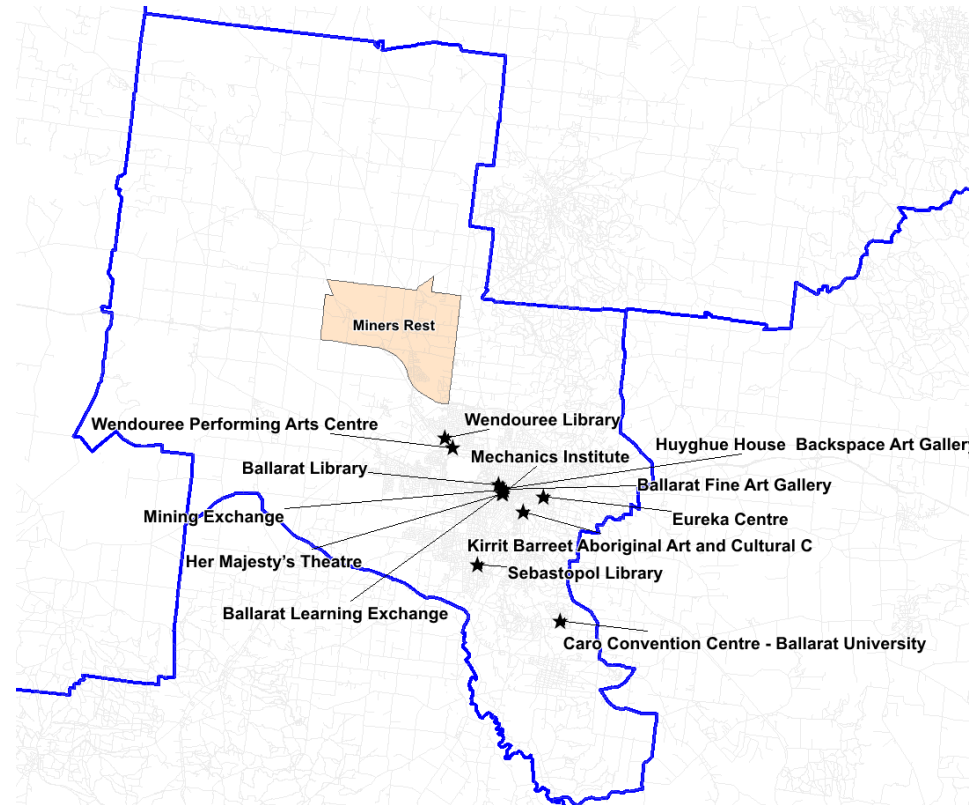


Figure 12 - Education Facilities

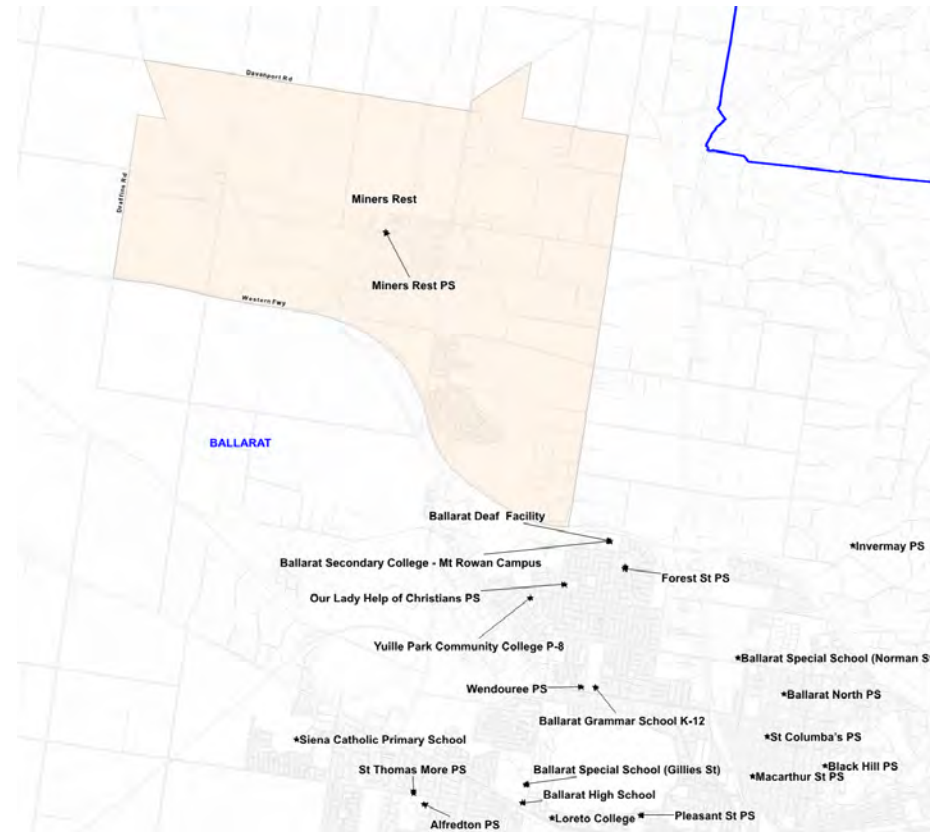


Figure 13 - Higher Education Facilities

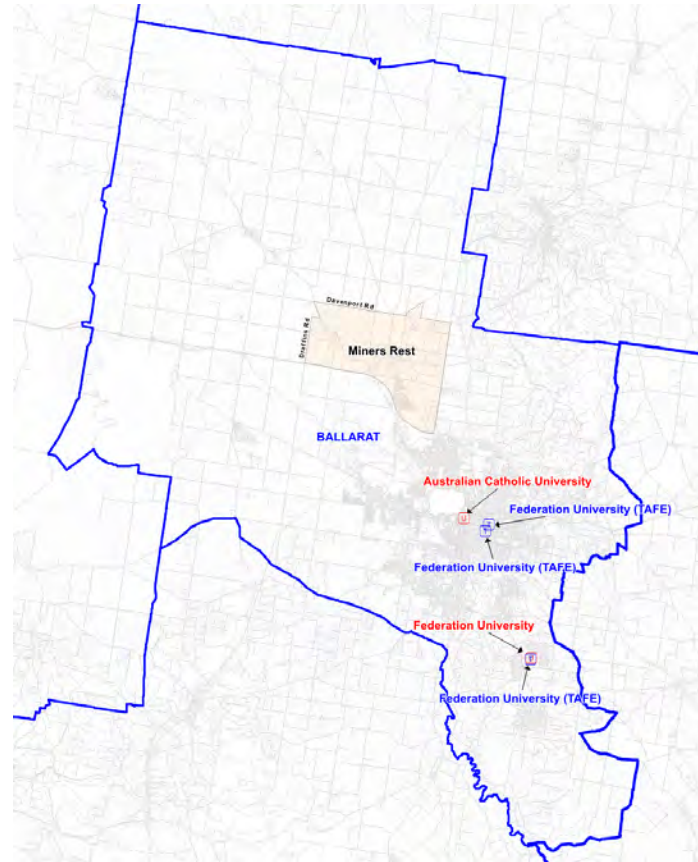


Figure 14 - Indoor Recreation & Aquatic Facilities

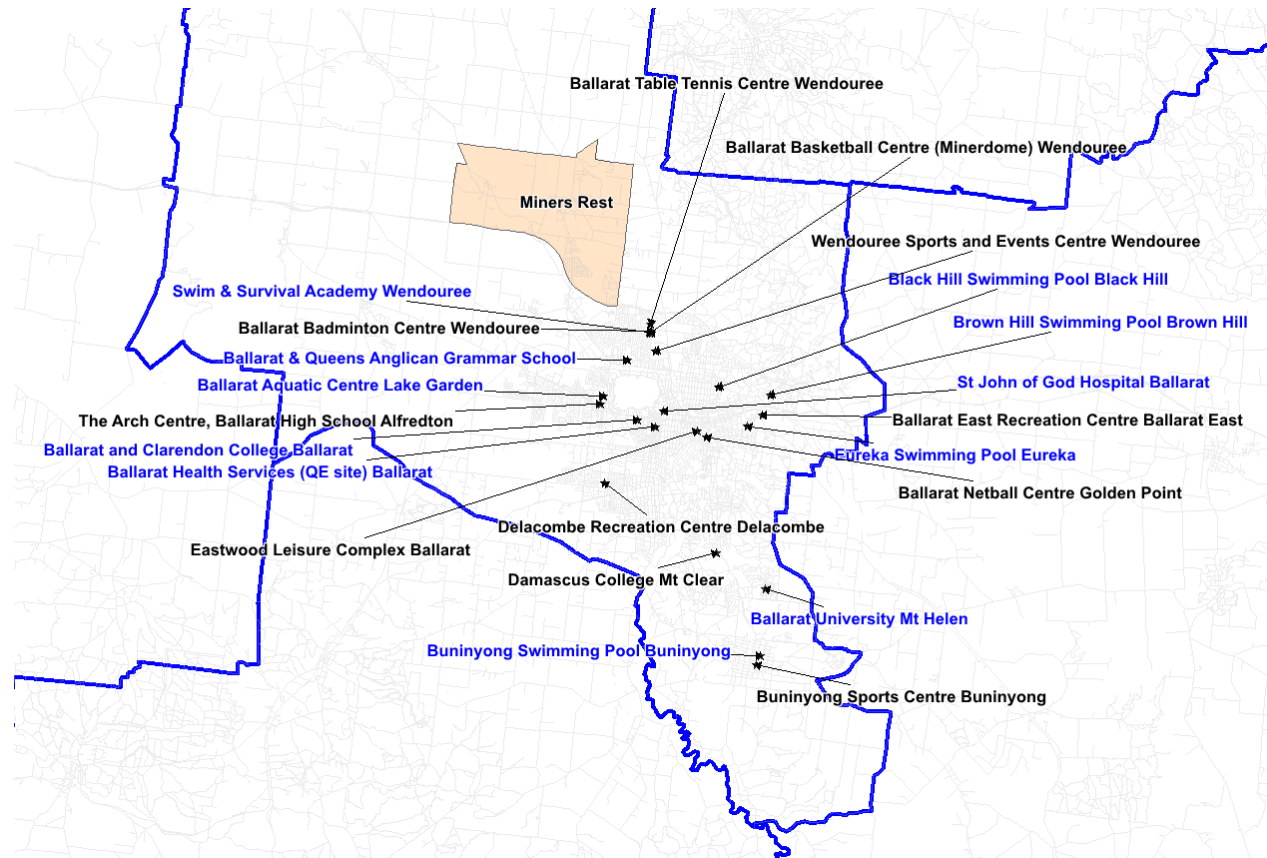


Figure 15 - Recreation Facilities

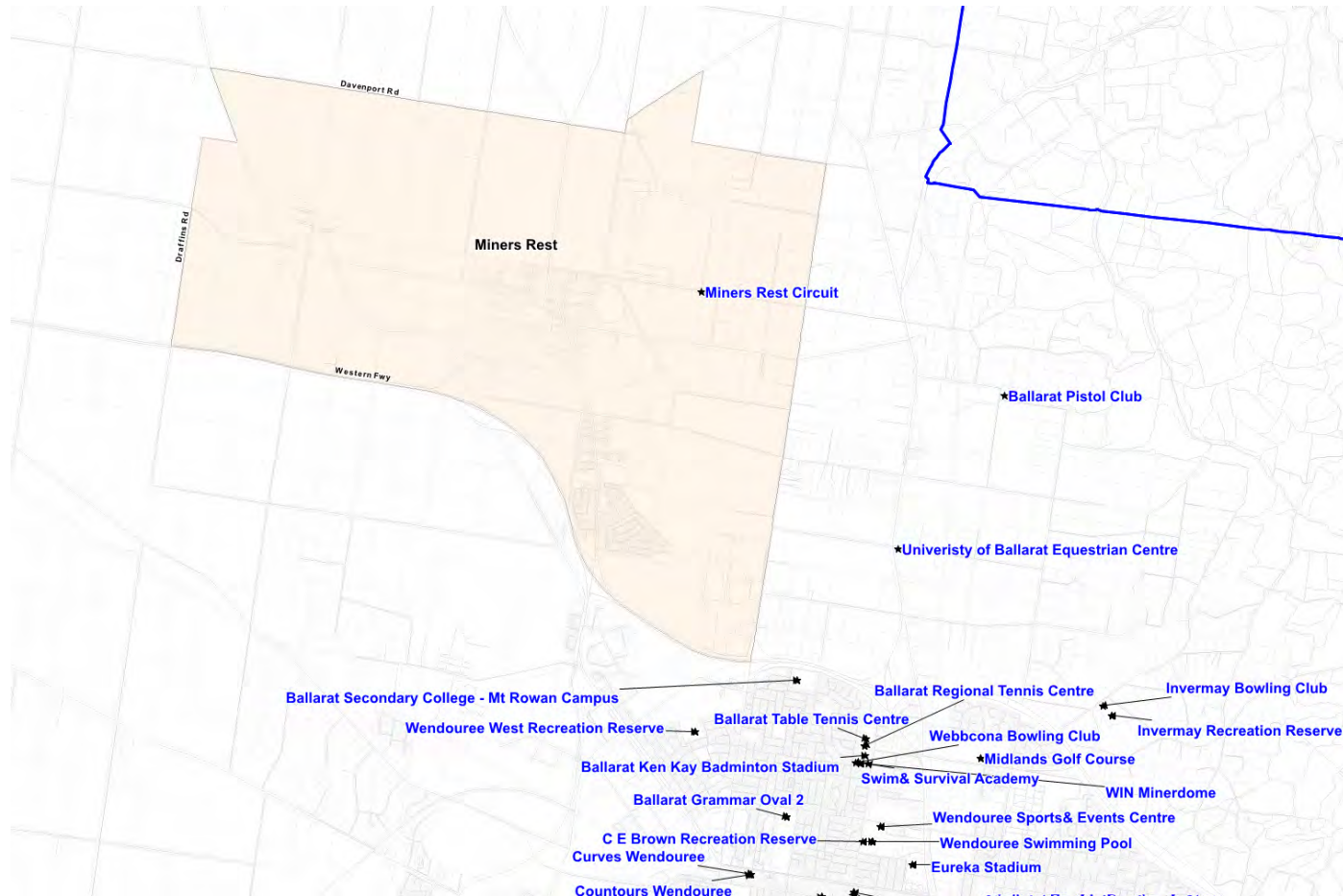


Figure 16 - Residential Aged Care & Facilities for Older Persons

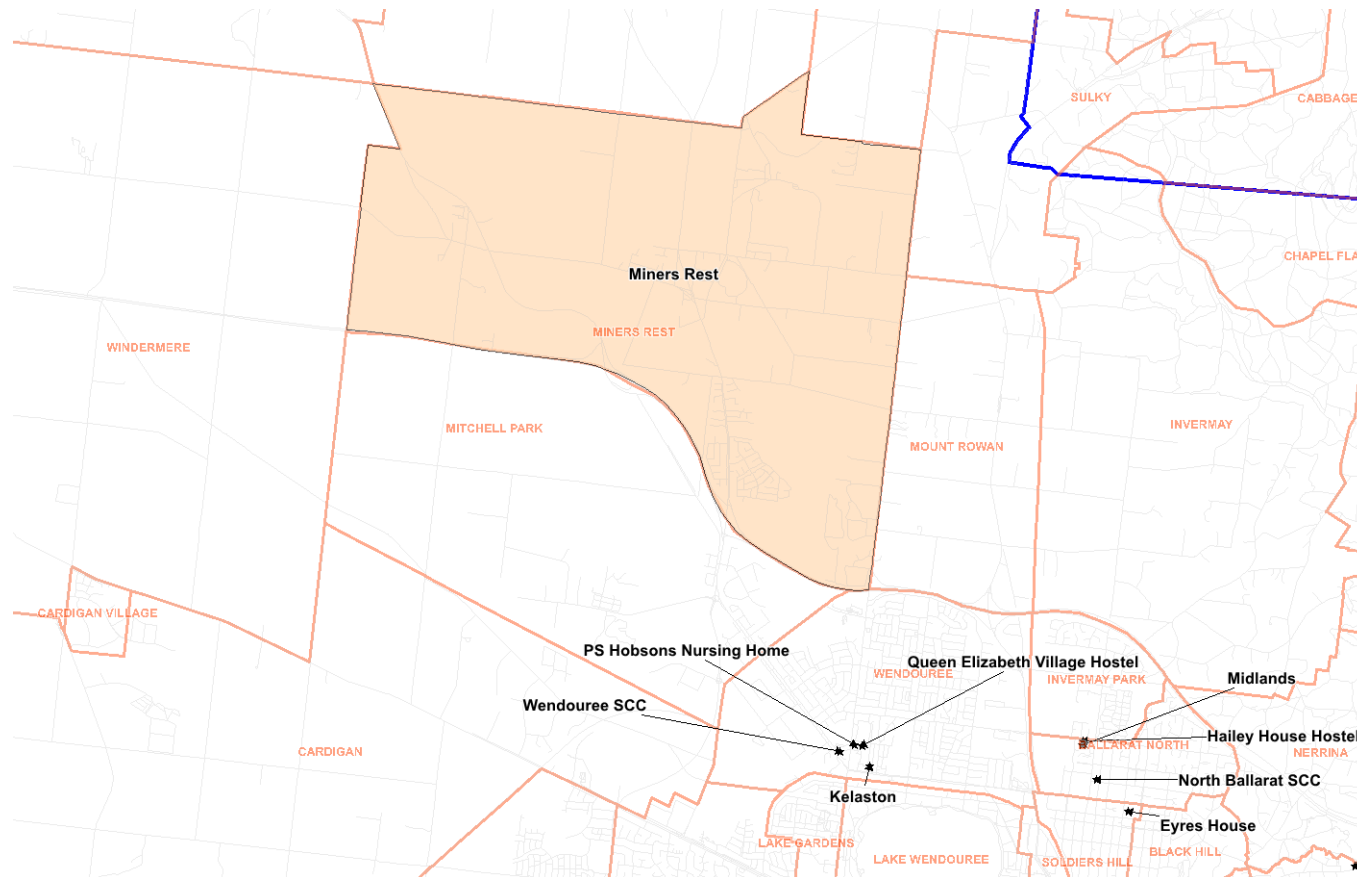


Figure 17 - Ballarat Community Halls

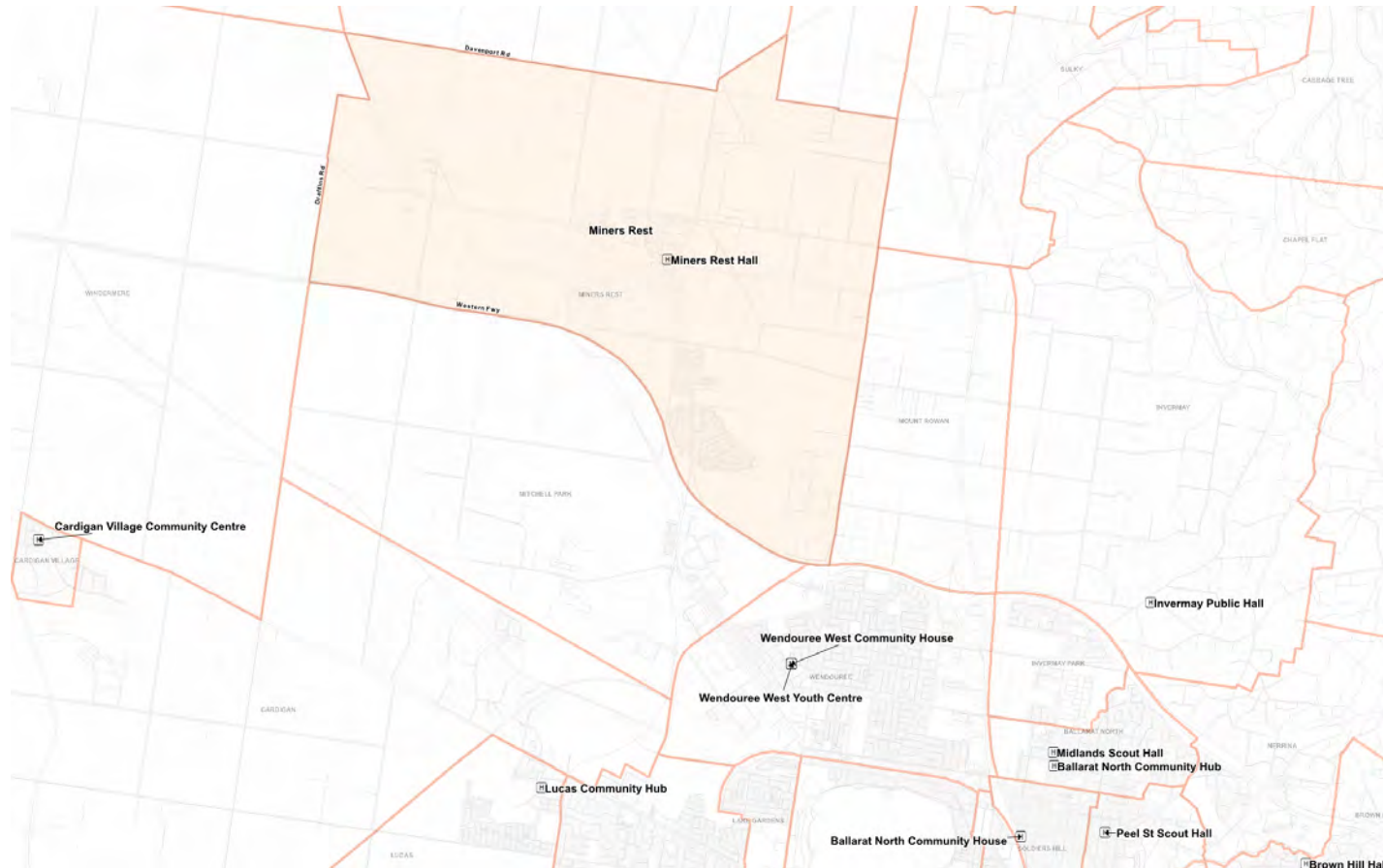


Figure 18 - Primary & Acute Health Services

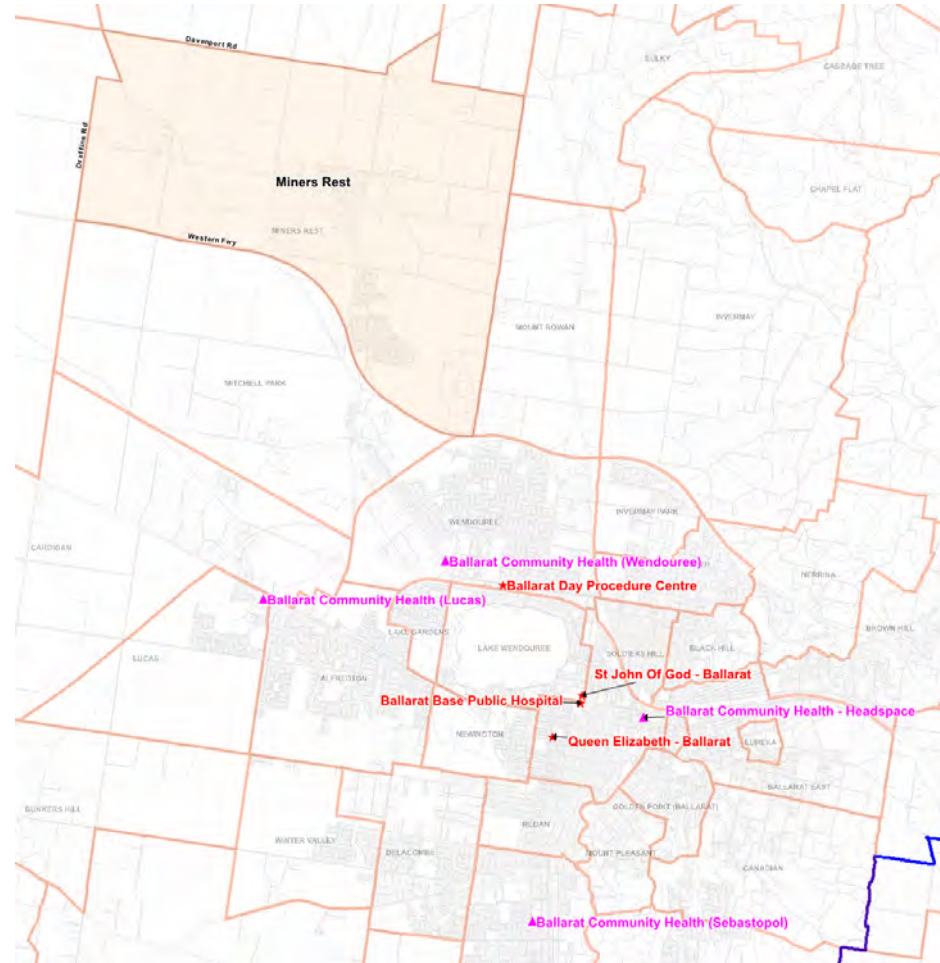
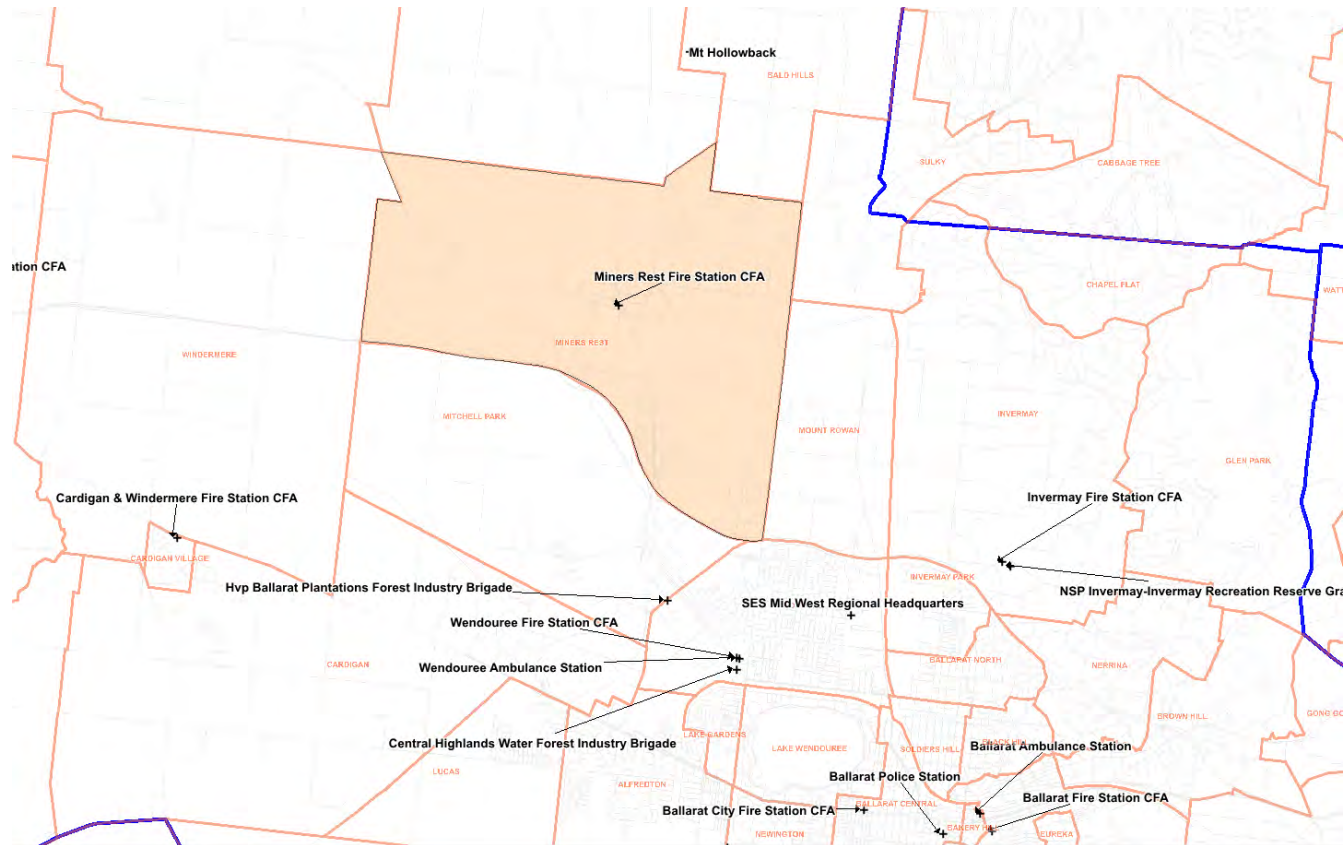


Figure 19 - Police & Emergency Services



THE MINERS REST PLAN

Our Township Towards 2040

‘What You Said’



Community Consultation Report
May 2017

CITY OF
BALLARAT



CONTENTS

CONTENTS	2
INTRODUCTION	3
RESPONSES	4
TOP RESPONSES	5
"WHAT DO YOU LOVE ABOUT MINERS REST?"	6
"WHAT DO YOU IMAGINE FOR MINERS REST?"	7
"WHAT DO YOU WANT TO RETAIN IN MINERS REST?"	9
DETAILED SUBMISSIONS	10
DRAFT VISION & OBJECTIVES	15
DRAFT VISION FOR THE MINER'S REST TOWNSHIP PLAN	15
DRAFT OBJECTIVES FOR THE MINER'S REST TOWNSHIP PLAN	16
FORWARD PROGRESS	17

INTRODUCTION

The City of Ballarat is partnering with the Miners Rest community to deliver The Miners Rest Plan: Our Township Towards 2040' (the Plan), which is a long-term vision and action plan to help best manage change in Miners Rest into the future.

As a rural settlement Miners Rest is one of six local townships participating in the City of Ballarat's Local Plans for our Townships Program. The Plan will:

- Give the community a collective long-term vision and action plan
- Help community groups make a strong case when applying for grants or lobbying for funding
- Give the City of Ballarat and Miners Rest community an in-depth understanding of the availability of, and need for, local services and infrastructure
- Assist the City of Ballarat prioritise its investment in Miners Rest
- Include actions the community can deliver itself
- Assist the Miners Rest community and City of Ballarat to manage change
- Provide the City of Ballarat with a detailed understanding of local planning issues that are important to the community and establish a direction to guide these challenges.

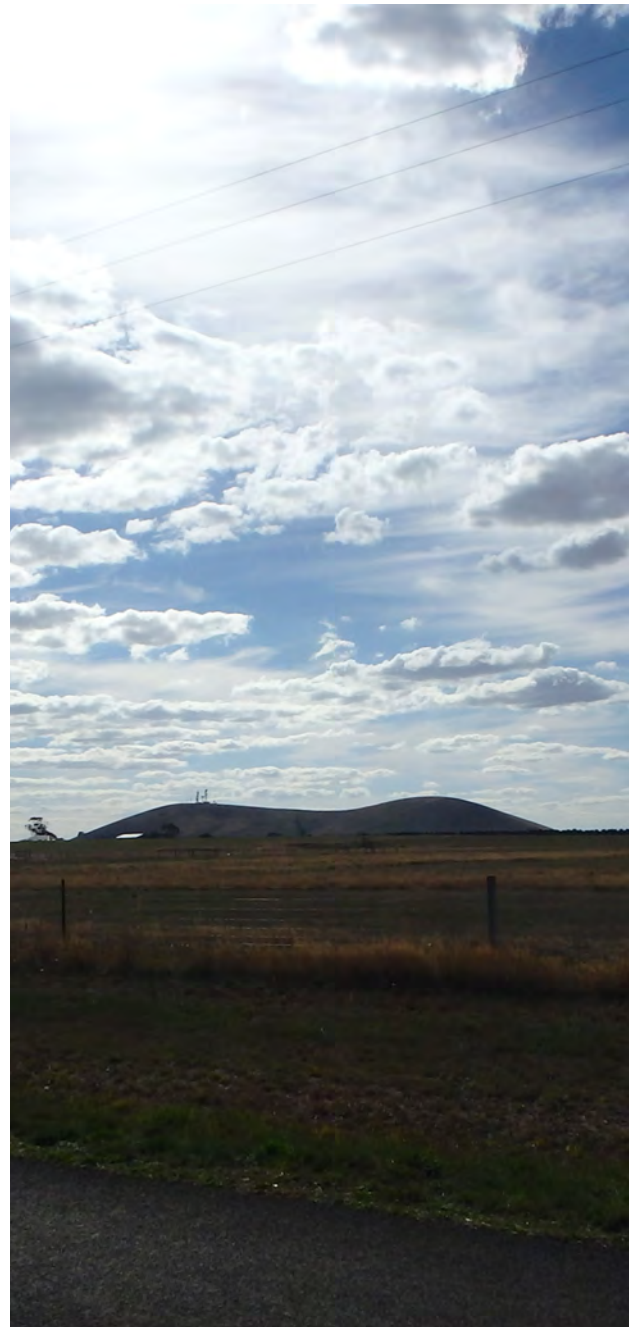
'WHAT YOU SAID' REPORT

This 'What You Said' Report has been prepared following the completion of a community survey and community drop in session held between 4pm to 7pm, Tuesday 21st March, 2017 at the Miners Rest Primary School (10 Dundas Street, Miners Rest).

Apart from the survey and community drop in session functioning to introduce the project, it allowed the following three questions to be posed to the Miners Rest community about their own town:

- What do you love about Miners Rest?
- What do you imagine for Miners Rest?
- What do you want to retain in Miners Rest?

This 'What You Said' Report seeks to bring together the range of commentary made through the initial consultation process for the Miners Rest Township Plan.



RESPONSES

For the first round of community consultation for the Miners Rest Township Plan, received 121 submissions consisting of:

- 46 online submissions
- 63 postcard submissions
- 12 individual letters

In addition to the above, a range of verbal comments made during the Community drop-in session held on 21st March, 2017.

This 'What You Said' Report provides a consolidated summary of commentary made through the initial consultation processes outlined above, and will inform the preparation and development of the Miners Rest Township Plan.



TOP RESPONSES

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 a 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.

Imagine:

- Provision of more retail shops, cafés, 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.

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.



"WHAT DO YOU LOVE ABOUT MINERS REST?"

The written comments received from respondents about what they love about Miners Rest have been further categorised into general themes. With the nature of individual views being on a range of matters, a number of differing points of view were revealed, but have all been documented within the summary below.

History

- The town's history – it's all in the name

Character & environment

- The country atmosphere and rural environment of the town, with it being quiet and peaceful
- The open rural landscapes and wider views to Mount Rowan and towards the Pyrenees
- Waterway and features such as Burrumbeet Creek and Miners Rest Wetlands
- Spacious streetscapes
- Close proximity to Ballarat, but still feels like a small country town,
- Miner's Rest provides country living with city access and being a 'satellite' community to Ballarat with no industry or commercialisation

Housing

- Affordable housing and land
- Larger allotments and small amount of multi-dwelling developments
- The town has not been overdeveloped,

Landuse & activity

- Ballarat Turf Club at Dowling Forest Racecourse being a focus for the equestrian industry and home to the thoroughbred horse racing in Western Victoria

Community

- Being family orientated and a positive place to raise children as it is relaxed, safe and has a caring community
- The sense of community spirit, with diverse age groups, from young families to retirees
- The excellent primary school with its own sense of community

Recreation & community facilities

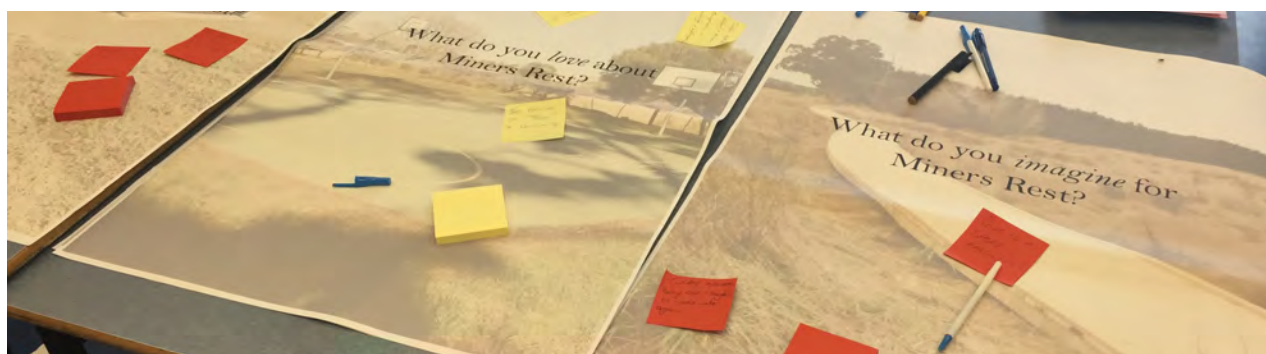
- The new park upgrades (including: playground, bike track and walking track) being a positive contribution to the community
- The existing community hall
- The town only being a short distance to the Clunes swimming pool

Traffic, transport & access

- The lack of traffic issues in the town and surrounds, but with close freeway access
- The close proximity to Wendouree Train Station

Commercial development

- The pub, supermarket, corner shop, post office are positive town assets
- The lack of heavy industry or large retail shop strip within the town
- The agricultural links and rural connection surrounding Miners Rest
- Being close to other larger shopping centres (i.e. Stockland Wendouree)



"WHAT DO YOU IMAGINE FOR MINERS REST?"

The comments received from respondents about what they imagine about Miners Rest have been further categorised into general themes. With the nature of individual views being on a range of matters, a number of differing points of view were revealed, but have all been documented within the summary below. Particular points of deviation of opinion are related to potential housing and commercial growth within Miners Rest, of which will need to be further investigated and explored through the preparation and development of the Miners Rest Township Plan.

History

- Foster an increased appreciation of the racehorse history of Miners Rest

Character & environment

- Additional canopy trees/ nature strip planting and improved street lighting (preference for native and not exotic species)
- Maintenance of the existing character of Miners Rest as a semi-rural township and avoid proposing small urban blocks
- Maintenance of the township 'as is' without substantial change
- Eradication of pest plants
- Allowing the removal large trees on private blocks

Housing

- Only allowing minimal growth by allowing single dwellings on large lots and prevention of small urban blocks, townhouses and flats
- Alternate view expressed regarding allowing moderate housing growth within the town but not being overdeveloped by further block subdivision
- New housing should be provided around any future recreation reserve
- Potential to accommodate housing development in the old quarry
- Potential for housing development immediately to the east of the township (as it is close to existing town)
- Allow rural residential type zoning between Miners Rest and Mount Rowan to encourage more premium lifestyle properties that retain the country feel

Landuse & activity

- Local events which celebrate Miners Rest as horse training area
- Maintenance of farming as the main and highly valued industry for the local community
- Expansion of the existing equine industry around Dowling Forest - also encourage other equine pursuits, through allowing more housing to be built in this area through removing / amending the Special Use Zone.
- Review the extent of smaller lots within the Farming Zone which are not viable for farming activates and should be rezoned for rural lifestyle type purposes
- No saleyards development - or at least move it further away from Miners Rest

Infrastructure

- Provision proper flood measures and adequate drainage to prevent future flooding impacts
- Improved internet infrastructure/ NBN/ mobile coverage for personal and commercial use

Community

- Provision of more community facilities within the township
- Provision of better community planning, including community noticeboard, locally focused community events etc.
- Maintenance of visiting library facilities
- Improved management of crime with the longer term potential for a police station



Recreation & community facilities

- Provision of community services to keep pace with town growth
- Provision of a sporting hub including sports ovals, netball courts, bowling club, leisure centre, gym, swimming pool/ waterpark, café etc.
- Provision of a community hub to support community groups
- Provision of improved park facilities including paths and play equipment (swings, slides, toilet blocks, BBQ equipment etc.)
- Provision of more facilities for the youth of the township (skate park etc.)
- Retention of and provision of upgrades to local community hall
- Provision of a new local community hall to replace the old
- Provision of a new community centre for multi-purpose use e.g. senior citizens, indoor sports etc.
- Additional kindergarten places and day-care centre
- Provision of a bigger primary school with ample parking
- Potential development of a secondary school in the longer term
- Provision of business centre for use by local home businesses.
- Provision of a visitor information centre or story board to display the history of Miners Rest in a prominent part of the town
- Provision of regular consultation with community to get the best out of the process and to provide for community ownership

Employment

- Foster a thriving community with strong employment opportunities on the back of the local racing industry
- Support, respect and enhance the local racing industry
- Provision of a larger Primary School



Traffic, transport & access

- Implementation of better traffic management within and surrounding the town, including more formalised roads
- Creation of more than one road in and out of MacArthur Park
- Improved school crossings and better management of parking at the primary school, (including potential to make Dundas Street one way only)
- 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 quarry to connect to school etc.)
- Construction of appropriate footpaths that do not become dangerous & impassable when it rains
- Facilitation of improved public transport options via increased bus services
- Provision of caution signage in Kennedy's Road to acknowledge racing industry activities and manage traffic safety
- No ongoing impact of noise from learner pilots flying from Ballarat Airport (currently 200 circuits a day)

Commercial development

- Provision of a true town centre/ village centre to provide a focal point for the town
- Provision of more retail shops, café, chemist, doctors' surgery etc.
- No need for additional shops - existing services are adequate
- Maintenance of a quiet town with saleyards development not proceeding
- Provision of a 10km 'exclusion zone' around the township to prevent uses with potential amenity impacts



"WHAT DO YOU WANT TO RETAIN IN MINERS REST?"

The comments received from respondents about what they want to retain in Miners Rest have been further categorised into general themes. With the nature of individual views on a range of matters, a number of differing points of view were raised about what respondents want to retain within the town, which have all been documented within the summary below.

History

- Celebration of the long and interesting history of this area
- Foster an increased appreciation of the racehorse history of Miners Rest

Character & environment

- Retention of the character of the town 'as is' without substantial change
- Retention of the rural nature, community focus and small town feel
- Retention of open spaces and large area of land for animals/ grazing/ farming
- Retention of trees, wetland, native planting, and the healthy rural environment
- Retention of the feel of Miners rest as a dormitory township

Housing

- Retention of country feel, with no more housing estates
- Retention of larger blocks and avoid high density housing
- Retention of opportunity for rural residential lifestyle – i.e. Farming Zone should not be developed for further small house lot development which is ruining the character and country feel

Landuse & activity

- Retention of the potential for the expansion of the horse industry

Community

- Retention of friendly and safe, thriving country community feel and community spirit
- Retention of happy residents
- Retention of opportunities for fairness and bringing more families to a supportive community

Recreation & community facilities

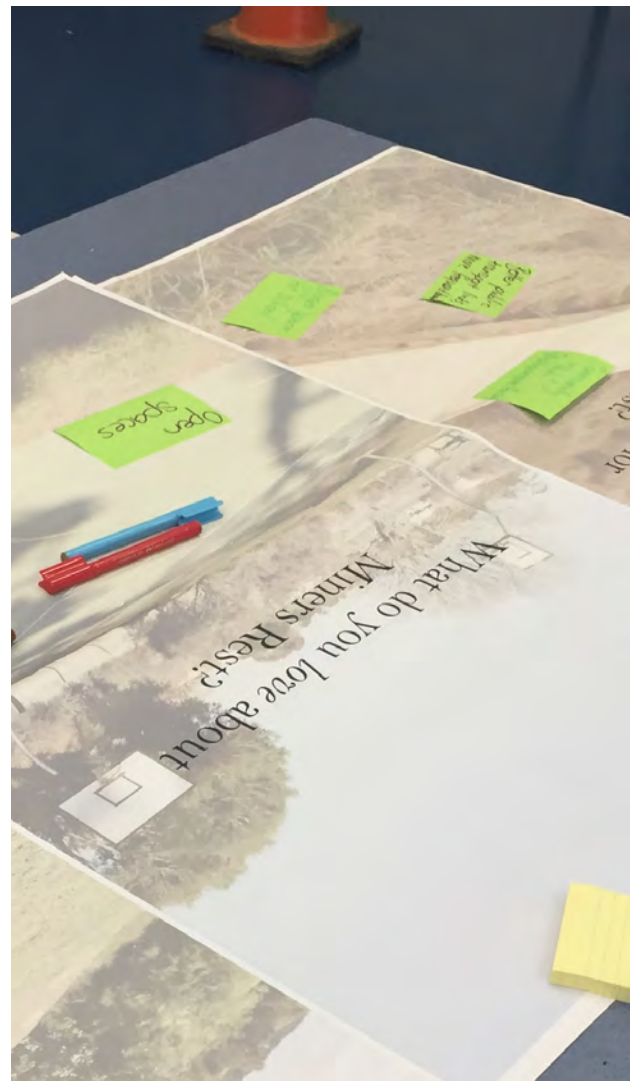
- Retention of the school
- Retention of community hall
- Retention of parkland and recreational open spaces

Commercial development

- Retention of existing commercial facilities

Traffic, transport & access

- Retention of public transport services



DETAILED SUBMISSIONS

In addition to the general survey responses summarised above, 12 individual letters were submitted to Council, while detailed verbal comments were made during the community drop-in session held on Tuesday 21st March, 2017.

The commentary within submitted letters and made verbally at the community drop-in session is summarised below.



VERBAL COMMENTARY: COMMUNITY DROP-IN SESSION

Following below are the combined notes and observations made during the initial Community drop-in session hosted at Miners Rest Primary School on 21 March, 2017 between 4-7pm. It is estimated in the order of 40-50 community members attended over the course of the 3 hour consultation event.

While many community members provided written feedback to these prompts via written responses on posters provided, a number provided only verbal feedback in conversation with facilitators (either one-on-one or in small groups). In an effort to capture as much feedback and information as possible, a summary of the main points of these conversations have been provided below under general themed headings.

From this summary a number of comments are noted to be in conflict with the views of others, however these are simply documented below, without further analysis of whether they are strategically valid or appropriate for facilitation through the Township Plan process. All relevant matters will be further considered and addressed as appropriate through the preparation and development of the Miners Rest Township Plan.

Character & environment

- Many community members expressed an assumption that the population of Miners Rest will grow.
- Population growth of the township was generally viewed in a positive light, with the understanding that an increased population is likely to result in additional services and facilities for residents.
- Significant interest in the potential for residential growth of the town, and a number of enquiries relating to zoning and the potential to subdivide specific, individual lots for development.

Housing

- There was mixed responses with regards to growth and existing house estates – most people seem to not mind them – some think only low levels of growth is appropriate, but others acknowledge that if you want more services you may need some more residential growth. Others highlighted potential need for more varied housing choice in Miners Rest, in part to facilitate aging in place etc.
- Mixed views on where residential growth should potentially be located, including some options specifically driven by land ownership interest. Suggestions included:
 - Residential growth should 'infill' areas between newer estate at MacArthur Park and older Miners Township (east side of Howe Street) - although others viewed this area as being significantly flood prone and should not be built on at all – including the existing subdivisions currently under construction.
 - Owners of land south of Cummins Road / west of Howe Street highlighted that this was prime land to facilitate future residential growth and flooding impacts could easily be mitigated through drainage infrastructure.
 - Some suggested township growth should extend north of Kennedys Road, although others viewed this as creating a sprawling linear settlement and impacts on rural land opportunity.
 - Others raised potential opportunity for residential development in/ around quarry site.



Landuse & activity

- Existing landowner of Farming Zone land to south of the equestrian precinct of the strong view that existing lot sizes were too small to accommodate an economically viable agricultural use. Therefore should be allowed to subdivide existing dwelling, or should be rezoned to allow the same. Highlighted a desire for a 'rural lifestyle' living but that other forms of 'rural lifestyle' lots such as within the Rural Living Zone and Low Density Residential Zone were too expensive, therefore subdivision in the Farming Zone should be allowed.
- The equestrian industry was raised as a significant asset for the town and should be strongly protected. Highlighted that equestrian related activities occurred in many areas surrounding Miners Rest (including west of town) and not just surrounding the racetrack. Therefore rural areas surrounding the town should be project for this opportunity. Issues of horse access to racetrack along Kennedy Road highlighted and needs to be addressed, and while the access tunnel was supported, it was questioned who would pay for this.
- Numerous attendees referred to poor planning relating to the saleyards development and the negative impacts it would have on the town.

Infrastructure

- Flooding within/ throughout the town was raised and a number of landowners were of the view that flooding impacts could be easily mitigated through stormwater drainage work.

Community

- Residents of MacArthur Park who attended the session were questioned on how they viewed the area in context of Miners Rest, noting they were strongly of the view they are part of the Miners Rest town.



Recreation & community facilities

- Highlighted that additional community facilities/ recreation facilities/ sports oval etc. was needed within the town. Locations of where this should be located differed, but generally appeared to focus on land at and surrounding the axis of Howe Street and Cummins Road.
- Critical issues with and school capacity and the need to grow/ expand was raised. Highlighted that the school does not have the land to expand which is a substantial constraint. Suggested that the school could be relocated to a more central position within the town and to be combined with the future community facilities/ hub.

Traffic & transport & access

- Critical issues with existing school access and parking were raised. Modifications to road access arrangements were suggested, including introduction of one way road circulation; potential for a drop off/ pick up zone; along with potential to substantially increase on street parking through new angled parking etc.
- Highlighted that off-road shared paths (pedestrian/ bikes) was lacking within the town and necessitated the need to drive children to the school. Suggested there were clear opportunities to develop a shared path network to link MacArthur Park to the primary school via Nelson Street (noting the existing road reservation does not currently accommodate a road).
- Suggested there should be an extension of the urban bus service to Miners Rest.

Commercial Development

- There were many ideas and suggestions made regarding the commercial centre, including the need for a chemist, medical centre, bakery etc., and the potential long term opportunities for police / ambulance / fire stations. There was a general desire for the "village feel" to be retained.



WRITTEN COMMENTARY: INDIVIDUAL LETTER SUBMISSIONS

Following below is a consolidated summary of commentary made within the 12 individual written submissions made to Council.

From this summary a number of comments are noted to be in conflict with the views of others, however these are simply documented below, without further analysis of whether they are strategically valid or appropriate for facilitation through the Township Plan process. All relevant matters will be further considered and addressed as appropriate through the preparation and development of the Miners Rest Township Plan.

History

- Strong history and story of the township

Character & environment

- Retain the character of Miners Rest
- Reduce the visual impact of the Saleyards through tree planting along the highway
- Implement other measures to mitigate the amenity impacts of the Saleyards
- Close proximity to Ballarat, employment opportunities, and convenient access to the Western Freeway

Housing

- Notes opportunity to develop residentially zoned land to the north-west of the quarry and the potential to mitigate the impacts of inundation/floodwaters
- Miners Rest can and should become an integrated set of housing estates
- Seeks to reinforce the need for Miners Rest to accommodate residential development opportunities through recognizing potential for growth in the south west area of the Township – specifically land located on the south-west corner of Cummins Road and Lindsay's Road
- Housing in the Township represents another residential option and style of living in urban Ballarat and contributes to the diversity of lifestyle and choice in the municipality
- Anticipated future growth and the potential to provide for lifestyle choice of housing
- Land at Cummins Road as an ideal location and logical extension off the existing residentially zoned land. This sites potential use has already been broadly recognized by Council, including via a resolution on 14 December 2011, and the 1994 and 2007 ODP
- Potential to redevelop the quarry site for residential purposes

Community

- Strong sense of community – identifies need to protect the existing character of the township

Landuse & activity

- Note the potential to redevelop the quarry site following completion of rehabilitation as 'a major asset for Miners Rest and the municipality as a whole'
- Suggestion that any future development incorporate a variety of uses and significant open space
- Suggest that MSS should include, if necessary, a clear outline development plan (ODP) for Miners Rest
- Need to integrate Sunraysia Heights and MacArthur Park with the Miners Rest Township
- Need for developers to improve flooding issues rather than "not making it worse"
- Planning controls to improve flood mitigation
- Development along Burrumbeet Creek as exacerbating flooding issues
- Future development in Miners Rest should abut existing development where possible
- Acknowledges the impact of flooding on the Miners Rest Community including the potential for flood water to infiltrate sewerage networks, potentially leading to sewerage spills, interruptions in sewerage services and costly clean-up after flooding has subsided
- Significant amount of land zoned for residential use that is subject to flooding, and therefore appears unsuitable for residential development
- Supportive of proposed planning controls developed by Council under Amendment C178
- Supportive of Council giving further consideration to amending residential zones where it has been determined that further development would be prohibited due to flooding concerns



Recreation & community facilities

- Request to Council to make provision for a new, better located and more appropriate site for a fire station in Miners Rest in light of past and projected rapid growth of the Township
- MUST look at the necessary infrastructure that is needed and decide the optimum place for services
- Recreational needs of the town – Miners Rest is a “young” area and recreation is vital for its continued development and prosperity
- Demand for more housing will bring more services – such as medical and care facilities
- Need to plan for increasing demand for services
- Need to put aside areas (land) for services and infrastructure now
- Issue of land locked school
- Plan for Miners Rest should include:
 - A new school area
 - A new fire station
 - Plenty of recreation areas, including an oval to encourage people to be more active
- Expanded township will provide opportunities for more infrastructure, a greater commercial offering, secondary school, and sports facilities
- Potential for connected bike tracks linking activities
- Real need for more support services such as medical facilities, a new school, a new fire station with its own assigned pumper unit, and community recreation spaces including sporting faculties
- Rehabilitate the old quarry site as a beautiful lake and park area
- Need to encourage connection between housing estates through the provision of walking or cycling paths – also encourage healthier lifestyles
- New multi-use facility to for community use, including sport and recreation, to replace the existing Miners Rest town hall
- Creek still divides walking paths in the Memorial Park
- Relocation of the school
- New school to adjoin sports facilities and community centre
- Activities for growing youth population
- Ballarat Turf Club in Miners Rest requires some support in infrastructure surrounding the club
- Development growth should come with facilities

Traffic & transport & access

- Safety concerns regarding traffic during drop-off and pick-up times from the school



DRAFT VISION & OBJECTIVES

Following on from the summary of the initial phase of community consultation as outlined above, a draft vision and objectives have been prepared. These have been prepared in response to the range of community commentary received to date and are intended to guide and underpin the drafting and preparation of the Miner's Rest Township Plan.

The inclusion of the draft vision and objectives being included within this report, it provides opportunity for comment and feedback to be received by the Miner's Rest community which will assist with their refinement and finalisation of the draft Miner's Rest Township Plan.

DRAFT VISION FOR THE MINER'S REST TOWNSHIP PLAN

The draft vision for the Miner's Rest Township Plan which has been prepared following the first round of community consultation is:

In 2040 Miners Rest will be:

- *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 township character which is positively influenced by location within a broader open rural landscape.*
- *A township with ample commercial uses and activities serving the day to day needs of the local community.*
- *A vibrant, inviting, attractive and clean township with well-designed, tree-lined streetscapes and pedestrian/ cycle connections linking all major community hubs (incl. primary school, community hall/s, recreation reserves, sports ovals etc.).*
- *A township recognised and celebrated for its significant equestrian industry.*
- *A township with ample public transport options and safely managed vehicle traffic.*



DRAFT KEY OBJECTIVES FOR THE MINER'S REST TOWNSHIP PLAN

The draft objectives for the Miner's Rest Township Plan which has been prepared following the first round of community consultation and will underpin the direction of the Draft Miners Rest Plan are:

- To explore opportunities for the potential growth of the township without compromising its compact rural township character within a wider landscape setting.
- To protect and enhance the established format of existing housing stock, which predominantly consists of single detached dwellings on larger landscaped allotments.
- To explore opportunities for the provision of a more diverse range of housing types to suit lifestyle choices and assist aging in place.
- To manage and appropriately respond to the impact of flooding throughout Miners Rest.
- To develop a township heart through the definition and strengthening of the commercial/ retail role, including provision of clear urban and built form guidance for future development.
- To encourage new forms of residential and commercial development on vacant land Mixed Use Zone land.
- To facilitate new and appropriately located sporting, recreational and community infrastructure to benefit the overall township.
- To improve pedestrian and cyclist mobility and infrastructure throughout the township, including links to commercial and community activity nodes.
- To support and promote the continuation and expansion of the equestrian industry and supporting business activities.
- To minimise pedestrian and vehicular conflict zones, including within the streets surrounding the primary school.
- To improve street amenity through planned targeted streetscape planting.



FORWARD PROGRESS

The summary of initial consultation feedback outlined above provides an important synopsis of what are the current values of the Miner's Rest community, and aspirations for the future.

Each submission has been reviewed by City of Ballarat staff and consultant's team and have been used to inform the development of a draft vision and objectives which will be utilised during the drafting and development of the for the Miner's Rest Township.

Once the Miner's Rest Township has been drafted it will be the subject to further community consultation and review.

Following this further consultation process the Miner's Rest Township Plan will be finalised, and once formally adopted will constitute the strategic document to guide the City of Ballarat's work over the next decade.





Ballarat Airport Safeguarding Study

Prepared for:

City of Ballarat

Prepared by:

Kneebush Planning Pty Ltd

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In association with:

To70 Aviation Australia

Airport Surveys

6 July 2018

Table of Contents

1	Introduction.....	1
1.1	Background	1
1.2	Ballarat Airport.....	1
1.3	Purpose of Report	3
2	National Airports Safeguarding Framework	3
2.1	NASF Principles	4
2.2	NASF Guidelines.....	4
2.3	Implementing NASF	5
3	Planning Policies and Controls	6
3.1	State Planning Policy Framework	6
3.2	Municipal Strategic Statement	7
3.3	Planning Controls.....	8
4	Background Studies	12
4.1	Ballarat Airport Australian Noise Exposure Forecast 2004	12
4.2	Ballarat Aerodrome Noise Modelling Study 2010.....	12
4.3	Ballarat Airport Master Plan 2013-2033.....	17
4.4	Ballarat Airport Aviation Emergency Services Hub	17
5	Gap Analysis & Supplementary Studies	20
6	Noise Contours	20
6.1	ANEC/F Contours.....	21
6.2	Number Above Contours.....	22
6.3	Noise Contour Assumptions and Limitations	23
7	Obstacle Limitation Surfaces.....	24
8	Assessment of Current Safeguards	27
8.1	SWOT Analysis	27
8.2	NASF Guidelines.....	29
9	Conclusion and Recommendations	30

Figures

Figure 1	Existing Runway Configuration and Lengths
Figure 2	Current Airport Environs Overlays
Figure 3	Current Design and Development Overlays
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)
Figure 8	AESH Runway 18/36 Option 1D
Figure 9	AESH Runway 18/36 Option 2B
Figure 10	Effect of Runway Extension on Take-offs
Figure 11	Typical Cross Section and Isometric View of OLS

Tables

Table 1	Building Site Acceptability Based on ANEF Zones
Table 2	NASF Guidelines Assessment

Appendices

Appendix 1	ANEC/F Noise Contours
Appendix 2	N60 Noise Contours
Appendix 3	N65 Noise Contours
Appendix 4	N70 Noise Contours
Appendix 5	Obstacle Limitation Surfaces

1 Introduction

1.1 Background

Airports are essential public infrastructure assets, particularly for regional communities. Australia's network of airports, across major urban centres and regional areas, form an integral part of the national economic infrastructure and are critical to connecting communities and enhancing broader economic performance. This explained in more detail in the report *Regional Airport Infrastructure Study: Economic Contribution and Challenges of Regional Airports in Australia* (ACIL Allen Consulting, September 2016) which was prepared for the Australian Airports Association.

Airports need to be properly protected over the long term to realise these benefits and ensure their safe and efficient operation. Poor land use planning around airports can lead to a range of issues and problems including aircraft safety hazards, operational restrictions, protracted litigation, amenity impacts for nearby residents and airport closures in the extreme case.

Sites for airports are scarce and finding new land to replace or expand existing airports is difficult. Existing sites in many cases pre-date significant urban development. More recently, urban expansion and densification has increased tensions between urban development, particularly residential uses, and airport operations.

The main challenge is to balance growing demand for aviation services with urban growth pressures and the continued amenity and safety of residents in surrounding areas. Population growth, urban development demands and increased aviation activity necessitate more complementary planning around airports.

The capacity of an airport to operate as an airport is fundamentally dependent on what occurs on the land surrounding it. The erection of structures that physically intrude into the flight paths of arriving and departing aircraft can clearly limit or prevent use of the airport. But so too can other developments that are less obvious. For example:

- Insensitive residential developments under flight paths may lead to complaints about aircraft noise and eventually lead to the introduction of curfews or even the closure of an airport
- Industrial activities that generate smoke or similar hazards may constrain use of an airport
- Other activities such as agriculture, animal husbandry or wetland developments may attract birds and pose a distinct hazard to aviation.

Airport safeguarding aims to prevent or mitigate these issues for the benefit of the whole community.

The report *Australia's Regional Airports – Facts, Myths & Challenges* (Australian Airports Association, November 2012) contains further information regarding these issues.

1.2 Ballarat Airport

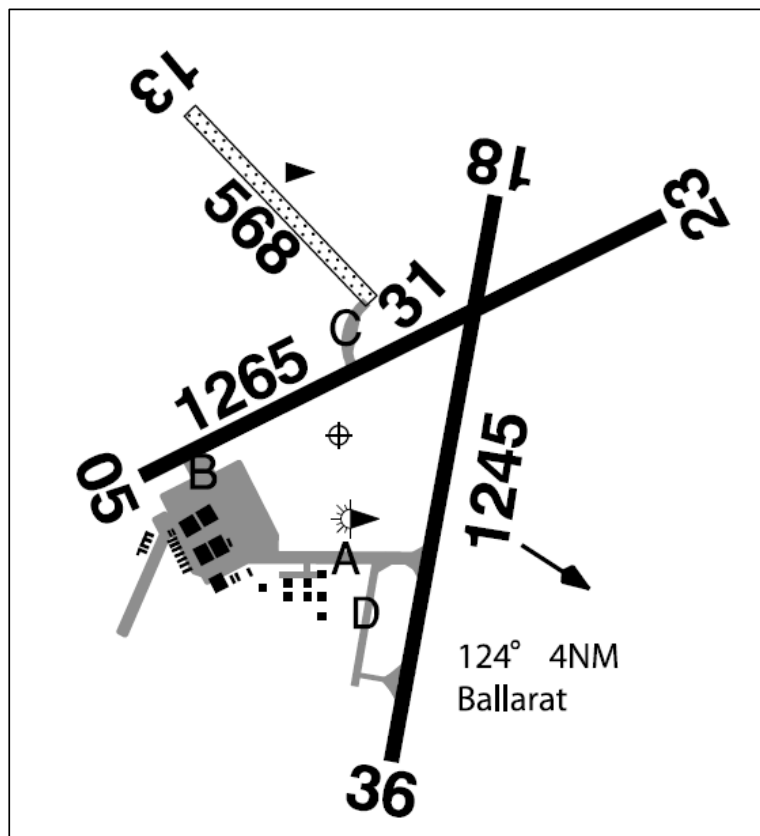
Ballarat Airport is a medium scale regional airport used for General Aviation (including emergency services) and is strategically located approximately eight kilometers north-west of the Ballarat city centre. The airport is an important community asset for the City which must be carefully protected to ensure that Ballarat and the wider area continue to benefit from its existence well into the future. The airport has good access to the rest of Ballarat and importantly offers potential for synergies with future uses on adjacent land designated for industrial and business use, known as the Ballarat West Employment Zone (BWEZ).

Ballarat Airport is owned and operated by the City of Ballarat. The aerodrome has three runways (shown in Figure 1 – Existing Runway Configuration and Lengths).

Runway 18/36 is oriented north-south and is 1245m long with a sealed width of 30m. This is the primary runway due to the prevailing wind and night lighting. Aircraft operating on Runway 18 are required to operate with right hand circuits to avoid over flying populated areas to the east.¹

There have been various plans to extend Runway 18/36, which will be discussed later in this report, but to date this runway remains at 1245m long.

Runway 05/23 is oriented in the south-west / north-east direction and is 1265m long with a sealed width of 30m wide. Runway 13/31 is oriented north-west / south- east and is 568m long, 30m wide and is grassed.



¹ The standard aerodrome traffic circuit is normally a left-hand circuit pattern with all turns to the left. All other runways at Ballarat Airport have left-hand circuits.

Figure 1: Existing Runway Configuration and Lengths

(Source: AIP-ERSA)

The aircraft activity at Ballarat Airport is currently entirely General Aviation. There are currently no Regular Public Transport² (RPT) services. A pilot training school is operating at the airport which conducts circuit training on a regular basis.

A long term master plan has been prepared for the airport, which is discussed in section 4.3 of this report. More recently, consideration has been given to establishing an Aviation Emergency Services Hub at the airport, which is discussed in section 4.4 of this report.

1.3 Purpose of Report

The City of Ballarat is currently preparing a number of long term land use plans to manage growth throughout the municipality. This includes a Township Plan for the area of Miners Rest, located to the north of the Ballarat airport.

With an aim to safeguard the airport over the long term, particularly the potential development of an Aviation Emergency Services Hub (AESH) at the airport, Council commissioned Kneebush Planning to undertake an assessment of whether the current airport safeguarding environment, including the existing planning policies and controls applying to the airport and its surrounds, adequately protects the future development of Ballarat Airport. To this end, the study included new aircraft noise exposure and obstacle limitation surface modelling taking into account the AESH proposal.

This report presents the findings of the study, the results of which are intended to inform other future processes and strategic planning to adequately protect the future development of Ballarat Airport. The report makes a number of recommendations for improvements to the airport safeguarding framework for Council's consideration going forward.

2 National Airports Safeguarding Framework

The National Airports Safeguarding Framework (NASF) is a national land use planning framework that aims to:

- Improve community amenity by minimising aircraft noise-sensitive developments near airports including through the use of additional noise metrics and improved noise-disclosure mechanisms.
- Improve safety outcomes by ensuring aviation safety requirements are recognised in land use planning decisions through guidelines being adopted by jurisdictions on various safety-related issues.

NASF was developed by the National Airports Safeguarding Advisory Group (NASAG), comprising of Commonwealth, State and Territory Government planning and transport officials, the Australian Government Department of Defence, the Civil Aviation Safety Authority, Airservices Australia and the Australian Local Government Association.

² Flight operations performed for remuneration and conducted to fixed schedules over specific routes, and on which seats and/or cargo space is available to the general public.

NASF was agreed to by Commonwealth, State and Territory Ministers at the Standing Council on Transport and Infrastructure (SCOTI) meeting on 18 May 2012. The agreement represents a collective commitment from Governments to ensure that an appropriate balance is maintained between the social, economic and environmental needs of the community and the effective use of airport sites. The Framework applies to all airports in Australia and affects planning and development around airports, including development activity that might penetrate operational airspace and/or affect navigational procedures for aircraft.

Pursuant to the SCOTI agreement, it is the responsibility of each jurisdiction to implement the Framework into their respective planning systems.

NASF is comprised of a set of seven principles and nine guidelines.

2.1 NASF Principles

The NASF principles are:

- Principle 1: The safety, efficiency and operational integrity of airports should be protected by all governments, recognising their economic, defence and social significance
- Principle 2: Airports, governments and local communities should share responsibility to ensure that airport planning is integrated with local and regional planning
- Principle 3: Governments at all levels should align land use planning and building requirements in the vicinity of airports
- Principle 4: Land use planning processes should balance and protect both airport/aviation operations and community safety and amenity expectations
- Principle 5: Governments will protect operational airspace around airports in the interests of both aviation and community safety
- Principle 6: Strategic and statutory planning frameworks should address aircraft noise by applying a comprehensive suite of noise measures
- Principle 7: Airports should work with governments to provide comprehensive and understandable information to local communities on their operations concerning noise impacts and airspace requirements.

2.2 NASF Guidelines

The nine guidelines are:

- Guideline A: Measures for Managing Impacts of Aircraft Noise
- Guideline B: Managing the Risk of Building Generated Windshear and Turbulence at Airports
- Guideline C: Managing the Risk of Wildlife Strikes in the Vicinity of Airports
- Guideline D: Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation
- Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports
- Guideline F: Managing the Risk of Intrusions into the Protected Airspace of Airports.
- Guideline G: Protecting Aviation Facilities - Communications, Navigation and Surveillance
- Guideline H: Protecting Strategically Important Helicopter Landing Sites
- Guideline I: Managing the Risk in Public Safety Zones at the Ends of Runways (Draft).

The full set of NASF principles and guidelines documents can be found on the Department of Infrastructure, Regional Development and Cities website at:
https://infrastructure.gov.au/aviation/environmental/airport_safeguarding/nasf/nasf_principles_guidelines.aspx.

2.3 Implementing NASF

It is the responsibility of each land use planning jurisdiction to implement NASF into their respective planning systems as the Commonwealth Government has very limited powers in this area.

NASF is recognised as a policy guideline in Clause 18.04 of the State Planning Policy Framework (SPPF) (see section 3.1 below). It is also recognised as an important planning consideration on the Department of Environment, Land, Water and Planning's website relating to "Airports and Planning": <https://www.planning.vic.gov.au/policy-and-strategy/airports-and-planning>.

NASF Guideline A: *Measures for Managing Impacts of Aircraft Noise*, is particularly important in the local planning context, especially when considering planning proposals around airports that involve noise-sensitive land uses. In this regard paragraph 12 of Guideline A states:

In preparing new local or regional Strategic Plans, existing airports should be clearly identified and noise modelling reports made available by the airport owners/operators. The modelling reports will allow the guidelines on noise sensitive developments to be applied in the vicinity of the relevant airports.

Guideline A gives specific guidance to planning officials when considering the following scenarios:

- i. rezoning of greenfield areas for noise sensitive uses (i.e. areas that are predominantly rural or non-urban, including specifically identified urban boundary areas around airport sites);
- ii. rezoning of brown-field areas for noise sensitive uses (i.e. areas that are predominantly urban where changes of land use from industrial, commercial or low-density residential are being considered); and
- iii. assessment of new developments applications for noise sensitive uses within existing residential areas.

Central to Guideline A and the consideration of these different scenarios is the recognition that there is merit in utilising a range of noise metrics, particularly Number Above or 'N' contours, in conjunction with the traditional Australian Noise Exposure Forecast (ANEF) system, to better inform strategic planning and to provide more comprehensive and understandable information on aircraft noise for communities.

In relation to N contours, the DELWP website states:

Victoria, in agreeing to include the National Airports Safeguarding Framework in the planning system, will implement the alternative noise metrics (known as 'N' Contours or 'Number Above' Contours) in strategic planning decisions only, where there is potential for future communities to be unnecessarily exposed to aircraft noise. For example, a proposal to rezone land to facilitate more intensive residential development within airport environs.

N Contours indicate potential noise exposure where the noise level from a single aircraft exceeds 60dB(A), 65dB(A) or 70dB(A) per day, as opposed to the annual average

approach that informs the application of ANEF Contours. Where N contours exist, they should be examined when considering strategic planning proposals near airports. This is additional to the ANEF contours, which remain the metric applied in Victoria for statutory planning purposes through the Airport Environs Overlay and Melbourne Airport Environs Overlay.

N contours provide a valuable strategic planning tool, particularly for assessing residential rezoning proposals near airports. The ANEF system has a number of limitations and experience has shown that aircraft noise is not confined to areas inside the ANEF contours, nor does the noise stop at a line on a map. In fact, most complaints relating to aircraft noise at Australian airports come from people who live outside the published ANEF contours (that is, outside the 20 ANEF contour)³.

NASF applies to all airports in Australia, not just major capital city or Defence airports. In accordance with Clause 18.04 of the SPPF, it is important that planning authorities consider NASF and undertake studies (such as this study) in order to be able to implement the NASF guidelines and adequately protect the future operation and development of airports.

It is noted that the Australian Airports Association (AAA) has produced a practice note titled *Planning Around Airports – Safeguarding for the Future*. The purpose of this practice note is to raise awareness of airport safeguarding issues within the planning profession, and assist town planners and planning authorities in understanding airports and how to safeguard their ongoing operation. It includes guidance on how to implement NASF. The AAA practice note can be accessed here: <https://www.airports.asn.au/public/policy-publication>.

3 Planning Policies and Controls

This section sets out the current planning policies and controls relating to the safeguarding of Ballarat Airport.

3.1 State Planning Policy Framework

The current Victorian planning policy framework contains significant policy and strategic support for the safeguarding the State's airports and airfields. The State Planning Policy Framework (SPPF) includes Clause 18.04 which sets out policies relating to:

- Melbourne Airport (Clause 18.04-1)
- Planning for Airports (Clause 18.04-2)
- Planning for Airfields (Clause 18.04-3)

The objective of clause 18.04-2, Planning for Airports, is:

To strengthen the role of Victoria's airports within the State's economic and transport infrastructure and protect their ongoing operation.

Clause 18.04-2 includes the following strategies:

Protect airports from incompatible land-uses.

³ *Safeguards for airports and the communities around them* – Discussion Paper, Department of Infrastructure, Transport, Regional Development and Local Government, June 2009.

Ensuring that in the planning of airports, land-use decisions are integrated, appropriate land-use buffers are in place and provision is made for associated businesses that service airports.

Ensuring the planning of airports identifies and encourages activities that complement the role of the airport and enables the operator to effectively develop the airport to be efficient and functional and contributes to the aviation needs of the State.

Under Clause 18.04-2 the National Airports Safeguarding Framework (NASF) is a policy guideline that planning **must** consider as relevant (introduced via Amendment VC128, October 2015). This includes N contours which are a central component of NASF Guideline A as discussed earlier in section 2.3 of this report. N contours have previously been prepared for Ballarat Airport in 2010 (refer section 4.2) and new N contours have been prepared as part of this study (refer section 6.2).

The objective of clause 18.04-3, Planning for Airfields, is:

To facilitate the siting of airfields and extensions to airfields, restrict incompatible land use and development in the vicinity of airfields, and recognise and strengthen the role of airfields as focal points within the State's economic and transport infrastructure.

Clause 18.04-3 includes the following strategies:

Plan for areas around all airfields such that:

- *Any new use or development which could prejudice the safety or efficiency of an airfield is precluded.*
- *The detrimental effects of aircraft operations (such as noise) is taken into account in regulating and restricting the use and development of affected land.*
- *Any new use or development which could prejudice future extensions to an existing airfield or aeronautical operations in accordance with an approved strategy or master plan for that airfield is precluded.*

3.2 Municipal Strategic Statement

The Ballarat Municipal Strategic Statement (MSS) includes the following statements relating to Ballarat Airport.

In Clause 21.08-2: Ballarat Airfield, the MSS states:

Ballarat Airfield is an important asset for a growing City and region. The recreational and charter use of the airfield will be maintained with special emphasis placed on promoting the complex's strategic function for police, ambulance and other emergency agencies. The encroachment of land uses and forms of development which could restrict the future use of the Airfield will be prevented. Upgrading the Airfield's main runway has the potential to enhance Ballarat as a tourism destination. A runway with the capacity to take 12,000kg aircraft would enable the airfield to receive small, regular public transport aircraft seating 30 passengers.

Objective 6

To provide for the continued operation and future upgrade of the Ballarat Airfield.

Strategies

- 6.1 *Encourage the use of airfield land for airfield compatible purposes.*

- 6.2 *Discourage the use and development of airfield and surrounding land for purposes that would have a negative impact on the airfield's operation.*
- 6.3 *Discourage the establishment of residential and other sensitive uses on land under airfield flight paths.*

In Clause 21.09-5: Miners Rest, the MSS states:

Miners Rest is an important township to the north of the Ballarat, separated from the main urban area by the Western Freeway. The area has significant constraints on development such as flood prone land and airport flight paths.

Strategy 7 Ensure that there is no development under the Obstacle Limitation Surface (OLS) of the Ballarat airport 18/36 runway.

3.3 Planning Controls

There are three planning controls in the Ballarat Planning Scheme (BPS) specifically relating to the safeguarding of Ballarat Airport.

The BPS currently includes a Special Use Zone (SUZ6), Airport Environs Overlays (AEO1 and AEO2) as well as Design and Development Overlays (DDO17 and DDO18) which help protect the airport. There is also a Development Plan Overlay (DPO10) relating to the Ballarat West Employment Zone which is adjacent to the airport site.

3.3.1 Special Use Zone

Special Use Zone – Schedule 6: Ballarat Airfield (SUZ6) applies to the airport site. The purpose of this zone is:

To provide for the use of land for the purpose of an airport and complementary uses.

Within this zone, 'airport' and 'heliport' are section 1, permit not required, uses.

3.3.2 Airport Environs Overlay

The Airport Environs Overlay (AEO) is a standard overlay in the Victoria Planning Provisions designed specifically for implementing an airport's ANEF and the land use recommendations of *Australian Standard AS2021-2015: Acoustics – Aircraft Noise Intrusion – Building Siting and Construction* (AS2021). The AEO has two schedules. Schedule 1 is the more restrictive and is applied to land inside the ANEF 25 contour. Schedule 2 is applied to land between the ANEF 20 and 25 contours.

Currently, the AEO incorporated in the BPS is based on an ANEF prepared in 2004 which included a 400m extension to the southern end of Runway 18/36. It is noted that this extension has not occurred and Runway 18/36 remains 1245m long today.

The boundaries of the AEO are shown in Figure 2.

3.3.3 Design and Development Overlay

There is no standard planning scheme mechanism in the Victoria Planning Provisions that specifically enables the height of structures that may impact on aircraft operations to be considered or controlled. In the absence of a standard overlay, several airports, including Ballarat Airport, have Design and Development Overlays (DDO) as a form of airspace protection.

Currently the BPS incorporates DDO Schedules 17 and 18 which require a permit to construct a building or construct or carry out works for heights that exceed 5 and 15 metres in building height respectively.

It is important to note that the existing DDO schedules in the planning scheme are based on an OLS chart which uses the existing runway lengths as the origin of the surfaces (ie. no extension to Runway 18/36). This is an important consideration for safeguarding the future development of the airport if it is intended that one or more of the runways will be extended in the future.

The boundaries of the two DDOs are shown in Figure 3.

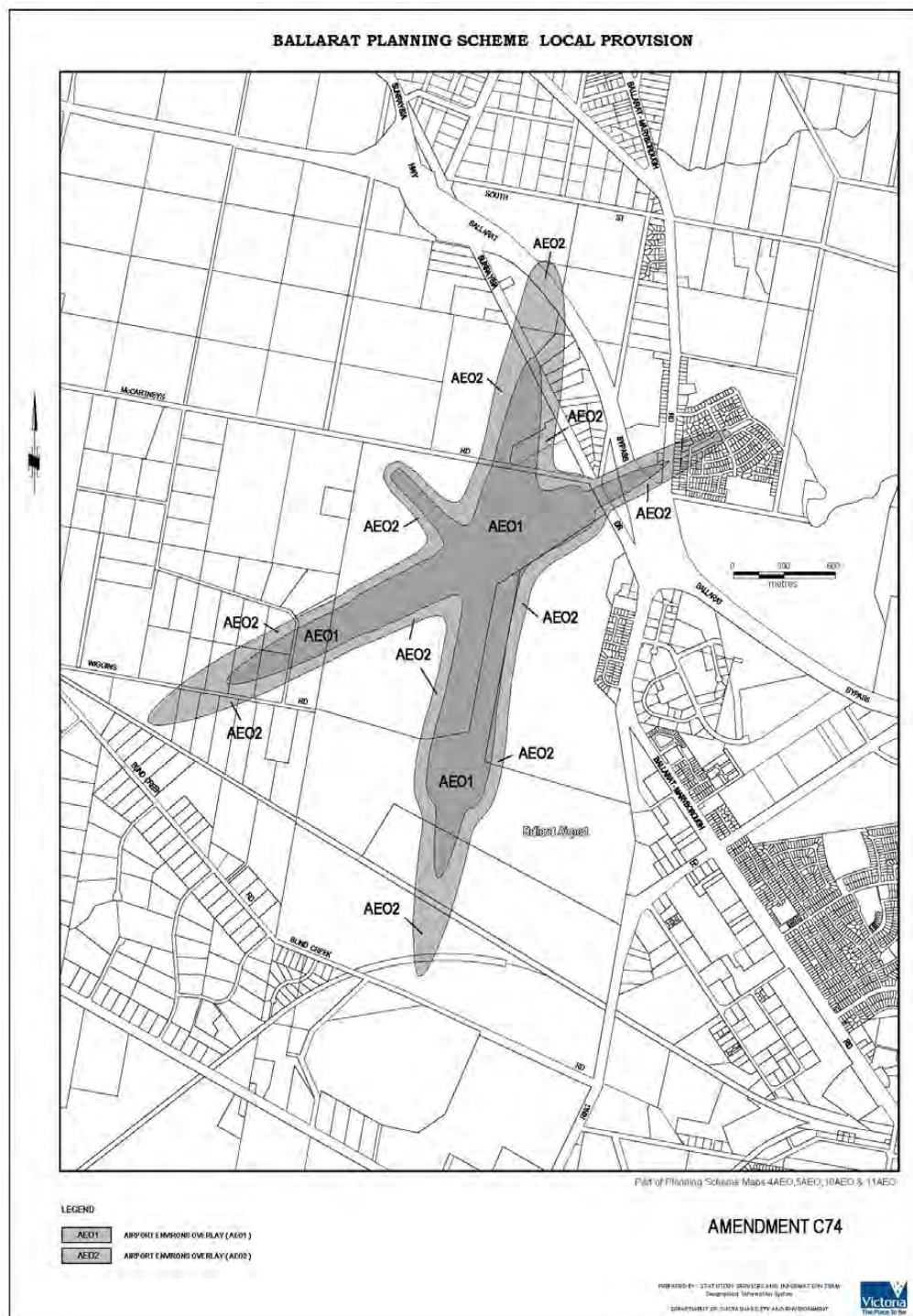


Figure 2: Current Airport Environs Overlays

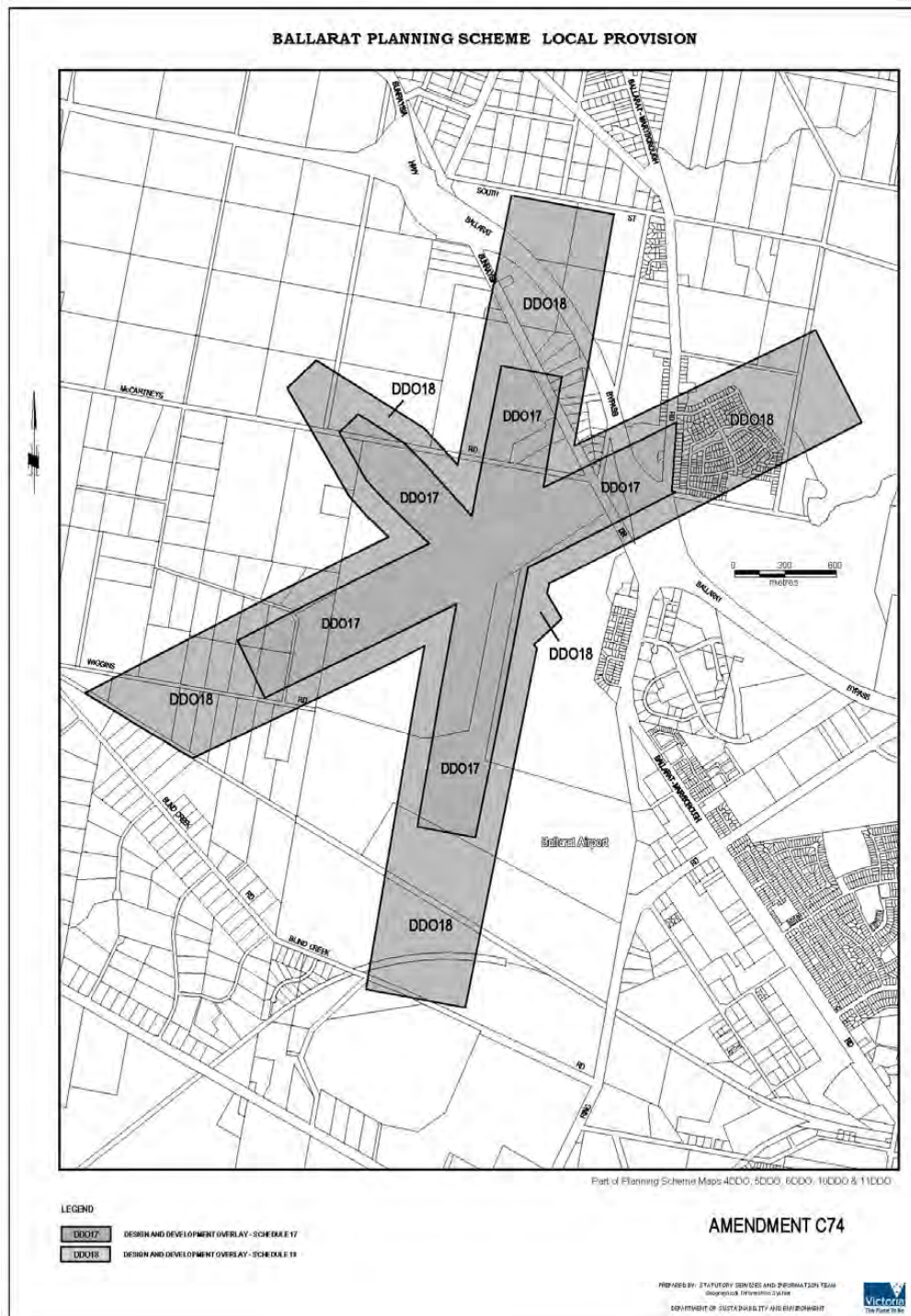


Figure 3: Current Design and Development Overlays

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, L_Amax⁴ and N contours for the airport based on a 20 year forecast of aircraft movements (46,254 movements⁵ 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.

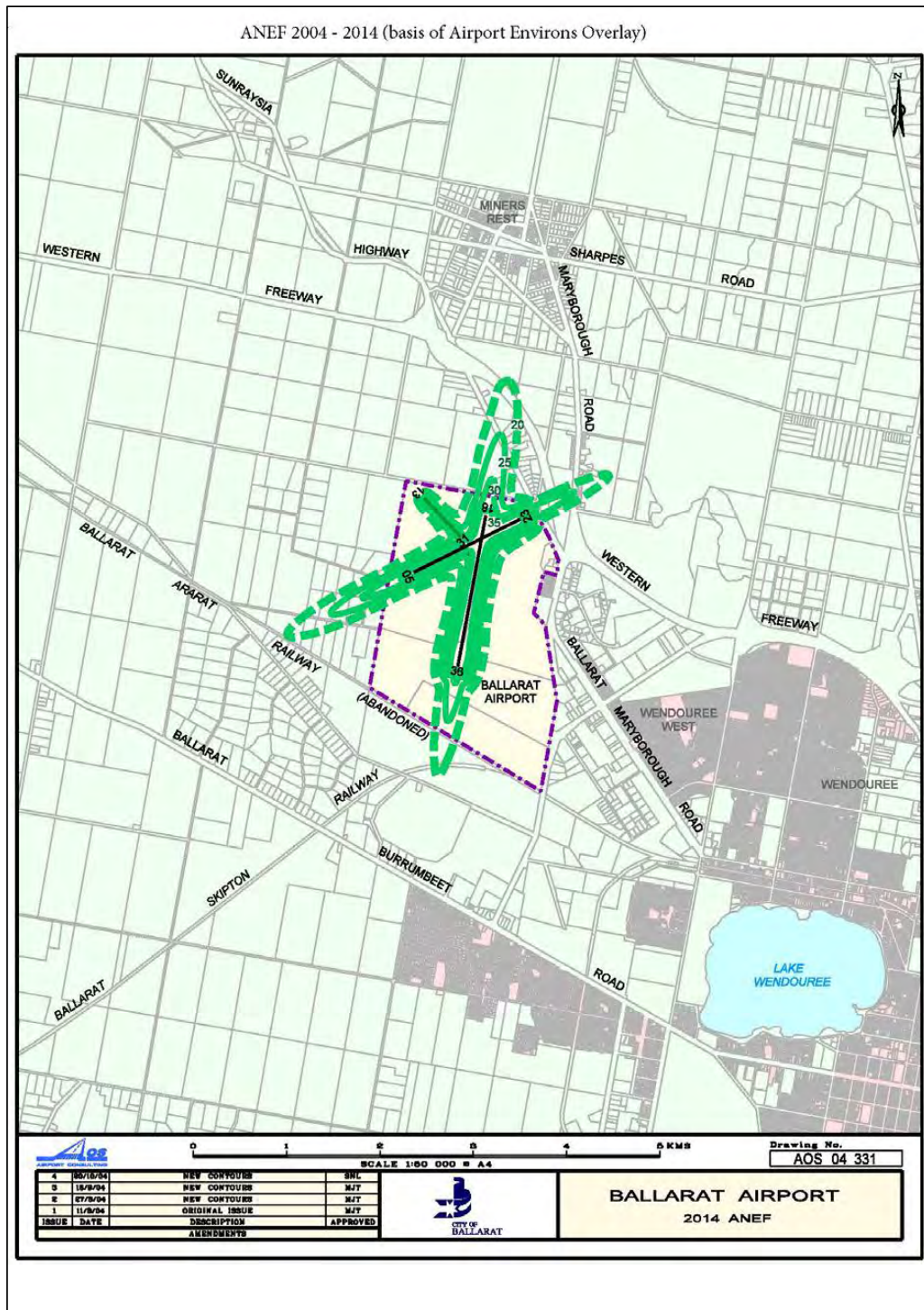


Figure 4: 2004 ANEF (2014 Forecast)



Figure 5: 2010 ANEF (2030 Forecast)

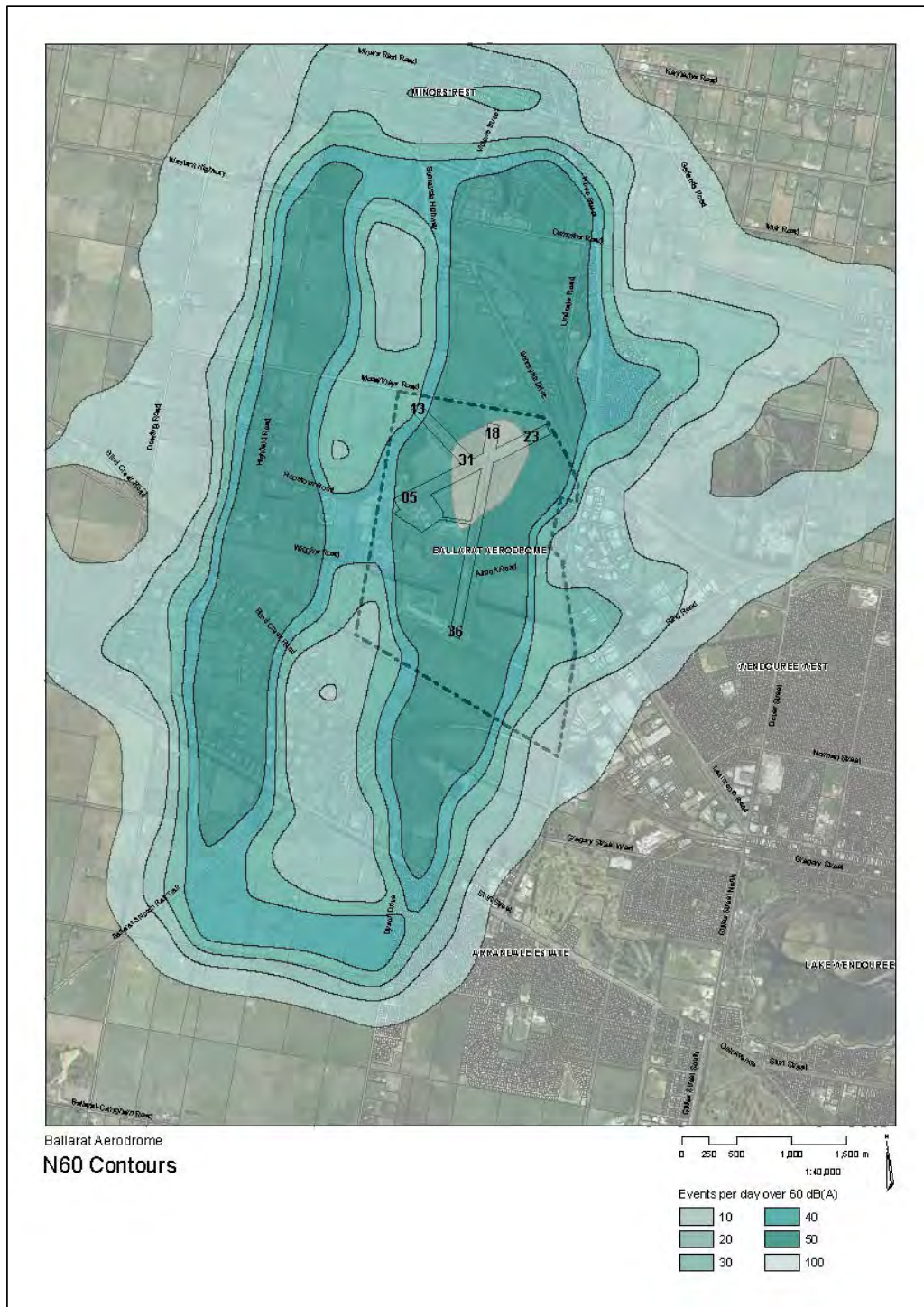


Figure 6: 2010 N60 Contours (2030 Forecast)

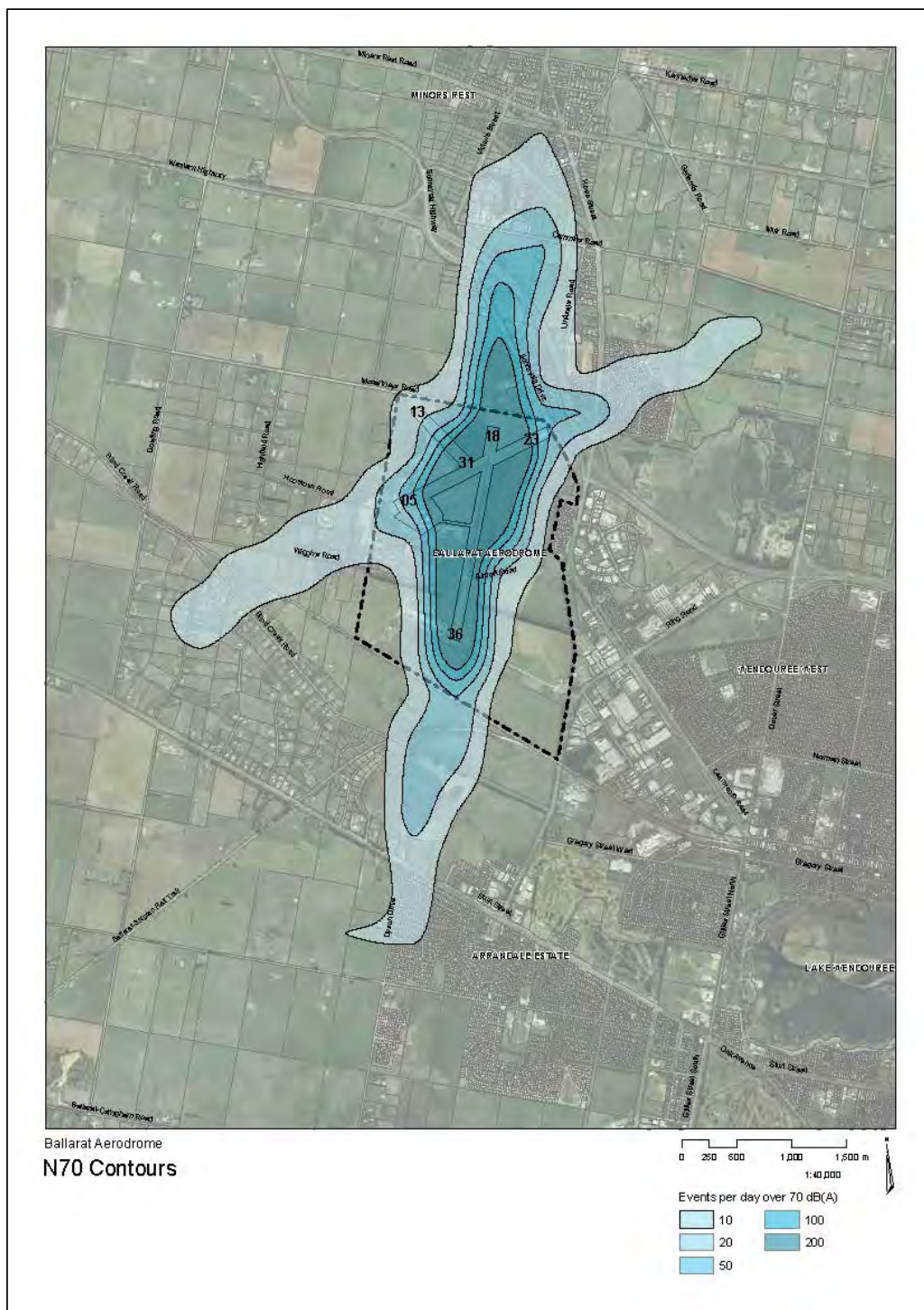


Figure 7: 2010 N70 Contours (2030 Forecast)

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.

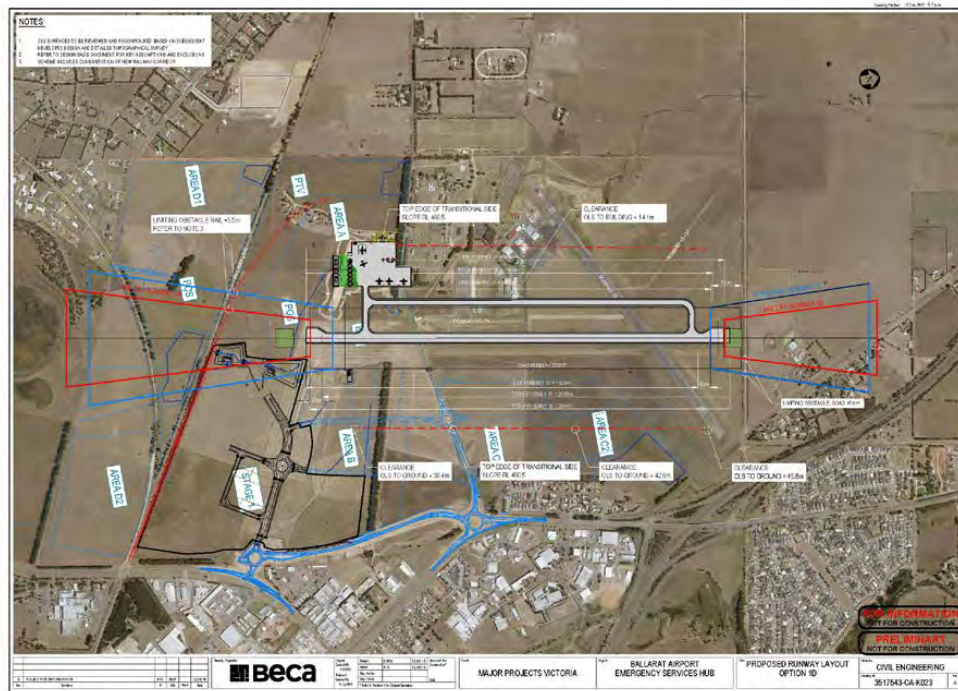


Figure 8: AESH Runway 18/36 Option 1D

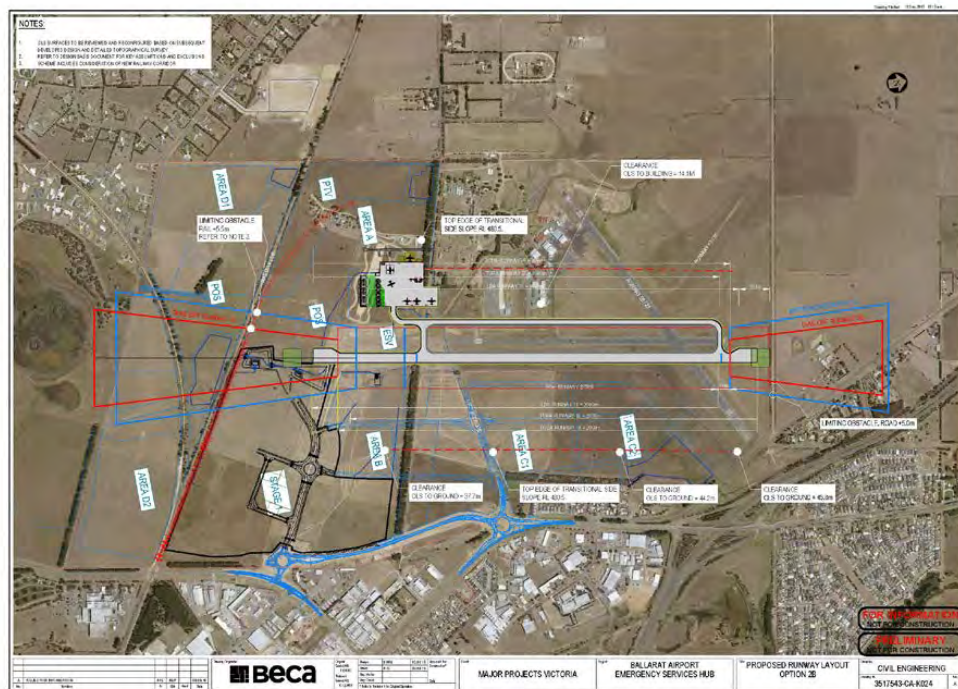


Figure 9: AESH Runway 18/36 Option 2B

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.

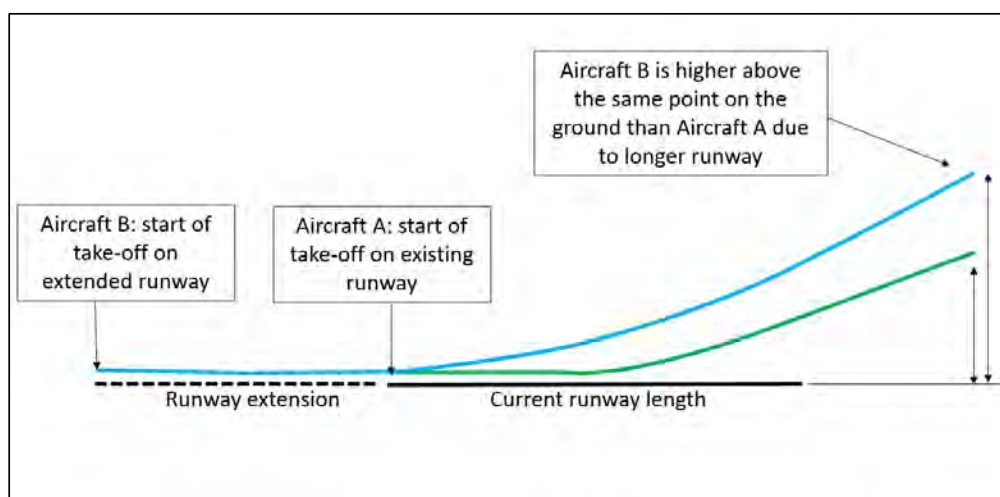


Figure 10: Effect of Runway Extension on Take-offs

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.

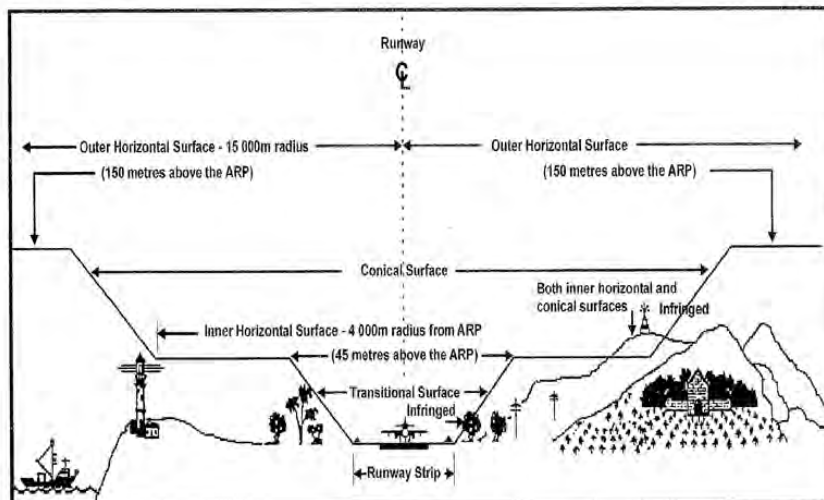
In addition, the current DDOs do not protect the OLS Inner Horizontal Surface. The Inner Horizontal Surface is the flat surface located between the inner most sloping surfaces and the conical surface (see Figure 10 below). Whilst the inner most approach, take-off and transitional surfaces are the most 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 do 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.

Cross section of OLS



Isometric view of OLS

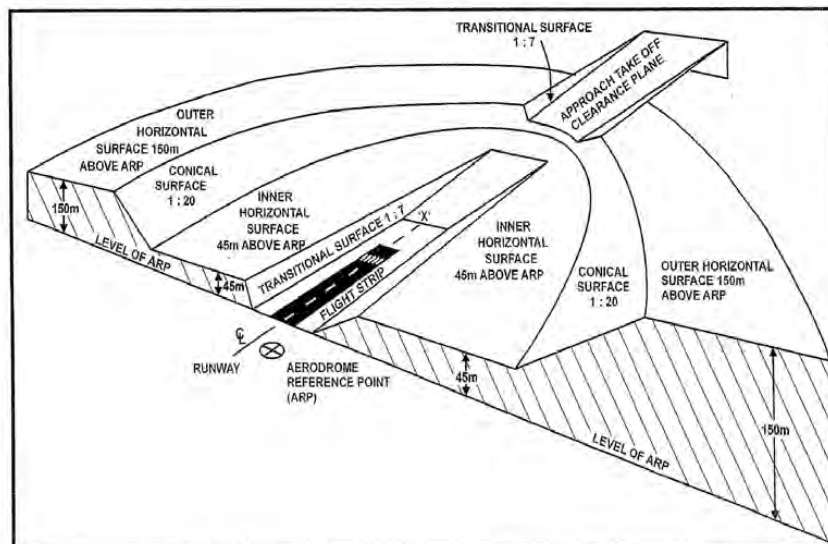


Figure 11: Typical Cross Section and Isometric View of OLS (Source: NASF)

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 sensitive 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 uncertainties 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 incompatible 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 initiatives by the State Government in relation to NASF and its implementation in the Victorian planning system.

Appendix 1

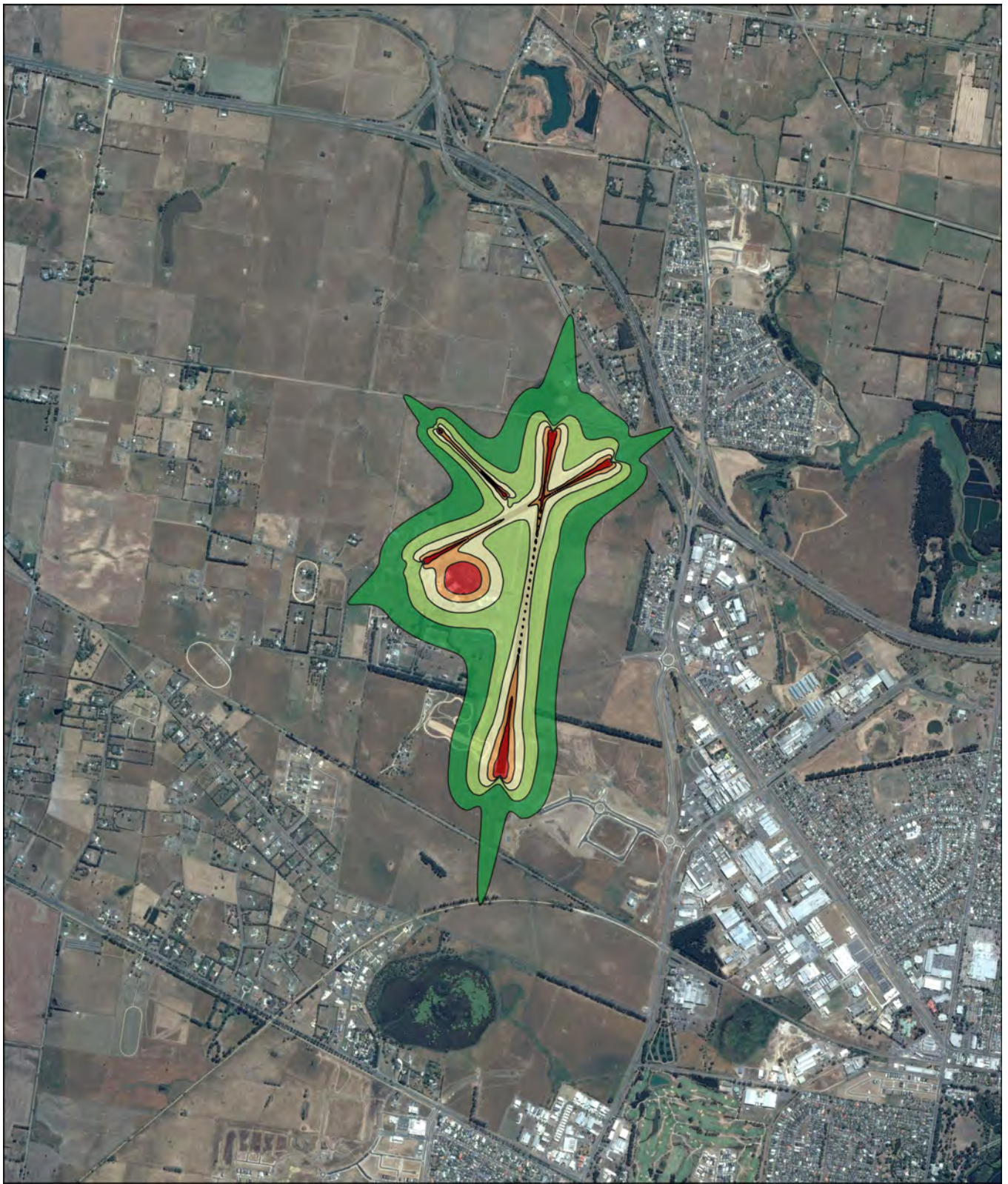
ANEC/F Contours:

Option 1D

Option 2B

Options 1D & 2B Combined

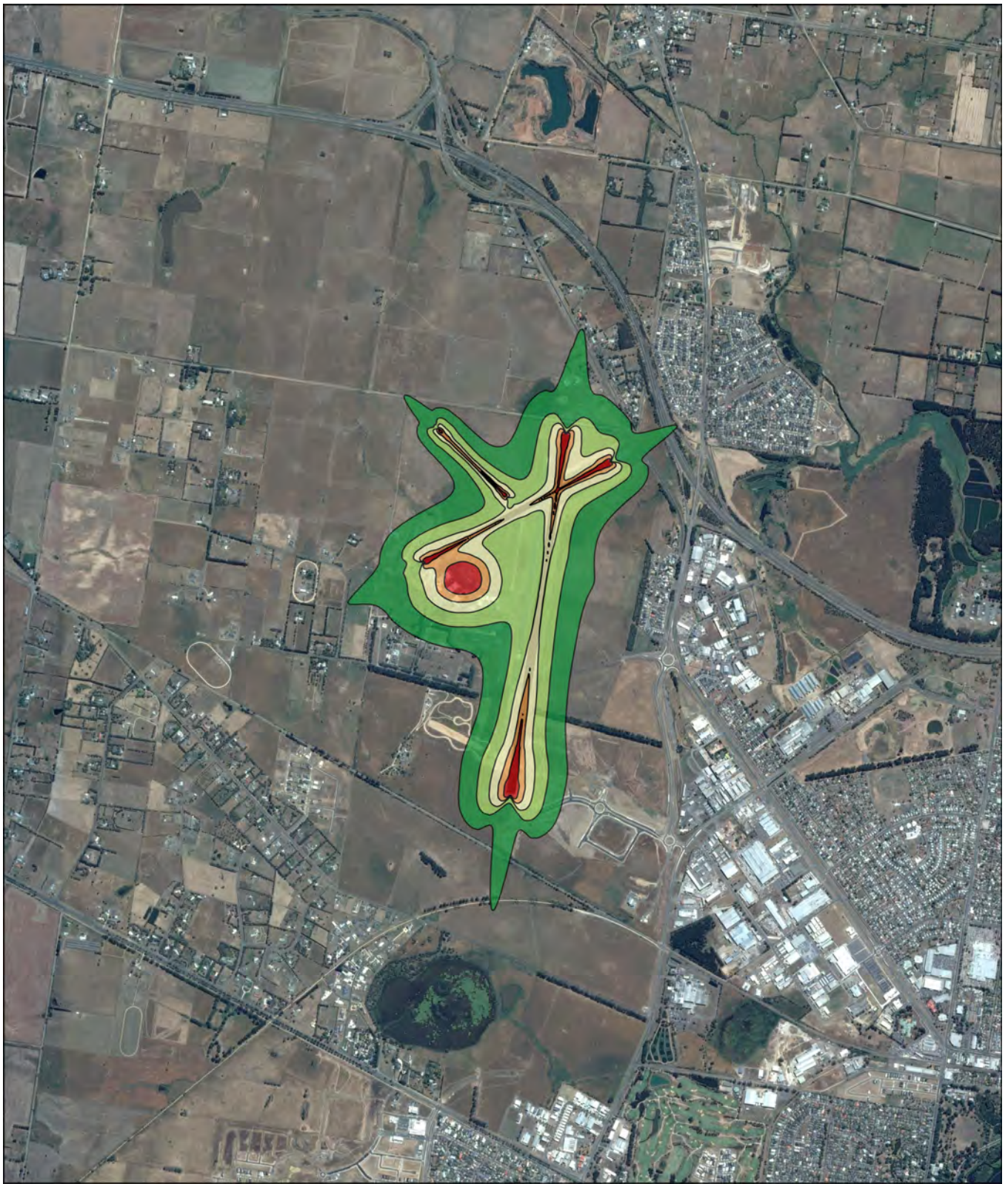
ANEF and AEO Comparison



Ballarat Aerodrome
ANEF Option 1D

0 500 1000 1500 2000 m

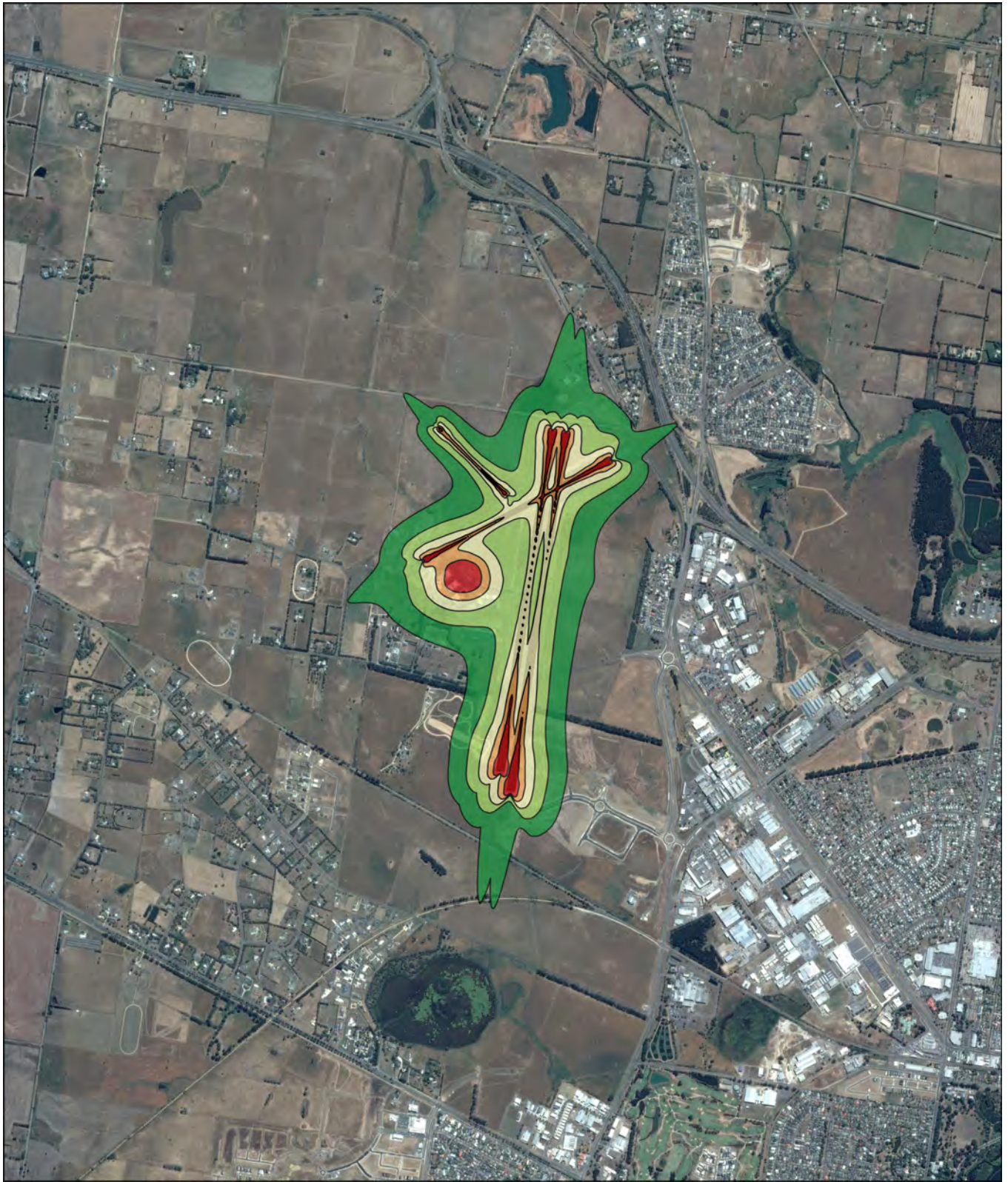




Ballarat Aerodrome
ANEF Option 2B

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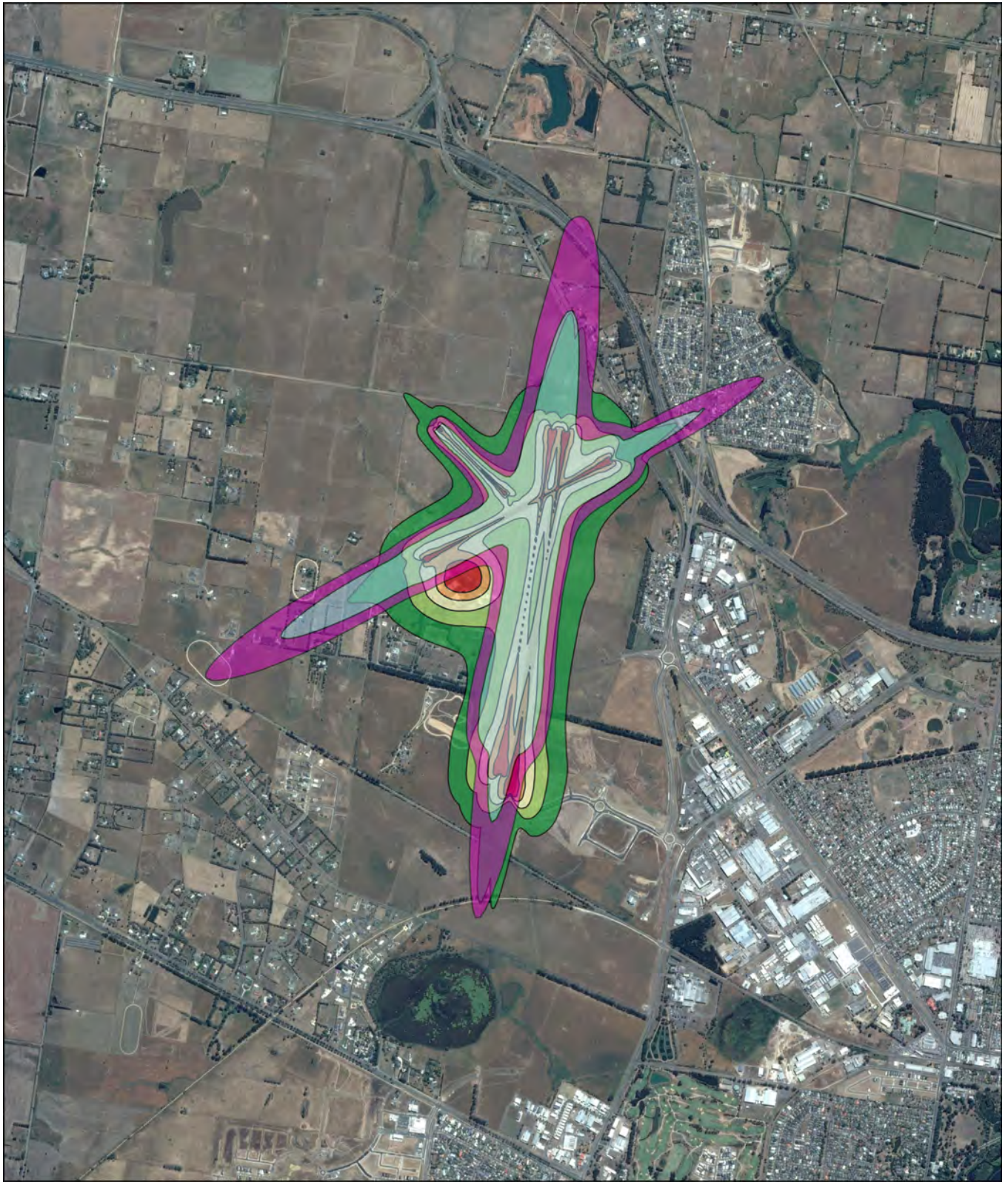




Ballarat Aerodrome
ANEF Merged (Option 1D & 2B)

0 500 1000 1500 2000 m





Ballarat Aerodrome
ANEF Merged & Existing AEO

0 500 1000 1500 2000 m



- | | | |
|---------------|---------|---------|
| Existing AEO1 | ANEF 25 | ANEF 40 |
| Existing AEO2 | ANEF 30 | |
| ANEF 20 | ANEF 35 | |

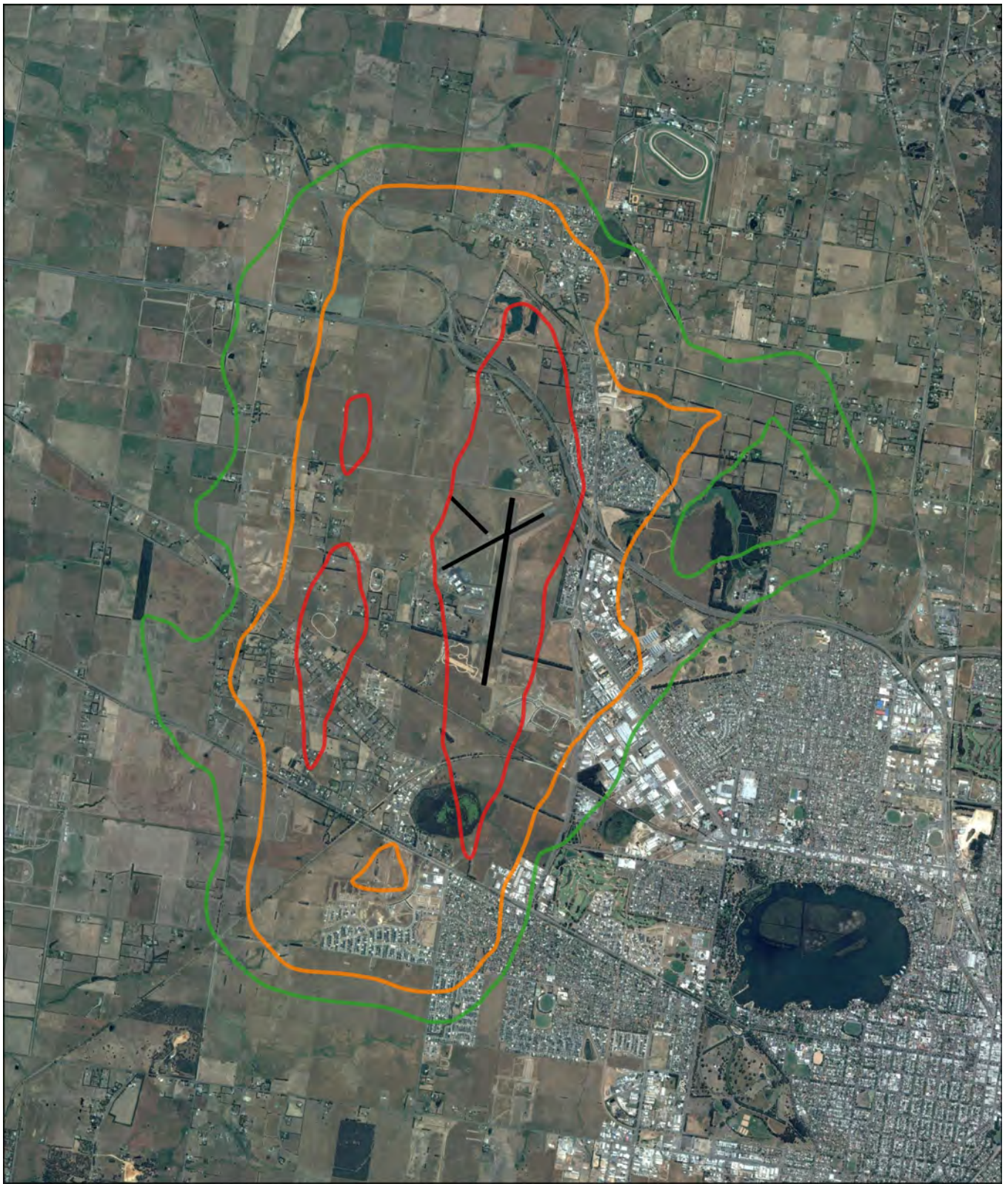
Appendix 2

N60 Noise Contours:

Option 1D

Option 2B

Options 1D & 2B Combined



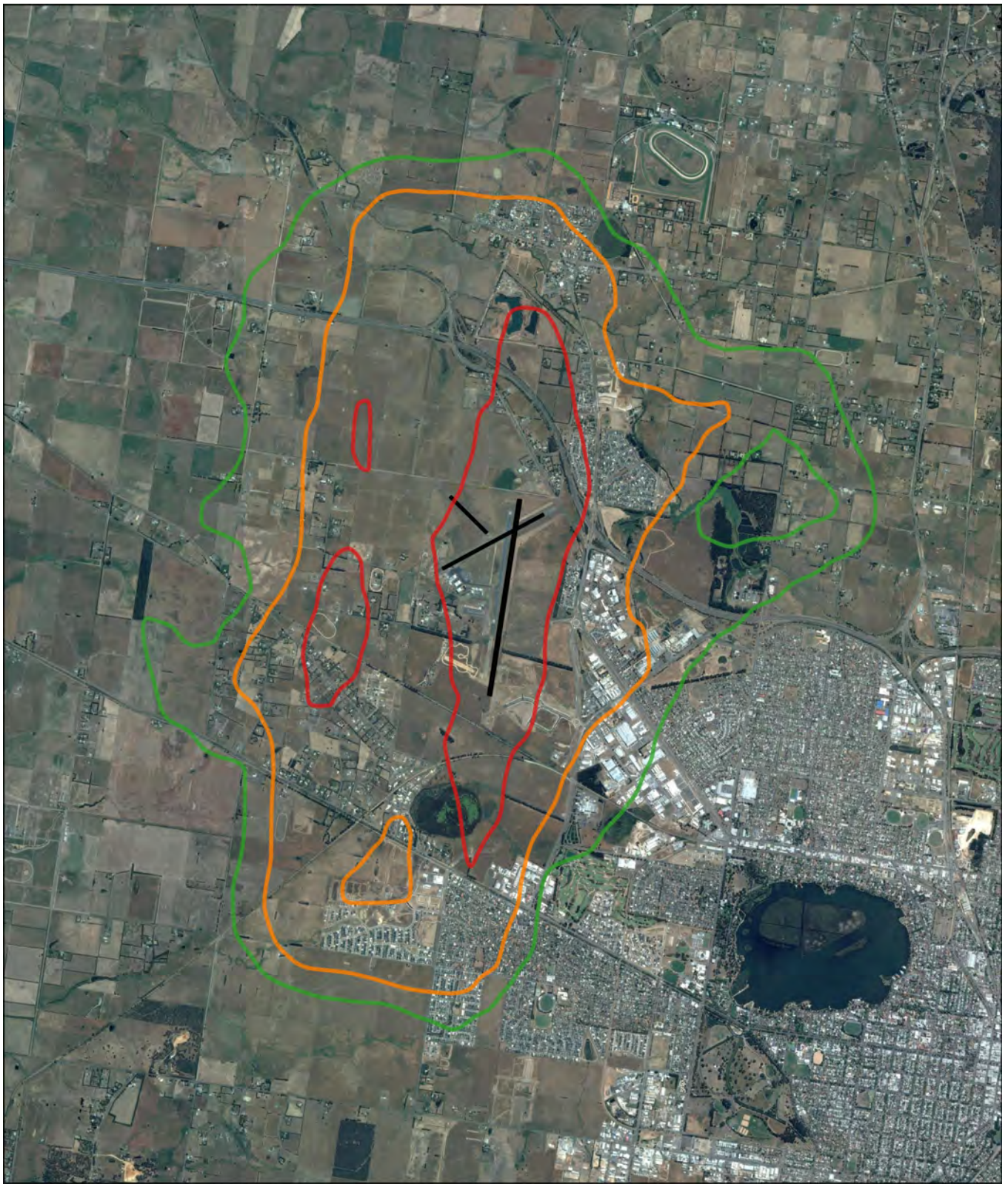
Ballarat Aerodrome
N60 - Option 1D

0 1000 2000 m



10 50
20





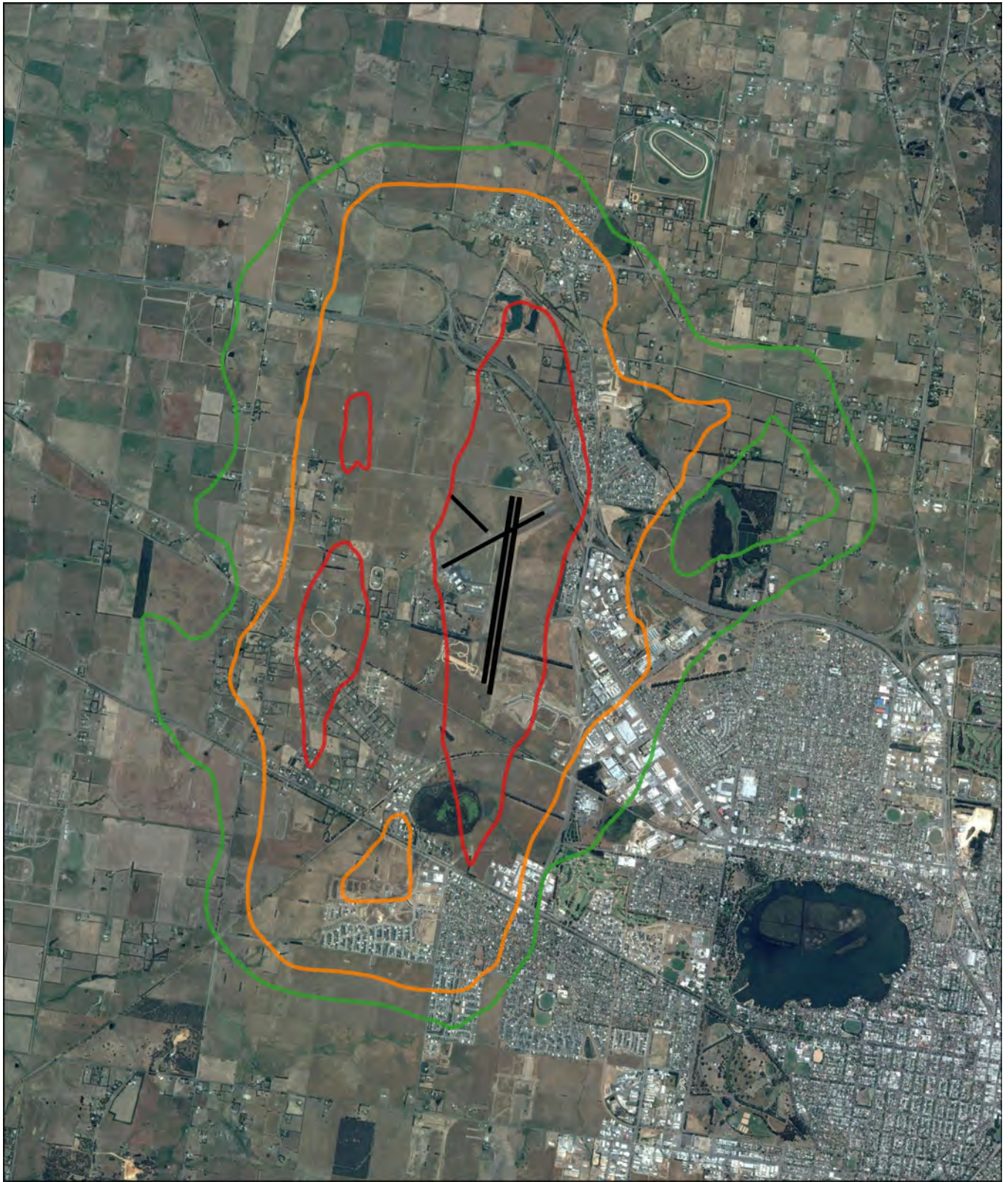
Ballarat Aerodrome
N60 - Option 2B

0 1000 2000 m



10 50
20





Ballarat Aerodrome
N60 - Merged (Option 1D & 2B)

0 1000 2000 m



10 50
20



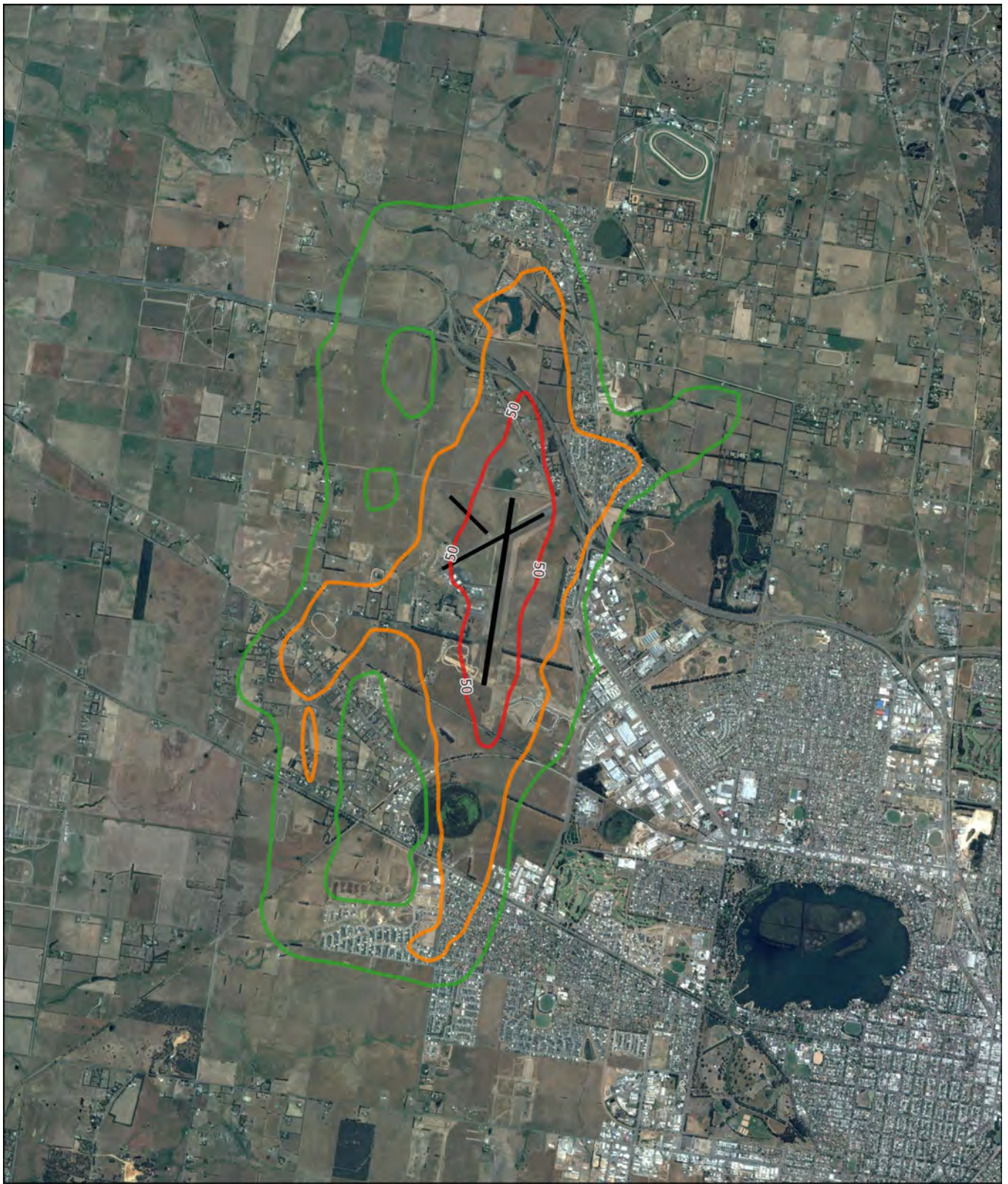
Appendix 3

N65 Noise Contours:

Option 1D

Option 2B

Options 1D & 2B Combined



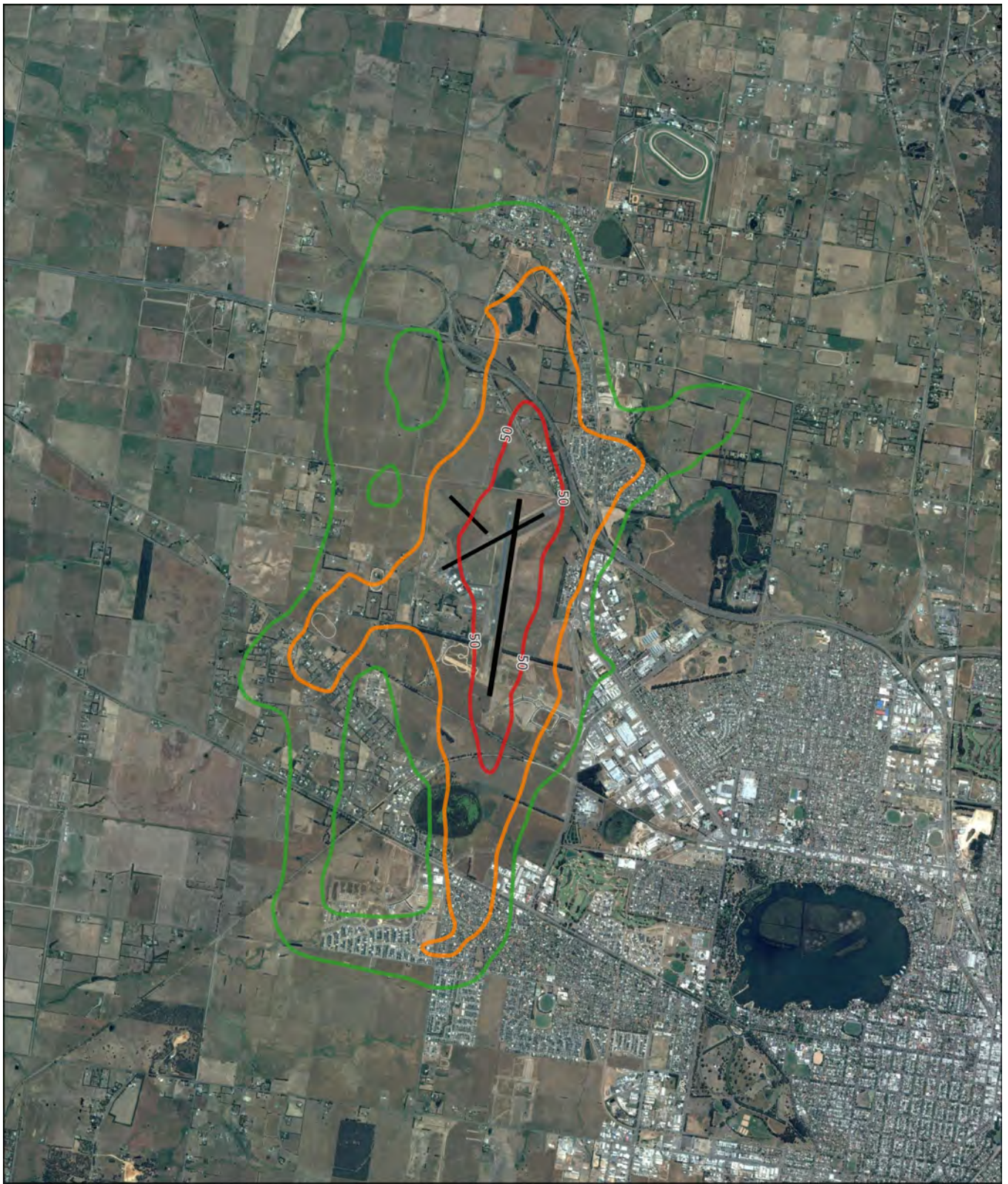
Ballarat Aerodrome
N65 - Option 1D

0 1000 2000 m



10 50
20





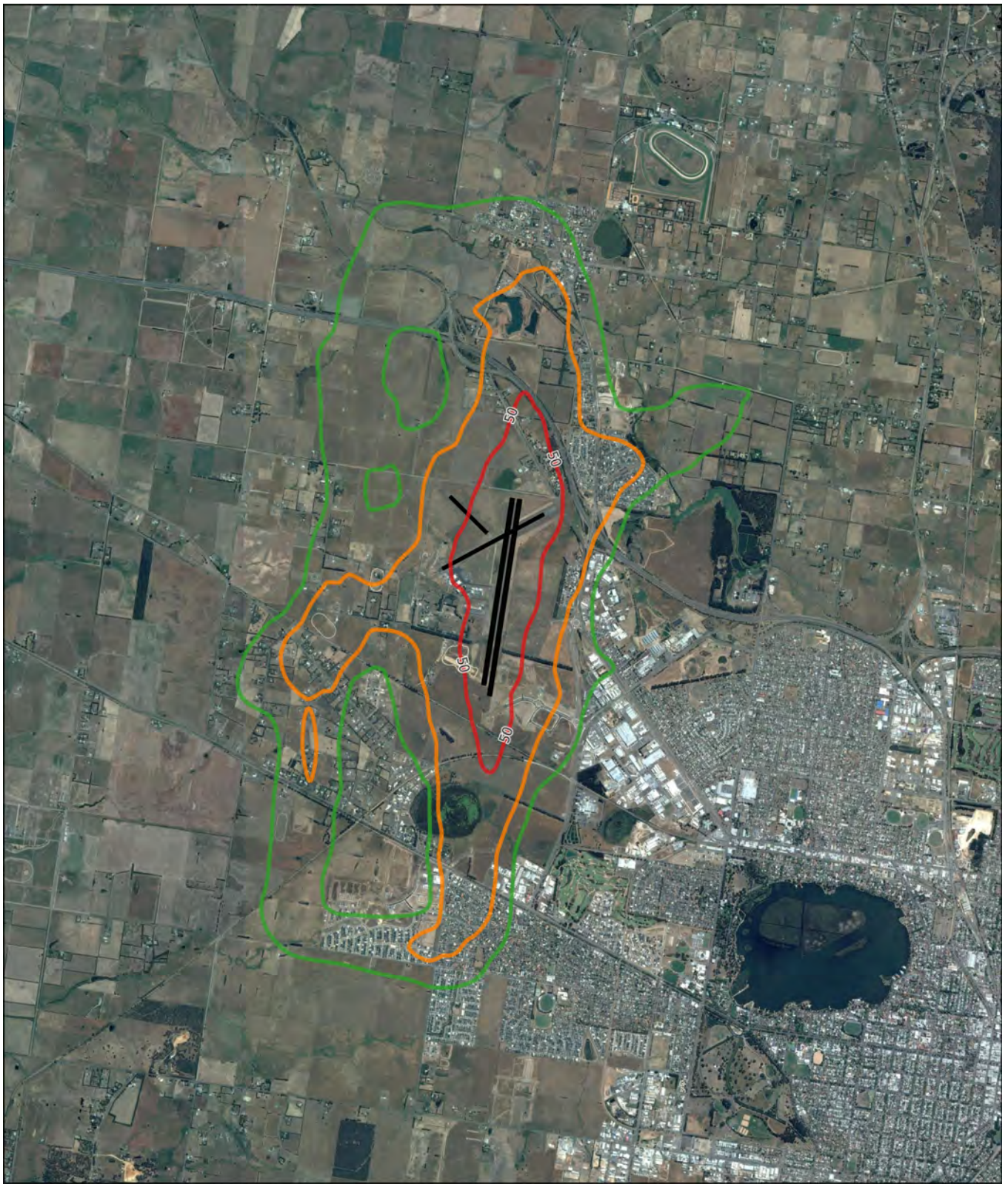
Ballarat Aerodrome
N65 - Option 2B

0 1000 2000 m



10 50
20





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

0 1000 2000 m



10 50
20



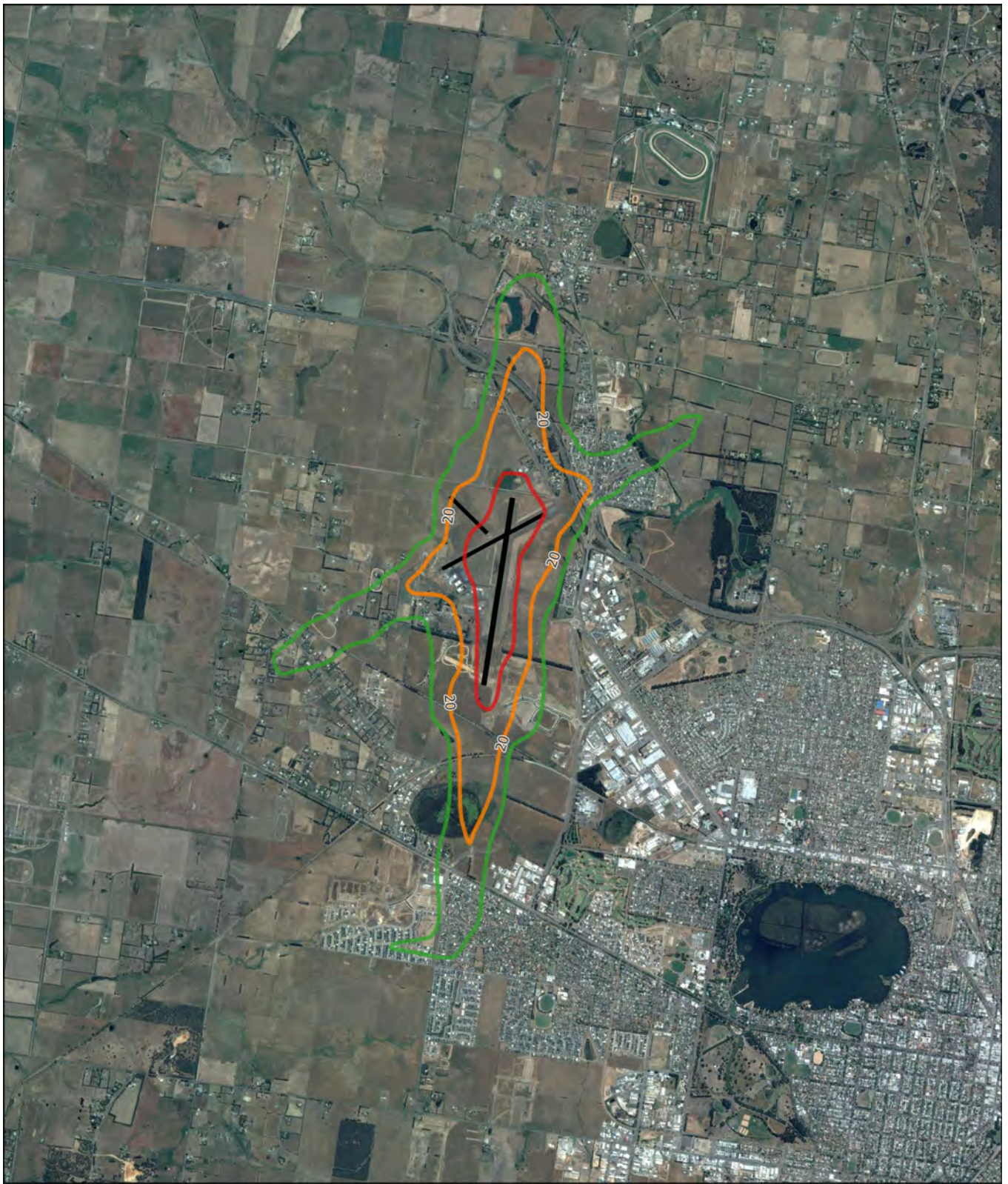
Appendix 4

N70 Noise Contours:

Option 1D

Option 2B

Options 1D & 2B Combined



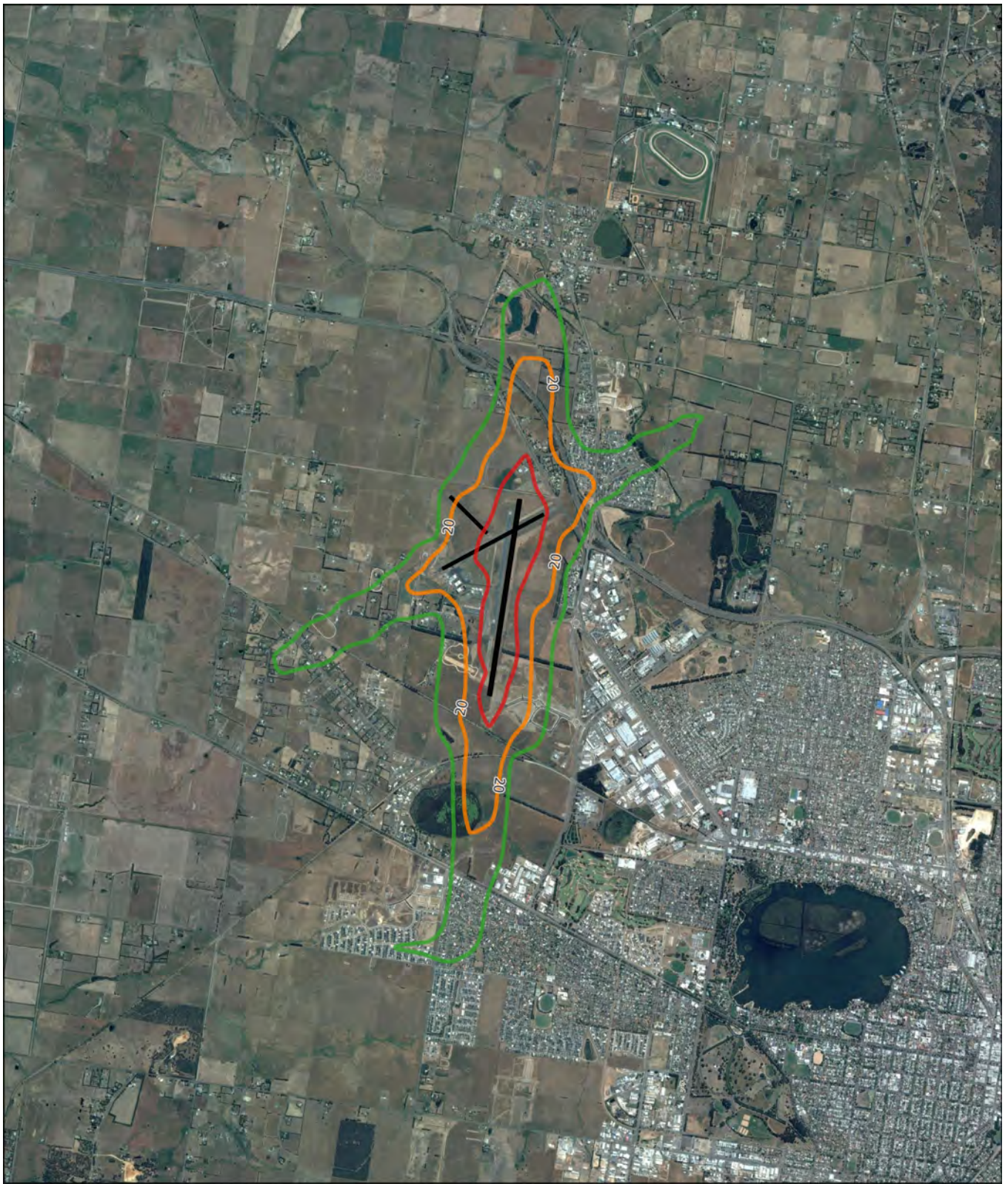
Ballarat Aerodrome
N70 - Option 1D

0 1000 2000 m



10 50
20





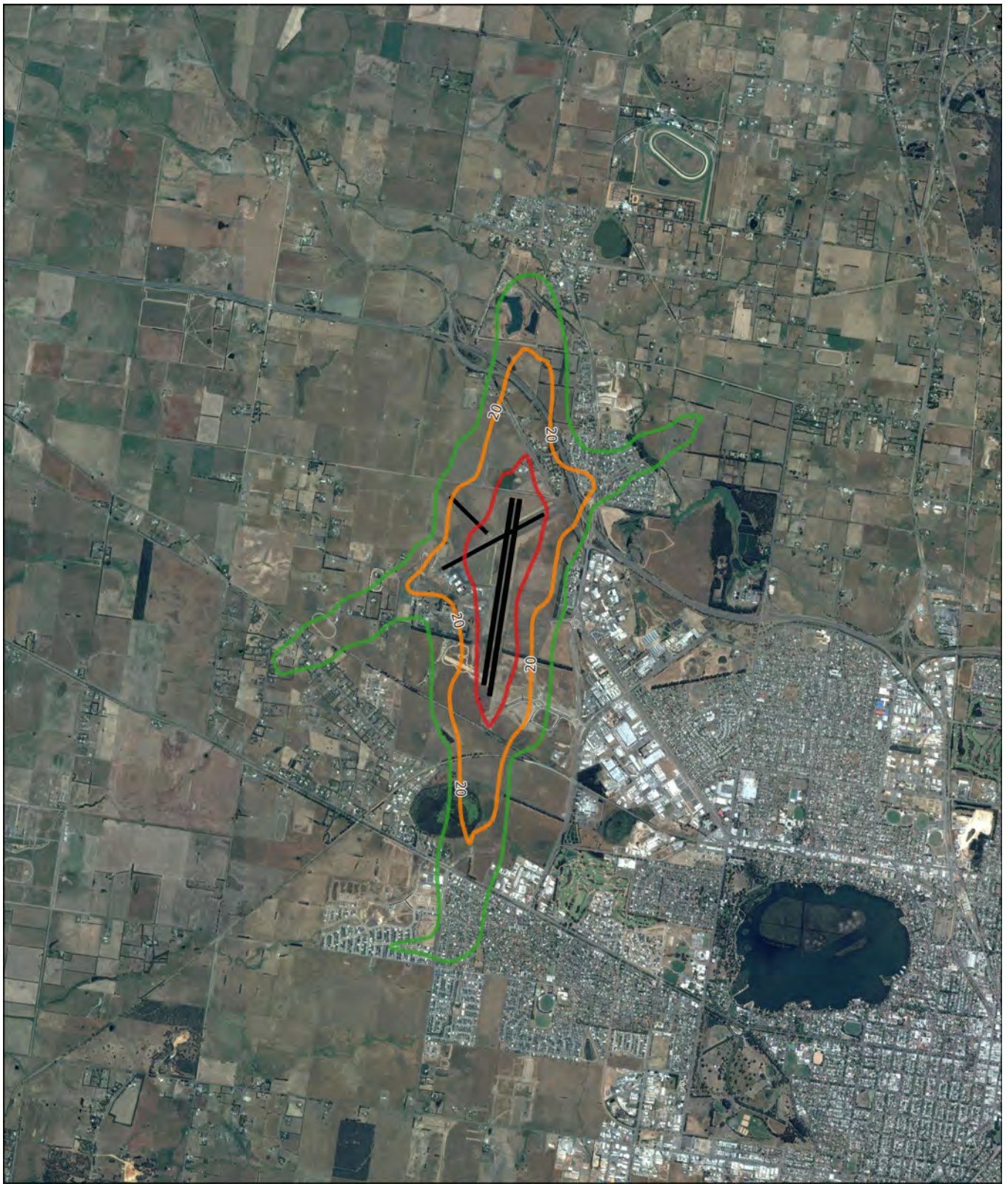
Ballarat Aerodrome
N70 - Option 2B

0 1000 2000 m



10 50
20





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

0 1000 2000 m



10 50
20



Appendix 5

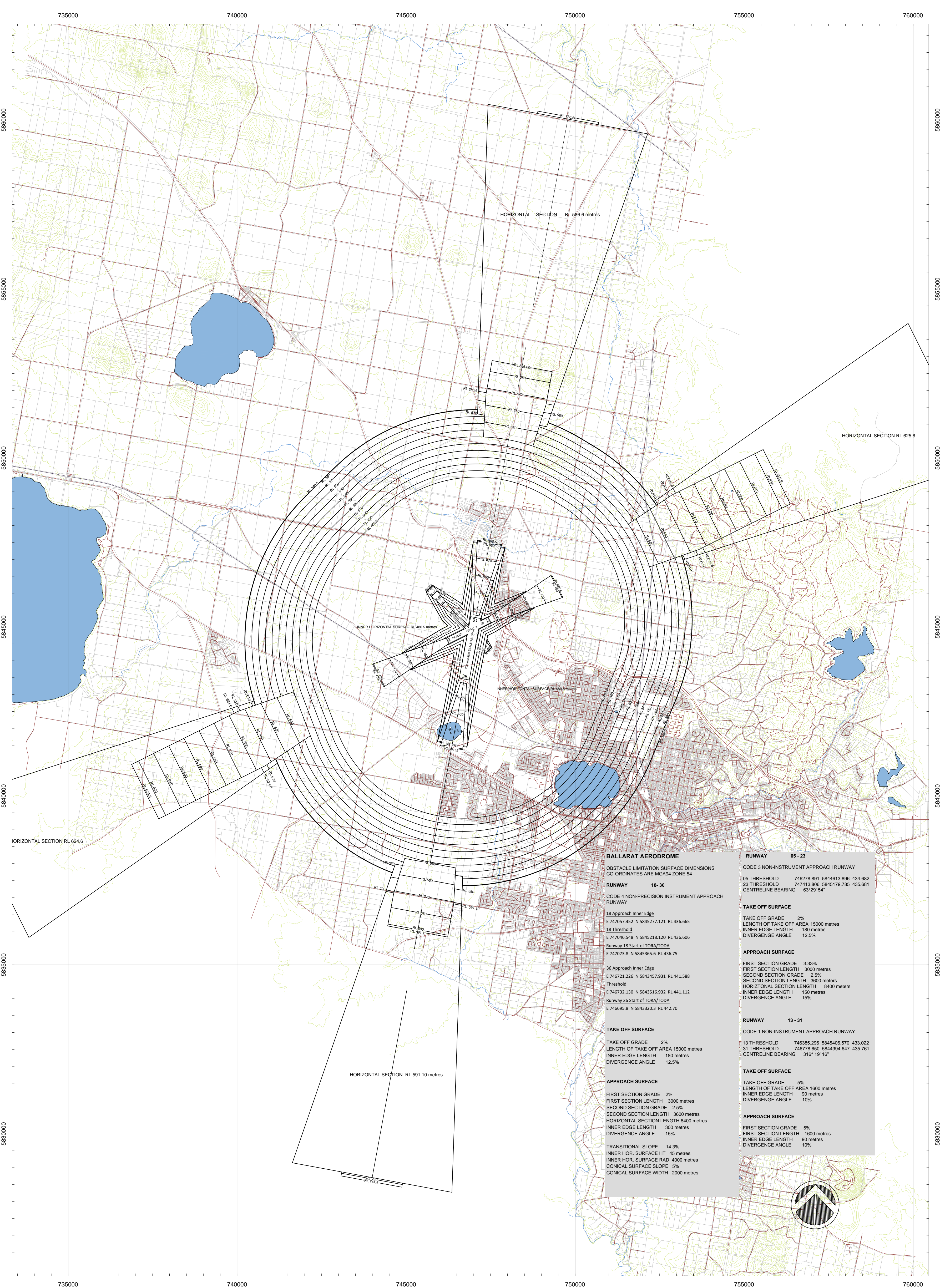
Obstacle Limitation Surfaces:

Option 1D

Option 2B

Options 1D & 2B Combined

DDO and OLS Comparison



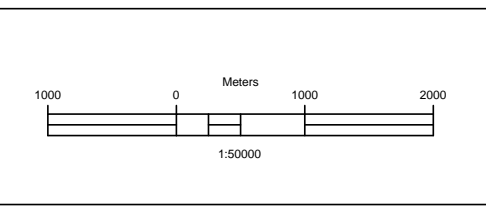
DRAWN	B FITZGERALD
DATE	18/04/2018
SURVEYED	
DATE	
APPROVED	
DRAWING No.	RL1010 Sheet 1 of 1 Sheets

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

**BALLARAT
AERODROME**

**AIRPORT SURVEYS**
0409 230 650
paul@airport-surveys.com.au

**OBSTACLE LIMITATION
SURFACES - OPTION 1D**



AMENDMENTS		
DATE	REVISION	DESCRIPTION

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
DIVERGENCE 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 5845170.785 435.681
CENTRELINE BEARING 63°29' 54"

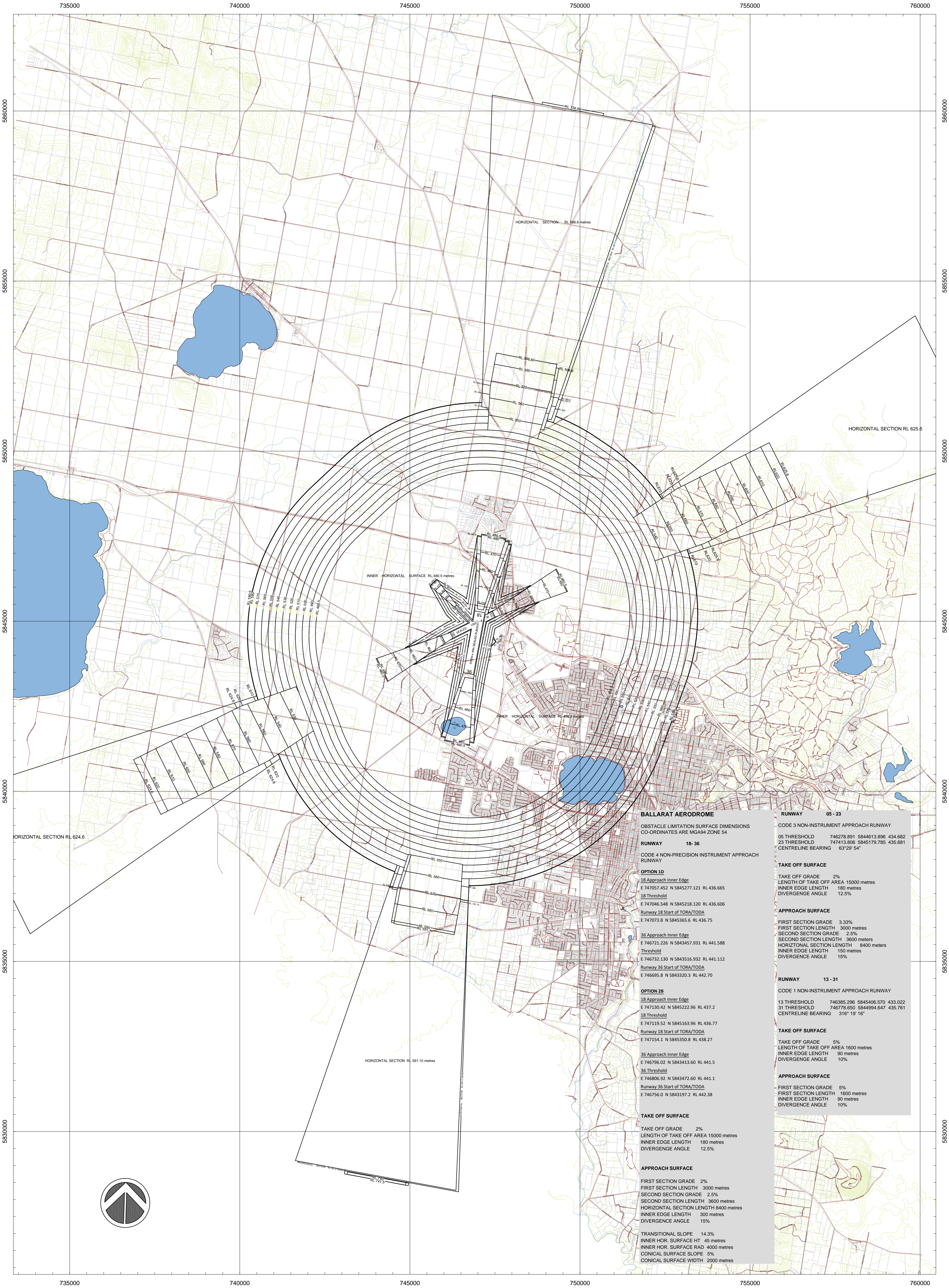
TAKE OFF SURFACE
TAKE OFF GRADE 2%
LENGTH OF TAKE OFF AREA 15000 metres
INNER EDGE LENGTH 180 metres
DIVERGENCE ANGLE 12.5%

APPROACH SURFACE
FIRST SECTION GRADE 3.33%
FIRST SECTION LENGTH 3000 metres
SECOND SECTION GRADE 2.5%
SECOND SECTION LENGTH 3600 metres
HORIZONTAL SECTION LENGTH 8400 metres
INNER EDGE LENGTH 150 metres
DIVERGENCE ANGLE 15%

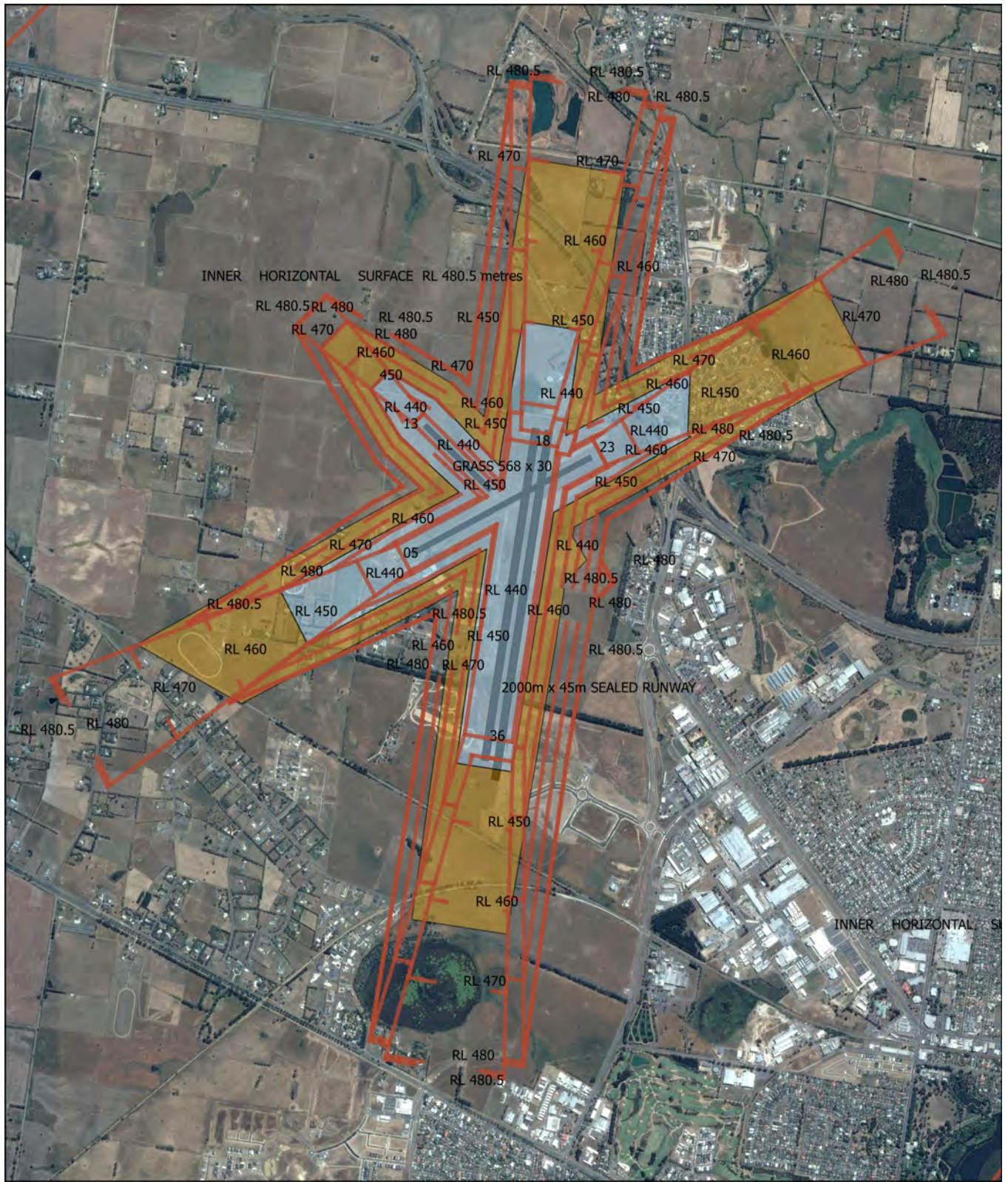
RUNWAY 13-31
CODE 1 NON-INSTRUMENT APPROACH RUNWAY
13 THRESHOLD 746385.296 5845406.570 433.022
31 THRESHOLD 746778.650 5844994.647 435.761
CENTRELINE BEARING 31°1' 10"

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

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



<div>DRAWN: BLT/22GERALD</div> <div>DATE: 15/04/2018</div> <div>SURVEYED:</div> <div>DATE:</div> <div>ARCHIVED:</div> <div>DRAWING No: BLT012</div> <div>Sheet 1 of 1 Sheets</div>		<div>NOTE:</div> <div>-LEVELS ARE TO AUSTRALIAN HEIGHT DATUM (AHD)</div> <div>-CO-ORDINATES ARE MGA94 ZONE 54</div> <div>-DUE TO THE VARIABLE NATURE OF THE TRANSITIONAL SURFACE OBJECTS LOCATED WITHIN IT SHOULD BE CHECKED BY GROUND SURVEY FOR CLEARANCE</div>		<div>CLIENT:</div> <div><div>BALLARAT AERODROME</div></div>		<div>PROJECT:</div> <div><div>AIRPORT SURVEYS</div><div>0409 230 650</div><div>paull@airportsurveys.com.au</div></div>		<div><div>OBSTACLE LIMITATION SURFACES - OPTION 1D & 2B COMBINED</div><div><div><div>1000</div><div>0</div><div>Meters</div><div>1000</div><div>2000</div></div><div>1:50000</div></div></div>		<div>AMENDMENTS</div> <table><thead><tr><th>DATE</th><th>AMENDMENT</th><th>SHEETED</th></tr></thead><tbody><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></tbody></table>			DATE	AMENDMENT	SHEETED						
DATE	AMENDMENT	SHEETED																			



Ballarat Aerodrome DDO & OLS

0 500 1000 1500 2000 m



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





17.088.01 • June 2018

Ballarat Aerodrome Noise Modelling Report

City of Ballarat

Aviation Consultants



Ballarat Aerodrome Noise Modelling Report
Report

Report
Prepared for City of Ballarat

To70 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.....	4
1.1	Background.....	4
1.2	Scope and deliverables	4
2	Inputs and assumptions	5
2.1	General settings	5
	Weather	5
	Aerodrome Reference Point (ARP).....	5
	Runway and Helipad Coordinates.....	6
	Helipad	6
2.2	Traffic	7
	Aircraft mix and INM representatives	7
	Forecasts	8
	Usage splits	8
	Day and Night operations	10
	Tracks and usage	11
3	Results.....	15
3.1	ANEC Results	15

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

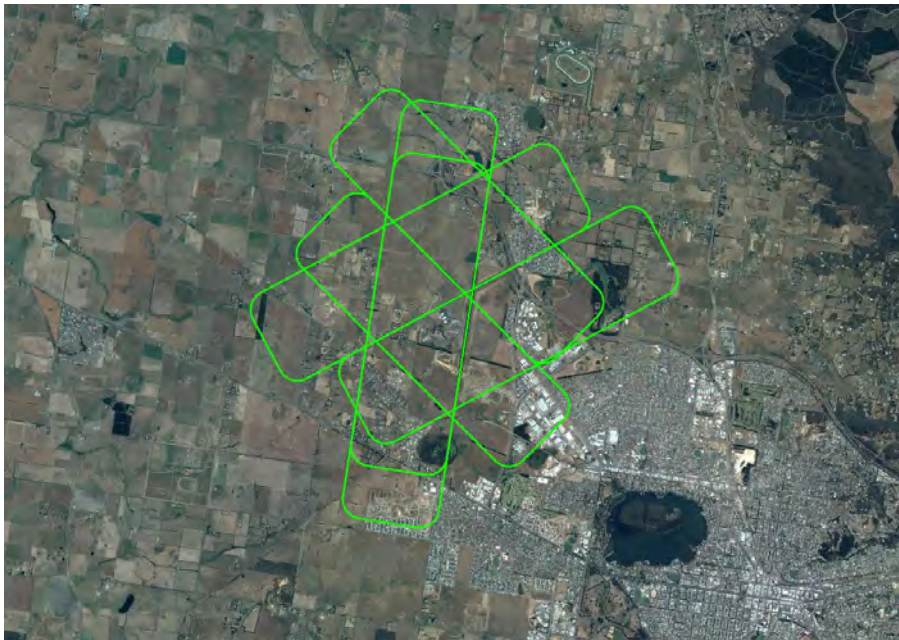


Figure 3 – Option 1D circuit tracks



Figure 4 – Option 2B arrival tracks

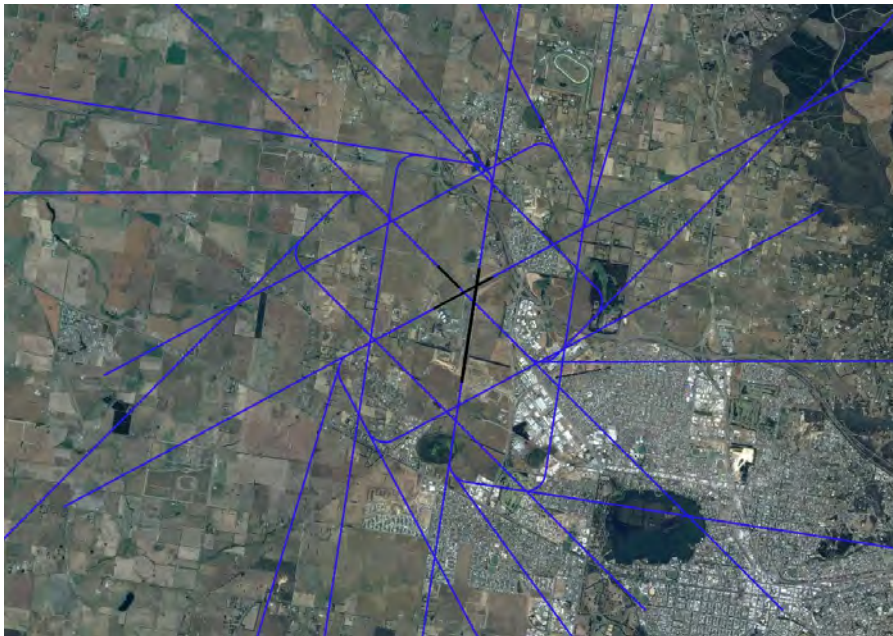


Figure 5 – Option 2B departure tracks

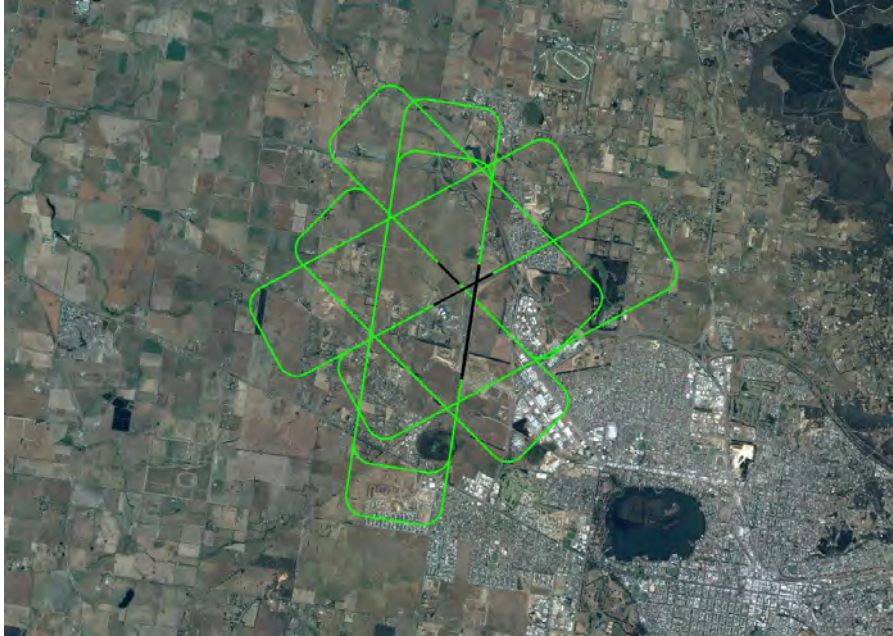


Figure 6 - Option 2B circuit tracks



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 ANEC 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 ANEC 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

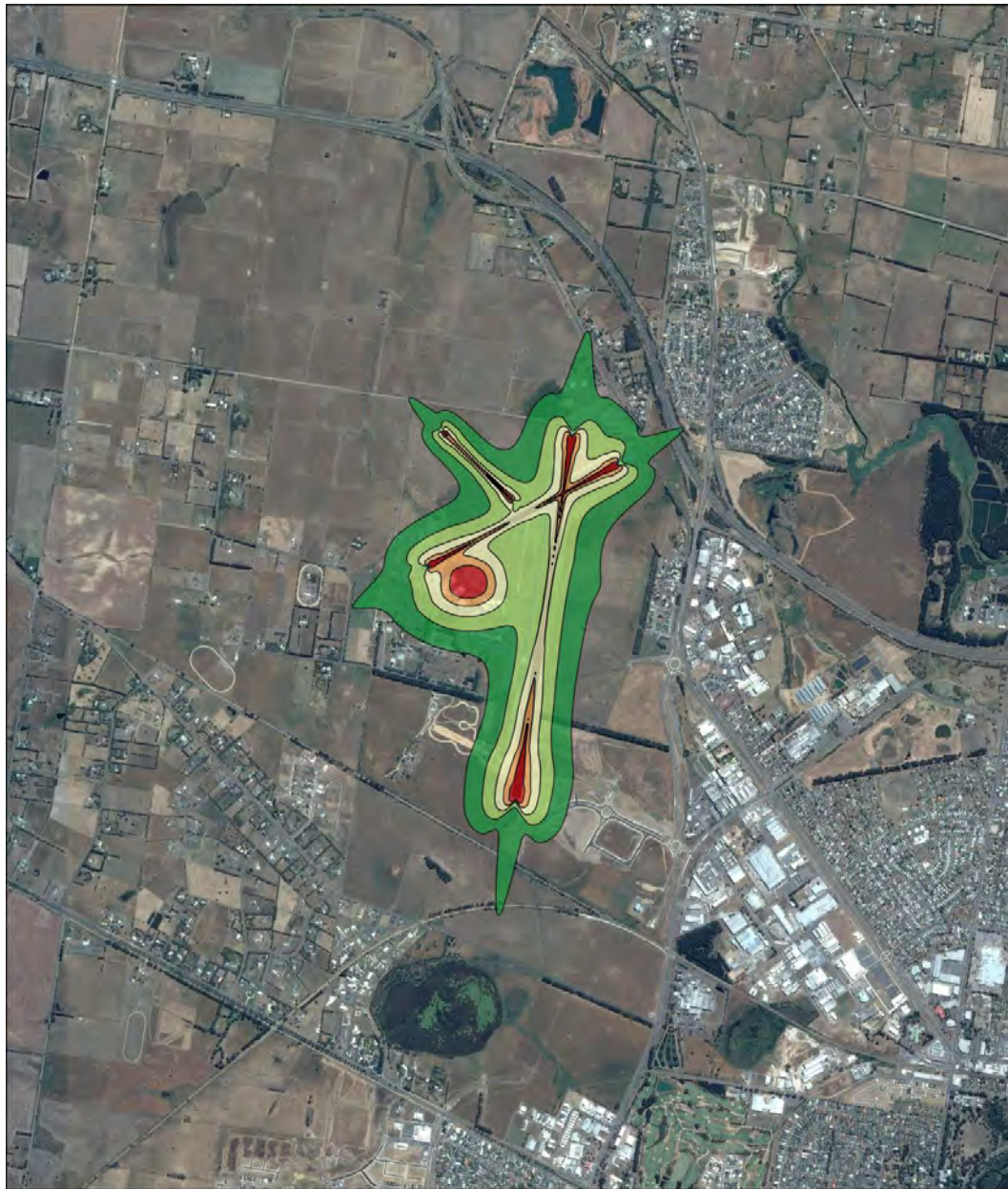


Ballarat Aerodrome
ANEF Option 1D

0 500 1000 1500 2000 m

ANEF 20	ANEF 35
ANEF 25	ANEF 40
ANEF 30	





Ballarat Aerodrome
ANEF Option 2B

0 500 1000 1500 2000 m



ANEF 20	ANEF 35
ANEF 25	ANEF 40
ANEF 30	



Ballarat Aerodrome
ANEF Merged (Option 1D & 2B)

0 500 1000 1500 2000 m

ANEF 20 ANEF 35
ANEF 25 ANEF 40
ANEF 30



Appendix B: N-contour charts



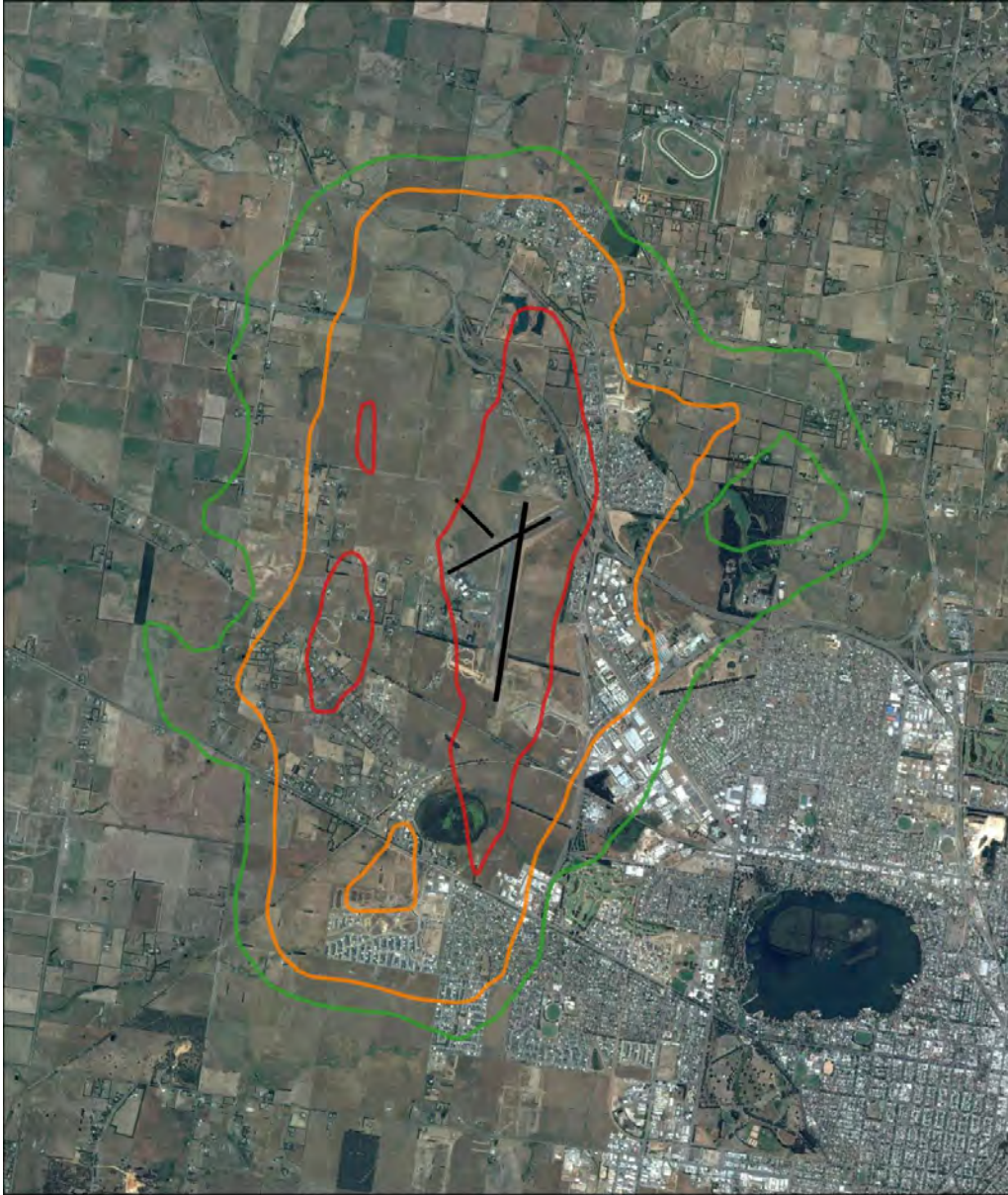
Ballarat Aerodrome
N60 - Option 1D

0 1000 2000 m



10 50
20





Ballarat Aerodrome
N60 - Option 2B

0 1000 2000 m



10 50
20





Ballarat Aerodrome
N60 - Merged (Option 1D & 2B)

0 1000 2000 m



10 20 50



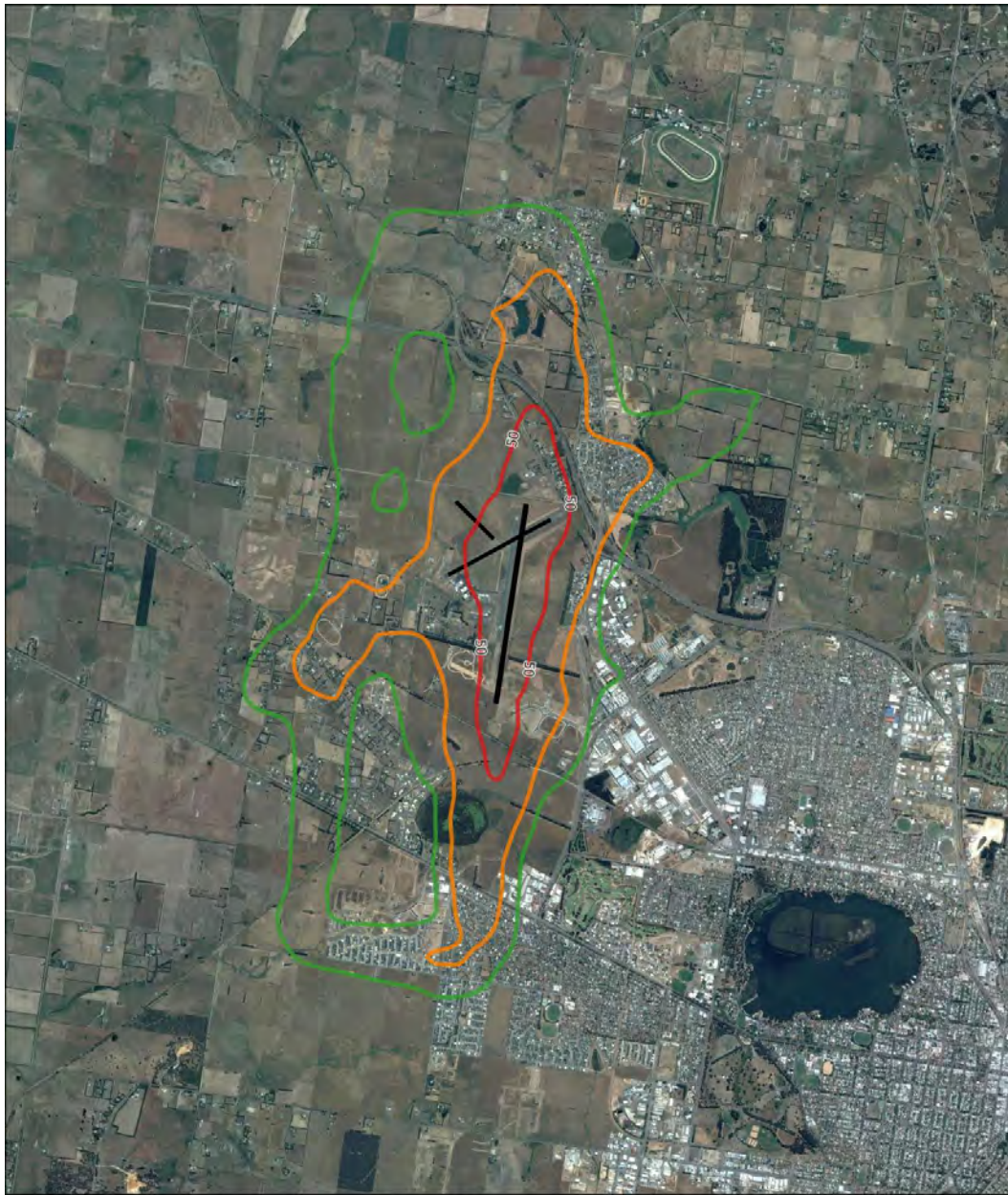


Ballarat Aerodrome
N65 - Option 1D

0 1000 2000 m

10 20 50





Ballarat Aerodrome
N65 - Option 2B

0 1000 2000 m

10 50
20





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

0 1000 2000 m



10 50
20





Ballarat Aerodrome
N70 - Option 1D

0 1000 2000 m



10 50
20





Ballarat Aerodrome
N70 - Option 2B

0 1000 2000 m



10 50
20





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

0 1000 2000 m

10 20 50





MINERS REST TOWNSHIP PLAN

Issues & Opportunities Report

for community discussion

SEPTEMBER 2017



Acknowledgements

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Version	A	B	C	D	E
Issue Date					

Contents

Introduction	5
Purpose	5
Study Area	6
Context	7
Population	7
Landscape/ Rural Setting	8
Central Victorian Livestock Exchange	8
Dowling Forest Precinct	9
Ballarat Airport	10
Initial Community Consultation	12
The 'What You Said?' Report	12
Draft Vision & Objectives	13
Key Themes and Directions	16
Theme 1: Celebrate Miners Rest historic and natural assets	18
Theme 2: Establish a connected and unified Township and community	24
Theme 3: Facilitate township growth and prosperity	30
Where to from here?	40
Municipal Strategic Statement/	
Local Planning Policy Framework	42
Zones	42
Overlays	44
Background Documentation Review	48

Figures

Figure 1 Miners Rest Study Area	4
Figure 2 Extent of existing urban zoned land	6
Figure 3 Celebrate Miners Rest historic and natural assets	23
Figure 4 Establish a connected and unified Township and community	29
Figure 5 Facilitate township growth and prosperity	39
Figure 6 Zoning Map	43
Figure 7 Overlay Map	45
Figure 8 Strengthen community and township pride	33

Appendices

Appendix 1: Planning Policy Context	29
Appendix 2: Background Documentation Review	47

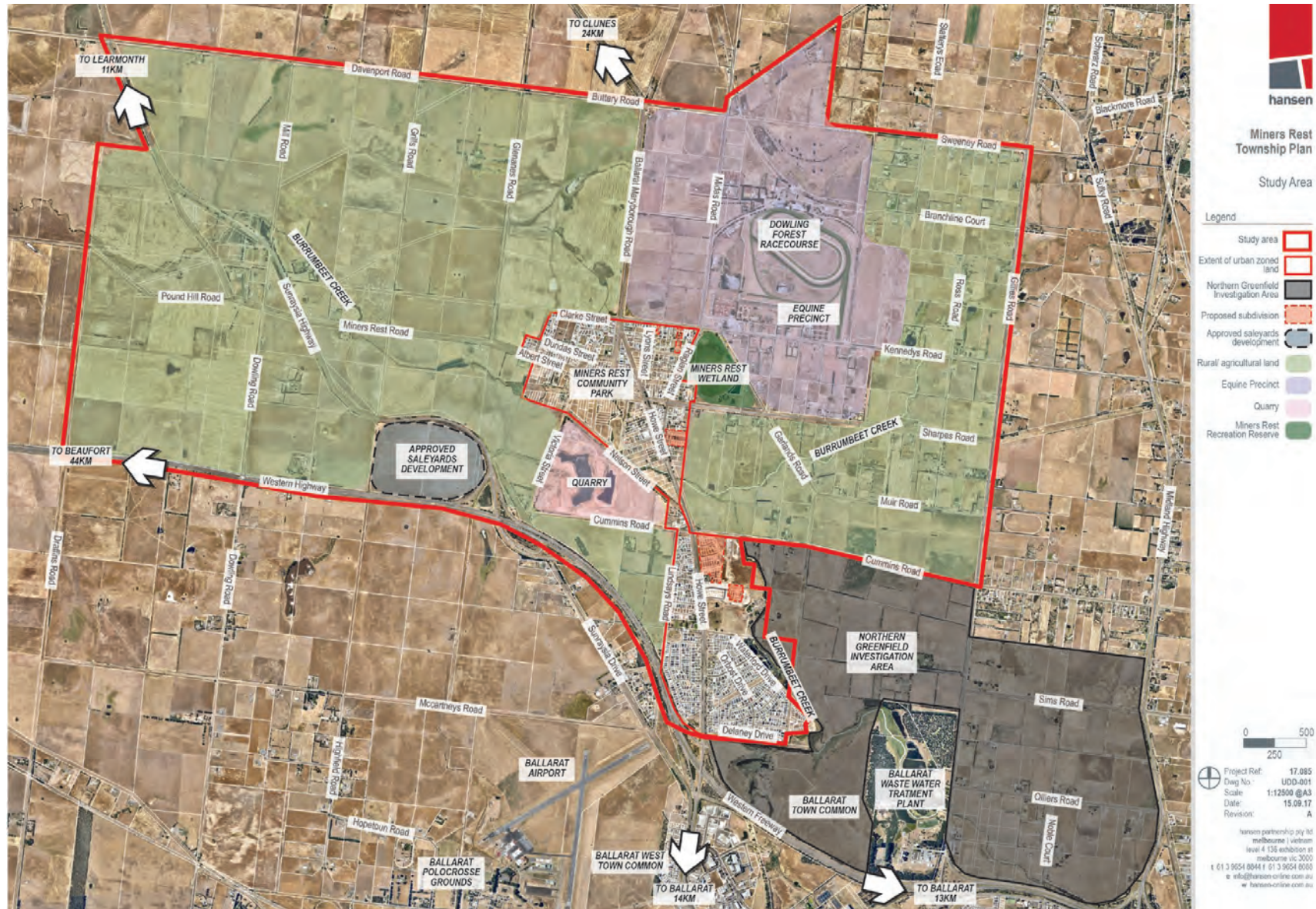


Figure 1 Miners Rest Study Area

Introduction

The City of Ballarat has engaged Hansen Partnership in association with ASR Research to prepare the Miners Rest Township Plan.

The Miners Rest Township Plan will set out a long term strategic framework to consider the potential future growth options and public realm upgrades for Miners Rest.

It will also provide a framework for community based initiatives and actions, and the integration of Council's services and programs, existing policies and strategies. It will assist in establishing the role of Miners Rest in the context of the broader municipality and the Ballarat region.

Purpose

The purpose of the Issues and Opportunities Report is to allow community discussion and input into potential key directions for the Township Plan.

This report has sought to draw together a large volume of background investigation and analysis and to commence documenting potential ideas and directions for discussion and confirmation with the Miners Rest community.

The Issues and Opportunities report has been informed by background desktop analysis, site visits, stakeholder meetings, as well as the detailed feedback received from the first consultation event.

The range of identified Issues and Opportunities are framed around three key themes and directions which are intended to provide context and guide the future Township Plan.

The project team is seeking community feedback on this Issues and Opportunities report and would welcome your own ideas for potential inclusion in the Miners Rest Township Plan. Despite a range of ideas and suggestions being made through this document, they are not 'set in stone', rather have been proposed so as to generate discussion and to obtain initial community feedback before a more detailed and intensive design and documentation process of the Miners Rest Township Plan is undertaken.



Dundas Street, Miners Rest (parking to frontage of Primary School)

Study Area

The Study Area includes the full extent of the Miners Rest postcode, but excluding the Northern Greenfields Investigation Area. The study area is broadly bounded by Davenport Road to the north, Western Fwy to the south, Gilles Road to the East and Draffins Road/ Sunraysia Hwy to the west. Refer to Figure 1.

However the main focus of the study area is on the established 'township' area and surrounds, where the study will consider Miners Rest within its semi-rural context and broader context of Ballarat. The extent of the existing township is shown on Figure 2.



Figure 2 Extent of existing urban zoned land

Context

Miners Rest is a small rural township/ settlement located immediately north of the Western Freeway, some 17 kilometres north of the Ballarat Central Business District.

The Township is physically separated from the outer northern edge of Ballarat by the Western Freeway, while the north/ south aligned Howe Street runs through the centre of Miners Rest.

Miners Rest is characterised by the original township area located to the north of Cummins Road and the new residential estates of Macarthur Park and Sunraysia Estates located south of Cummins Road towards the Western Freeway.

The Township area of Miners Rest is set within a broader open rural/ agricultural landscape, which includes open views and scenic vistas of a number of surrounding volcanic hills/ landforms.

Other major land uses/ developments within Miners Rest include:

- The Dowling Forest Racecourse and surrounding equine precinct (located immediately to the north west).
- The Miners Rest Community Park, and the Miners Rest and Macarthur Park Wetlands.
- The former quarry (site has been decommissioned and recently rehabilitated for potential redevelopment).
- The Central Victorian Livestock Exchange development (approved by separate planning processes, but yet to be constructed).

Population

According to the 2016 ABS Census, the current population of Miners Rest is 4,430 people. This amounts to a population increase of 17% since the 2011 Census.

The largest age groups within Miners Rest are those aged between 0 and 9, followed by those aged between 30 and 39. This is indicative of the population of Miners Rest predominantly consisting of young families. When compared with the rest of the municipality, the population has a smaller number of retirees and has a shrinking number of those aged between 18 and 34 when compared with the 2011 population.

The population forecasts for the City of Ballarat prepared by .id consulting is based on the Miners Rest/ Mitchell Park data collection area. 2016 .id consulting data indicates the combined areas of Miners Rest/ Mitchell Park has a population of 4,298 (which is lower than the ABS figures for Miners Rest). Notwithstanding this, according to .id consulting projections, the Miners Rest/ Mitchell Park population is projected to grow by 1,821 to 6,119 (i.e. 42%) by 2036. The majority of this growth is anticipated to be accommodated within Miners Rest.



Creswick Street, Miners Rest

Landscape/ Rural Setting

Miners Rest benefits from landscape views of open rural farming and agricultural land, with these views being framed by a backdrop of iconic volcanic cones, including Mount Rowan and the Blowhard Hills.

The relatively open landscapes with the volcanic cones rising out of the landscape provides for a visually strong and iconic landscape setting to the Township. Many of these open views are available at the peripheral edges of and approach to the town, however there are some particularly significant open landscape views to the west and north west available along Howe Street in the section north of Cummins Road.

Through community consultation these landscape views were highlighted as being an important character value element for the Township.

Central Victorian Livestock Exchange

The Central Victorian Livestock Exchange (CVLX) is located to the south-west of Miners Rest, at the intersection of the Western Highway and the Sunraysia Highway. The CVLX is being relocated from the existing Saleyards site in Latrobe Street Ballarat, and will be a facility of regional significance.

An Independent Planning Panel was held in September 2015 to review concerns relating to the development and ensure that the planning approvals processes for the CVLX address these matters.

A number of ongoing concerns relating to the CVLX have been expressed during consultation for The Miners Rest Plan.



Open landscape views/ rural setting surrounding Miners Rest - view to the north