

Appendix E: Opportunities and constraints to growth

Alpine Shire Council

Land Development Strategy

November 2023



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1. Introduction

This document considers factors that restrict urban development (constraints) and those that would support suitable urban development (opportunities) in the context of Alpine Shire.

These factors can be physical in nature or based on policy, cost, environmental or cultural preferences. Evaluation of these factors is applied by aggregating and overlying the results of a multi-criteria evaluation into maps of urban suitability that can be used to inform future land development decisions.

Because most land in the Shire is at least partially constrained, trade-offs are required, such as having to choose between developing in areas with high landscape values, versus areas that might have high agricultural productivity.

This also brings into focus the importance of concentrating new development within the boundaries of existing settlements where possible (infill development).

2. Where can growth go?

2.1 A note on Indigenous agriculture

The Dhudhuroa, Gunai-Kurnai, Taungurung, Waywurru and Jaithmathang tribes are the traditional owners and custodians of the land in Alpine Shire. However, the process of colonisation and white settlement displaced these people and much of the direct knowledge of how they lived in the area has been lost. It is critical that any new development in Alpine Shire seeks to understand and mitigate any impact on the cultural heritage of First Nations people.

This overarching requirement should be seen as an opportunity rather than a constraint, and further detailed work to engage with the traditional owners and understand indigenous cultural heritage is required prior to any rezoning.

2.2 Overview of Opportunities and constraints

Overall, Alpine Shire is heavily constrained for future urban development, the major factor being the high percentage of Crown Land in the Shire. Around 92% of the Shire is public land, including the Mount Buffalo National Park, important elements of the Alpine National Park, and extensive areas of State Forest.

The remaining 8% of land is freehold and mostly occupies the valleys, parts of which are subject to constraints such as flooding, or may be fringed by steeply sloping land that is less suited to development, as well as being more vulnerable to the impacts of bushfire from adjacent forests.

The upper Ovens Valley, where much of the development pressure in the Shire is located, is particularly subject to these constraints due to its narrowness compared to the Kiewa and lower Ovens valleys.

In addition, significant areas of the Ovens Valley floor are devoted to forestry or Crown Land that was dredged during the gold rush era. This land is disturbed and of low value for agriculture but can also suffer from geotechnical constraints, caused by this ground disturbance, that can make urban development more challenging (for example dredge tailings are challenging for wastewater disposal).

In contrast, the Kiewa Valley is a much wider valley than the upper Ovens Valley and was not subject to dredging. However, it is also subject to flooding in some areas and has the highly valued vistas and views of the alpine landscape, including to Victoria's highest peaks. It also has a very high agricultural value.

The location of urban land in the Kiewa Valley has been largely determined by public policy, with the establishment of Mount Beauty itself being a government project in support of the Snowy Hydro Scheme. Planning policy for other urban land in the vicinity has been shaped by the identification of the Kiewa Valley as a National Trust Heritage Landscape and the inclusion of planning controls to protect the valley from development that may compromise views from (mainly) the western side of the valley. Hence most development has occurred on the western side of the Kiewa Valley Highway.

Urban development constraints do not just fall into the category of environmental risk, but also include the need to avoid damaging areas of cultural, scientific, historical and environmental value to society; or

land that is less feasible to develop for geotechnical reasons (e.g., formerly dredged land). This is reflected in Table 1 and the constraints mapping that has been undertaken.

2.3 Planning Policy regarding Environmental Risk

Much of the approach to determining constraints is guided by Victorian Government planning policy as expressed in the Alpine Planning Scheme. The Planning Policy Framework at Clause 13 of the Alpine Planning Scheme addresses environmental risk, and at an over-arching level supports risk-based planning as a fundamental approach to planning for development. It places particular emphasis on bushfire, flooding risk, and climate change, but also refers to soil degradation, landslip and erosion, floodplain management, landscape protection, and environmentally sensitive areas.

2.4 Risk Based Planning

Clause 13.01-1S, when addressing natural hazards and climate change, has as an objective;

- the minimisation of the impacts of natural hazards and adapt to the impacts of climate change through risk-based planning.

Strategies for achieving the objective are as follow:

- Consider the risks associated with climate change in planning and management decision making processes.
- Identify at risk areas using the best available data and climate change science.
- Integrate strategic land use planning with emergency management decision making.
- Direct population growth and development to low-risk locations.
- Develop adaptation response strategies for existing settlements in risk areas to accommodate change over time.
- Ensure planning controls allow for risk mitigation or risk adaptation strategies to be implemented.
- Site and design development to minimise risk to life, property, the natural environment, and community infrastructure from natural hazards.

Local policy addresses environmental risk at Clause 02.03-3 of the Alpine Planning Scheme by providing further local context and detail applicable to Alpine Shire. It addresses risk associated with bushfire, flood, climate change, land slip, erosion, steep slopes, land contaminated by activities associated with mining, tobacco and timber production.

2.5 The Constraints Mapping Process

A primary purpose of the Land Development Strategy is to identify areas of urban development potential within the Shire to support rezoning where zoned urban land supply is insufficient.

The identification of land most capable of accommodating urban development involves determining the land capable of being fully serviced (usually adjacent to existing fully serviced urban areas) and land least capable or subject to the greatest development constraints.

Urban development and land use constraints can be classed into two broad categories:

- *absolute constraints*, which are technical in nature and are unable to be remediated or removed, and
- *partial/discretionary constraints*, which impose a limitation on use or development, but which can be overcome either by appropriate engineering or policy decisions involving trading off less than perfect planning options against each other. Also, other “soft” constraints can be applied, such as visual impact evaluation, heritage values and the like.

An example of both *absolute* and *discretionary* constraints can be illustrated regarding flooding risk. Dangerous flooding risk is a policy driven *absolute* constraint whereby the state provisions of the Planning Scheme and other legislation require that land subject to *dangerous* flooding not be developed for urban purposes. However, lesser *nuisance* flooding risk can be addressed by planning for appropriate floor levels and engineering works. This is an example of a *discretionary* constraint, where there is a choice as to whether land with lesser flooding risk should be developed or not, and whilst a perfect outcome may not result, it could provide the best choice available.

Many constraints are driven by public policy, examples are:

Bushfire risk – this is a policy driven absolute constraint whereby the state provisions of the Planning Scheme require that no land with a Bushfire Attack Level (BAL) rating of over 12.5 shall be rezoned for residential purposes.

Flooding – the example quoted above.

Environmental buffers – where land is within the area potentially effected by EPA buffers (odour, noise, safety, etc.)

Contaminated land – where certain sensitive uses are prohibited because of a danger to health.

Heritage, cultural and landscape significance – where land of significance is identified and subject to protection.

2.6 A three stage constraints assessment process to identify suitable urban land

To understand the potential for rezoning of broadacre land for future urban development, the sieve mapping process is undertaken in 3 stages, two of which apply to this Land Development Strategy.

Stage 1 combined constraints and opportunities map – basic urban suitability

A Stage 1 map of Urban Suitability (see Section 4 – Urban Suitability) provides a picture of land suitably located adjacent to existing fully serviced settlements that is least subject to severe constraints. This coarse analysis identifies areas that are suitable for a more fine-grained assessment of urban suitability and combined with the urban capacity analysis in this report, allows the study to focus on the areas of higher need.

The Stage 1 analysis has been applied to the areas around the existing fully serviced settlements of Bright, Myrtleford and Mount Beauty/Tawonga South/Tawonga and Porepunkah. It yields a gross total of approximately 1240ha of potentially developable land not subject to serious constraints that could theoretically result in yield of 12,400 lots and a resultant potential population of around 30,000 additional people. This compares to the current population of the Shire of c.13,000 and is clearly much

larger than is needed. Further refinement of the development options in conjunction with the capacity analysis and demand modelling provides more targeted options.

Stage 2 constraints and opportunities assessment of areas identified in stage 1

The Stage 2 assessment allows for the areas identified in Stage 1 to be further assessed against other “soft constraints” (constraints that reflect other community priorities such as visual amenity, heritage values, planning policy, urban design priorities etcetera) and more detailed constraints, the number of potential choices for further growth is significantly reduced. These can be described as:

- The potential for high threshold infrastructure costs before development can proceed, such as the need for bridges and roads for access, expensive headworks for sewerage, water supply, local drainage. In short, factors which make the potential for development not financially feasible.
- Potential for adverse visual impact in areas of high landscape character value.
- Loss of high-quality agricultural land.
- Poor connectivity to existing urban development and services.
- Amenity buffers to existing or proposed facility with off-site amenity impacts (e.g., transfer stations, water treatment works, industry buffers).
- Areas of heritage and environmental significance.

When these constraints are assessed, by the use of multiple overlay maps, the areas that can realistically be developed are greatly reduced. This is illustrated below:

FIGURE 1 - ILLUSTRATION OF SIEVE MAPPING LAYERS

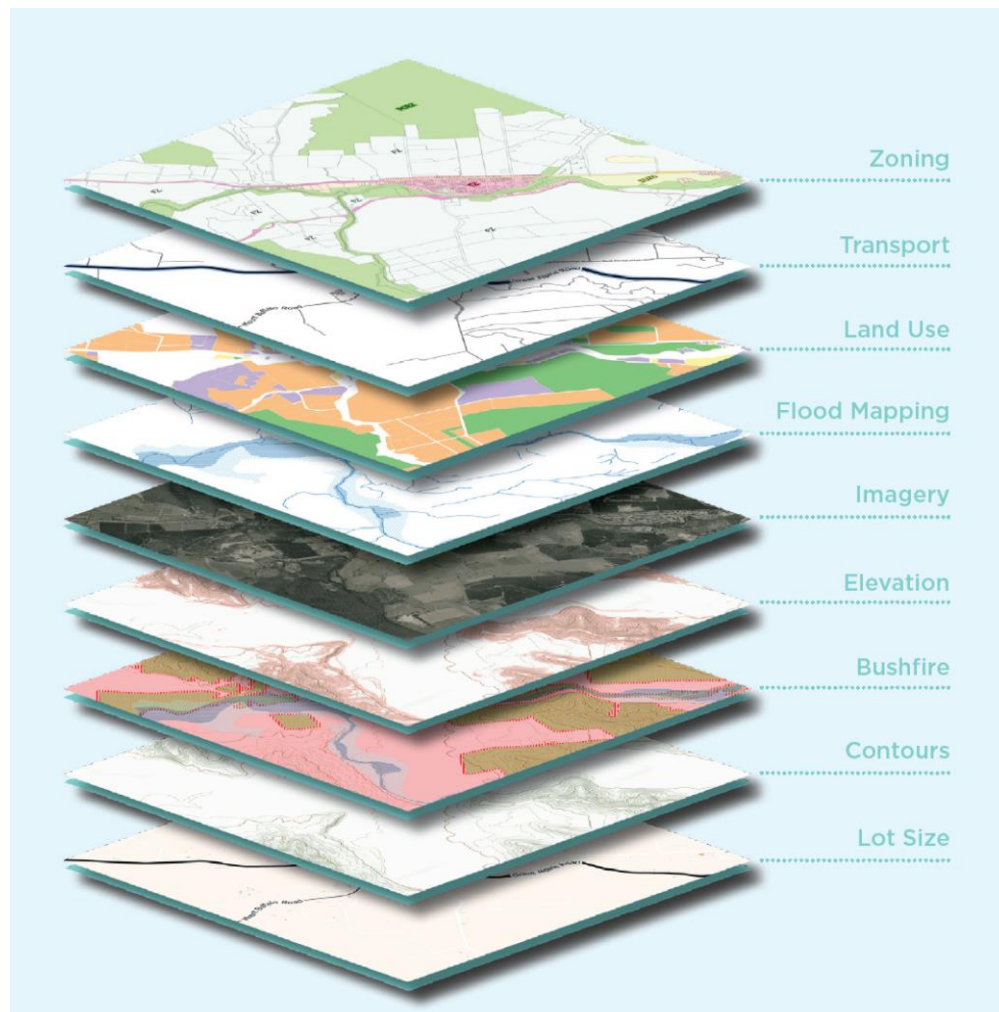


Table 1 summarises the range of constraints that can be considered in the filtering process of identifying land capable or urban development.

Stage 1 (Green in Table 1) – At this level land that is free from *Absolute Constraints* is identified as a “first cut” to focus on land that can be evaluated at a more fine-grained level. These constraints are technical in nature.

Stage 2 (Grey in Table 1) – At this level known “discretionary” or “soft” constraints are applied. The areas identified as not being subject to Stage 1 constraints can now be assessed for their desirability as urban development areas against planning policy and known community values. These areas can also then be evaluated in terms of staging and sequencing of release in accordance with planning policy. The results of this stage will encompass the areas that are recommended as planning policy for urban expansion. This stage can be put out for community feedback as part of the Land Development Strategy and the feedback used to arrive at suitable development areas or adoption by Council.

Stage 3 – This is the fine-grained analysis that will take place with the preparation of structure plans and development plans and rezoning amendments. It is outside the scope of the current Land Development Strategy. It will consider the full range of constraints that apply to the land in detail and allow for the detailed planning and design of future urban development areas. It will be based on more detailed

study of the identified development areas using fine grained information that is not currently available and will form, part of the detailed structure planning process.

TABLE 1 - URBAN ZONING AND CONSTRAINTS

Urban Zoning Constraints					
Constraint Type	Absolute/ Mandatory	Partial/ Discretionary	Physical	Policy Driven	Land Tenure
Stage 1 Technical/Absolute Constraints					
Bushfire 12.5 BAL Clause 13.02-1S APS	*			*	
Flooding (dangerous)	*		*	*	
Flooding/drainage (nuisance)		*	*	*	
Excessive Slope	*		*	*	
Erosion risk/geotechnical	*		*	*	
Unserviceable land	*		*	*	
Crown Land	*				*
National/State Parks	*			*	*
Forest Reserves	*			*	*
Poor/unsafe/expensive transport access	*		*	*	*
Contaminated Land	*		*	*	
Environmental Buffers	*	*		*	
Stage 2 Partial/Discretionary Constraints (Community Feedback Required)					
Sufficiency of zoned land	*	*		*	
Restrictive Covenants	*	*			*
High Value Habitats/Ecological Significance	*	*		*	
Sites of cultural, heritage and scientific significance	*	*		*	
Landscape Significance		*		*	
Potable Water Catchments	*	*		*	
Aquifer recharge areas		*			
High quality agricultural land		*		*	
Transmission & other easements	*	*			*
Excess groundwater and springs	*	*	*		

2.7 Urban opportunities

Urban constraints need to be considered together with the urban opportunities which present themselves. This process is expressed through the development of Urban Suitability Mapping, showing areas most suitable for urban development.

To a large extent, in the case of Alpine Shire, urban opportunities are presented where there is an absence, or near absence of urban development constraints. However, there are several key factors providing favourable opportunities for urban development:

- Proximity to existing services - it is a fundamental requirement of urban planning to locate new development where people can access services such as shops, employment, education and community services. This focuses new development around existing settlements.
- The ability to economically provide key urban infrastructure services such as roads, water, sewerage and power.
- The ability to develop without an undue impact on environmental, agricultural, visual amenity or heritage values.

3. Application of the urban constraints & mapping process

As a key part of the development of the Alpine Shire Land Development Strategy, studies were undertaken to map the constraints shown in Table 1. Of particular importance are:

- A Bushfire Hazard Landscape Assessment and the identification of land that has a BAL rating of higher than 12.5 and is therefore not capable of residential rezoning in recognition of State Planning Policy at Clause 13.02-15.
- Flood modelling and mapping for the upper Ovens River by the North East Catchment Management Authority (NECMA) to determine future flooding impacts for a 1:100-year flooding event accounting for climate change. This study distinguished between dangerous and nuisance flooding.

3.1 Bushfire Hazard Landscape Assessment

Planning Scheme Requirements

The Alpine Planning Scheme includes most of the Shire within the Bushfire Management Overlay, which governs the requirements for planning approval of proposals subject to individual planning applications.

At a broader scale, more applicable to this study, the Alpine Planning Scheme addresses bushfire hazard at Clause 13.02-1S and identifies a range of strategies to address it. The policy demands that planning give priority to the protection of human life by:

- Prioritising the protection of human life over all other policy considerations.
- Directing population growth and development to low-hazard locations and ensuring the availability of, and safe access to, areas where human life can be better protected from the effects of bushfire.
- Reducing the vulnerability of communities to bushfire through the consideration of bushfire hazard in decision making at all stages of the planning process.

It provides for bushfire hazard to be identified and assessed for hazard by:

- Applying the best available science to identify vegetation, topographic and climatic conditions that create a bushfire hazard.
- Considering the best available information about bushfire hazard including the map of designated bushfire prone areas prepared under the *Building Act 1993* or regulations made under that Act.
- Applying the Bushfire Management Overlay to areas where the extent of vegetation can create an extreme bushfire hazard.
- Considering and assessing the bushfire hazard on the basis of:
 - Landscape conditions - meaning conditions in the landscape within 20 kilometres (and potentially up to 75 kilometres) of a site;
 - Local conditions - meaning conditions in the area within approximately 1 kilometre of a site;
 - Neighbourhood conditions - meaning conditions in the area within 400 metres of a site; and
 - The site for the development.
- Consulting with emergency management agencies and the relevant fire authority early in the process to receive their recommendations and implement appropriate bushfire protection measures.
- Ensuring that strategic planning documents, planning scheme amendments, planning permit applications and development plan approvals properly assess bushfire hazard and include appropriate bushfire protection measures.
- Not approving development where a landowner or proponent has not satisfactorily demonstrated that the relevant policies have been addressed, performance measures satisfied, or bushfire protection measures can be adequately implemented.

The application of the above has resulted in most of the Shire being placed in a Bushfire Management Overlay and all planning applications being required to be assessed accordingly.

In accordance with the second last bullet point above, this Land Development Strategy considers and assesses bushfire hazard and appropriate protection measures on a high-level strategic basis. More localised and detailed assessments will be required for individual development proposals.

Clause 13.02 also provides **strong policy guidance** regarding settlement planning as follows:

Settlement Planning

Plan to strengthen the resilience of settlements and communities and prioritise protection of human life by:

- Directing population growth and development to low-hazard locations, being those locations assessed as having a radiant heat flux of less than 12.5 kilowatts/square metre under AS 3959-2009 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009).
- Ensuring the availability of, and safe access to, areas assessed as a BAL-LOW rating under AS 3959-2009 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009) where human life can be better protected from the effects of bushfire.
- Ensuring the bushfire hazard to existing and future residents, property and community infrastructure will not increase as a result of future land use and development.
- Achieving no net increase in hazard to existing and future residents, property and community infrastructure, through the implementation of bushfire protection measures and where possible reducing bushfire hazard overall.
- Assessing and addressing the bushfire hazard posed to the settlement and the likely bushfire behaviour it will produce at a landscape, settlement, local, neighbourhood and site scale, including the potential for neighbourhood-scale destruction.
- Assessing alternative low hazard locations for settlement growth on a regional, municipal, settlement, local and neighbourhood basis.
- Not approving any strategic planning document, local planning policy, or planning scheme amendment that will result in the introduction or intensification of development in an area that has, or will on completion have, more than a BAL-12.5 rating under AS 3959-2009 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009)."

Areas of biodiversity conservation value

Ensure settlement growth and development approvals can implement bushfire protection measures without unacceptable biodiversity impacts by discouraging settlement growth and development in bushfire affected areas that are important areas of biodiversity.

BAL 12.5 Assessment

In accordance with the above policy guidance Alpine Shire commissioned mapping of priority areas that have a Bushfire Attack Level (BAL) of BAL 12.5 or above, as part of the filtering process to eliminate from consideration, land with excessive fire hazard.

Separate assessment having regard to landscape bushfire hazard has been undertaken and documented in this report to further eliminate areas of higher bushfire hazard at the landscape scale.

3.2 Landscape Bushfire Hazard

Landscape type and hazard

There are four broader landscape types described in planning permit applications in the Bushfire Management Overlay Technical Guide (Placeholder1) (DELWP 2017). These represent different hazard levels, ranging from low-hazard landscapes where there is little hazardous vegetation beyond 150m of the site, to extreme hazard landscapes with few to no evacuation options.

The study area and surrounding landscape mostly corresponds with landscape type four, which is described as having the following attributes:

- The broader landscape presents an extreme hazard
- Fires have hours or days to grow and develop before impacting
- Evacuation options are limited or not available.

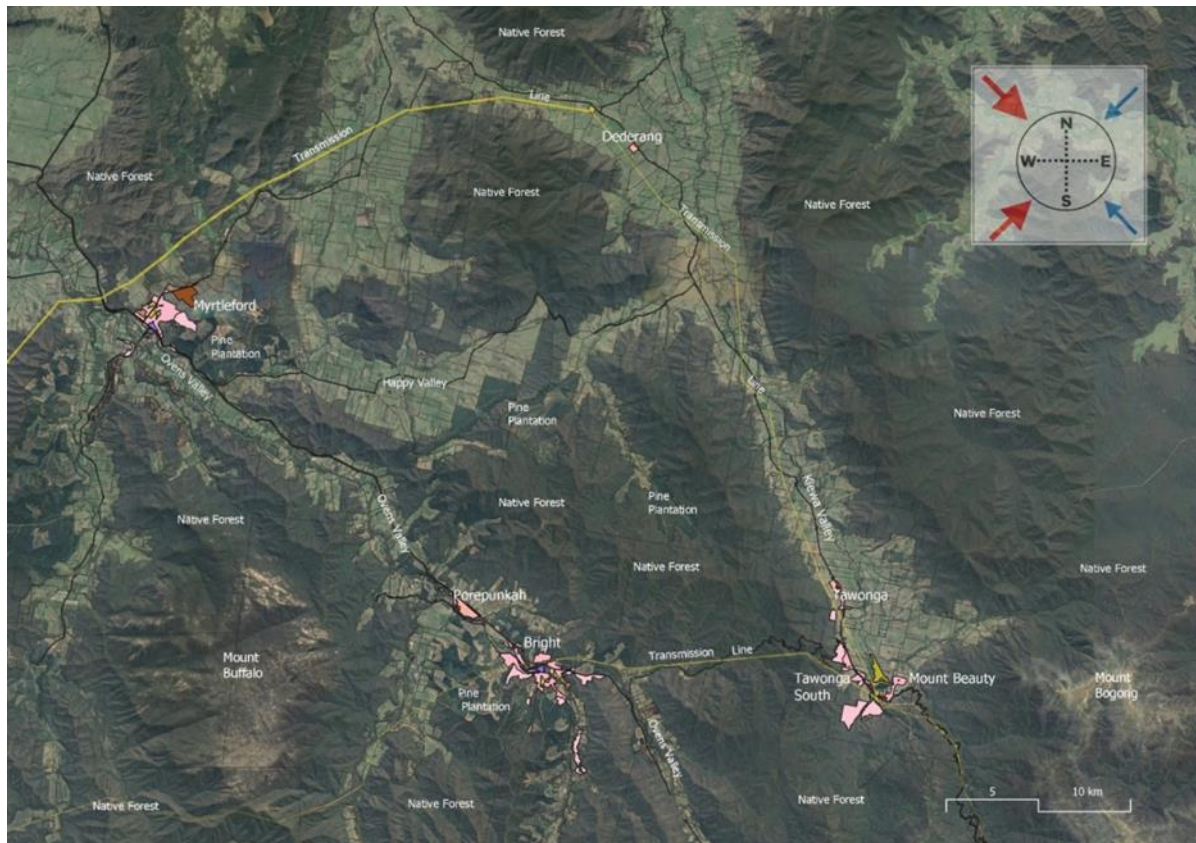
In general, urban development may not be supported in areas that are classified as landscape type four due to the attributes above. However, further analysis of potential development locations within Alpine Shire shows that there is a wide range of outcomes in terms of landscape fire risk, and that some areas are likely to be more suitable for urban development than others. For example, Harrietville and Porepunkah are both in landscape type four areas, however the landscape fire risk is extreme in Harrietville, whereas Porepunkah has a greater setback from forest areas and appears more suited to future development. Further analysis will be required on landscape bushfire risk for any area within the Shire that is proposed for rezoning to an urban type zone.

The alpine region has a range of vegetation types, including tall forests located lower in the valleys which can hold heavy fuel loads and are highly conducive to carrying fire. The vegetation extends for tens to hundreds of kilometres in all directions giving fire-fronts time and long distances to develop, and fire can approach in the landscape anywhere to the north, west and south. The mountainous topography through the area also has the potential to intensify fire behaviour on a landscape scale with large tracts of steeply sloping tall forest to promote fire development.

There are limited options for evacuation in some areas, some with single roads leading in and out. These roads can pass through landscapes of a higher fire hazard, such as tall forests, before reaching open spaces or towns, meaning evacuees would be put at a very high hazard by attempting to leave via these routes.

As the dominant weather conditions in Victoria are winds from the north-west and south-west, the most hazardous bushfire scenario would be an approach of a bushfire from the south-west. The CFA recognises this, and assessment of hazard is highly related to hazard from the north western and south western approaches. This is recognised in the following aerial photo map which also indicates existing urban zoned areas in context.

FIGURE 2 - EXISTING ZONED URBAN AREAS IN THE LANDSCAPE CONTEXT

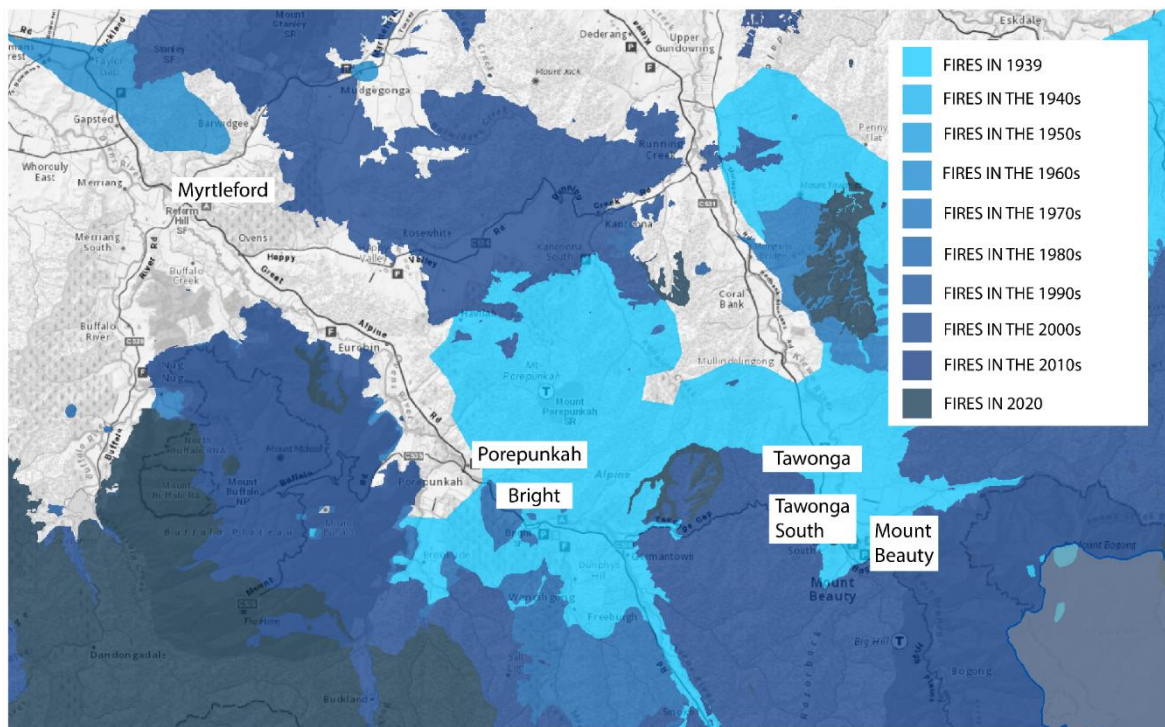


Within the category 4 landscape type, distinctions can be made regarding the relative safety of development, due to differing topography, vegetation, availability of escape routes and proximity to places of last resort. These factors are relevant considerations for an independent panel when comparing the relative landscape risk for different areas when rezoning proposals are involved.

3.3 Bushfire History

There are many parts of the Shire that have been impacted by bushfire in the past. The map on the following page illustrates this history. In general terms the Shire is subject to extreme landscape bushfire risk.

FIGURE 3 - HUME REGION BUSHFIRE STORYMAP



(Derived from: Hume Region Bushfire Planning Storymap (accessed 30 August 2022))

3.4 Relative Levels of Landscape Bushfire Risk

An assessment has been made of the landscape bushfire risk for the main settlements. It is summarised in the table below. Whilst most areas are within landscape bushfire risk category 4, it is possible to differentiate areas in terms of their relative risk within that category.

TABLE 2 - RELATIVE LANDSCAPE BUSHFIRE RISK

Relative Landscape Bushfire Hazard of Settlements and Possible Growth Areas in Alpine Shire		
Myrtleford	General	Myrtleford is subject to extreme Landscape Bushfire Hazard due to a mix of native forest and pine plantations on its eastern, northern and north western sides. It conforms to Landscape Bushfire Hazard category 4.
	Area west of Barwidgee Creek	There are parts of this area that are sufficiently set back from forest and on flatter land which may allow for areas of lower hazard development, subject to further site specific consideration.

	Area north of existing industrial area	There are parts of this area that are sufficiently set back from forest and on flatter land which may allow for areas of lower hazard growth, particularly for non residential purposes.
Porepunkah	General	Porepunkah is subject to extreme Landscape Bushfire Hazard but at a lower level than some other parts of the Shire. Whilst it conforms to Landscape Bushfire Hazard Category 4 there are better setbacks from forest and more escape options than other areas.
	Area to the north	The area to the north of Porepunkah is subject to extreme Landscape Bushfire Hazard but is capable of significant setbacks to the native forests to the northeast. These forests are fringed by horticulture in parts, this tends to reduce hazard.
	Area to the northeast	The area to the northeast of Porepunkah is subject to extreme Landscape Bushfire Hazard but is capable of significant setbacks to the native forests to the northeast. These forests are fringed by horticulture in parts, this tends to reduce hazard.
Bright	General	<p>Bright as a whole is subject to extreme landscape bushfire hazard. It conforms to Landscape Bushfire Hazard Category 4 being surrounded by forest and with limited external escape options. It contains a place of last resort.</p> <p>Due to the landscape fire risk, Bright is not considered suitable for any significant future urban rezoning.</p>
Harrietville	General	<p>Harrietville is subject to some of the most extreme landscape bushfire hazard in Victoria. It conforms to Landscape Bushfire Hazard Category 4 and has only one escape option along the Great Alpine Road to the north, which is subject to extreme bushfire hazard itself.</p> <p>Further urban expansion of Harrietville is not supported due to the extreme level of hazard.</p>
Wandiligong	General	<p>Wandiligong is subject to extreme Landscape Bushfire Hazard and conforms to Landscape Bushfire Hazard category 4. In addition, large parts of it and its surrounds are rated at over BAL 12.5. It also has only one escape option along the Great Alpine Road to the north, which is subject to extreme bushfire hazard itself.</p> <p>Further urban expansion of Wandiligong is not supported due to the extreme level of hazard.</p>
Kiewa Valley	General	The Kiewa Valley as a whole is subject to extreme, Category 4, Landscape Bushfire Hazard. However, there are some points of

		variability that may be able to achieve lower hazard ratings due to location and slope variations.
	Tawonga	There is vacant farmland abutting the west of Tawonga that is adjacent to extreme hazard (forest) areas. It conforms to Landscape Bushfire Hazard Category 4. It is possible that some of this area can be provided with adequate setbacks to provide areas of below BAL 12.5 levels.
	Land at northern end of Tawonga South (Designated for urban growth)	This land is identified at Clause 11.01-1L-04 of the Alpine Planning scheme as an urban growth area. The land abuts high-hazard forest at its upper (western) boundary. It generally conforms to Landscape Bushfire Hazard Category 4. There are potentially parts of the site closer to the Kiewa Valley Highway that may have slightly reduced hazard.
	Flat land fronting both Simmonds Creek Road and the Kiewa Valley Highway. South (Designated for urban growth)	This land is identified at Clause 11.01-1L-04 of the Alpine Planning scheme as an urban growth area. It is in an area of extremely high landscape bushfire hazard. It conforms to Landscape Bushfire Hazard Category 4. However, it is flatter than other areas and thus subject to reduced slope effect. There may be parts of this land that have reduced fire hazard.
	Area north of Mount Beauty adjacent to Rockpool Road	This area is subject to extreme landscape bushfire and conforms to Landscape Bushfire Hazard Category 4. However, it is in a flatter area with reduced forest hazard from the likely fire approaches (north and south west) and may be more suitable for urban development.

3.5 Flood Risk

Clause 13.03-1s of the Alpine Planning Scheme *Floodplain management* has the objective of assisting the protection of:

- *Life, property and community infrastructure from flood hazard, including coastal inundation, riverine and overland flows.*
- *The natural flood carrying capacity of rivers, streams and floodways.*
- *The flood storage function of floodplains and waterways.*
- *Floodplain areas of environmental significance or of importance to river, wetland or coastal health.*

It includes the following strategies:

- *Identify land affected by flooding, including land inundated by the 1 in 100-year flood event (1 per cent Annual Exceedance Probability) or as determined by the floodplain management authority in planning schemes.*
- *Avoid intensifying the impact of flooding through inappropriately located use and development.*
- *Plan for the cumulative impacts of use and development on flood behaviour.*
- *Locate emergency and community facilities (including hospitals, ambulance stations, police stations, fire stations, residential aged care facilities, communication facilities, transport facilities, community shelters and schools) outside the 1 in 100-year (1 per cent Annual Exceedance Probability) floodplain and, where possible, at levels above the height of the probable maximum flood.*

DTP (formerly DELWP) and the North East Catchment Management Authority (NECMA) have commissioned studies and undertaken flood modelling and mapping of the Upper Ovens River Valley in conjunction with Alpine Shire, with a view to the inclusion of flood controls into the Alpine Planning Scheme. NECMA updated the modelling having regard to climate change scenarios to 2090. The mapping of the Upper Ovens River Valley is now available to Council and identifies areas that are subject to dangerous flooding (absolute constraint) and nuisance flooding (discretionary constraint).

Whilst it is preferred that areas subject to all types of flooding be excluded from development, in some cases engineering works normal to a subdivision development can reduce the areas subject to nuisance flooding.

Flood controls already exist in the Alpine Planning Scheme for the lower part of the Ovens Valley down to Myrtleford (these flood levels in this study are currently being reviewed based on the 2090 climate change scenarios).

There is no such flood modelling available for the Kiewa Valley at present. However, flooding is a less significant issue in the Kiewa Valley due to most existing and potential urban development being established away from areas of significant flood risk. It is understood that NECMA will undertake a review of Kiewa Valley flood mapping within the next few years.

3.6 Other Constraints

There is a significant range of other constraints that apply in Alpine Shire. The following provides a summary of each. The majority of these have been previously mapped and have been incorporated as contributory layers in the overall “sieve mapping” process.

Crown Land, National & State Parks & Land Subject to Forestry Leases

These areas have been mapped as absolute constraints.

Excessive Slopes

Excessive slopes can make the provision of infrastructure and construction of buildings prohibitively expensive or unfeasible. Where the slopes coincide with unstable soils development can be unsafe. Development on steep slopes can also impact on landscape values. Excessive slopes can also make access by emergency vehicles problematic.

Steep slopes (more than 20%) have been included in constraints mapping as absolute constraints.

Restrictive Covenants

Restrictive covenants can impact on the future development of (usually existing residential) areas by limiting development to single dwellings and imposing restriction on development densities. They do not impact on the identification of greenfield development areas. They are of significance in areas in determining areas suitable for higher density development.

Erosion Risk/Land Slip

Erosion risk is associated with certain types of soils and topographies and in some cases can be overcome by special engineering and building techniques which add cost to development.

Unserviceable Land

In the context of the Land Development Strategy “unserviceable” means that the land cannot be provided with all the following urban services; reticulated sewer, water, electricity and telecommunications.

In the context of Low-Density Development, reticulated sewer may not be required where effluent can be dealt with appropriately on-site effluent disposal and treatment.

Contaminated Land

There are areas of the Shire that have been adversely affected by contaminants. These are largely areas subject to tobacco growing and the use of organochlorines. There are also areas subject to gold mining that are contaminated by arsenic and areas associated with timber processing that have been contaminated. Most of these areas are not adjacent to existing urban areas and have therefore not been required to be mapped.

Land Subject to Gold Dredging

Dredging for gold has been undertaken in extensive areas of the Upper Ovens Valley, particularly around Bright and Harrietville. Dredged land can be developed for urban purposes where the amount of geotechnical rectification work to remove boulders and rocks is not prohibitively expensive.

Land subject to dredging has been mapped to a large extent. However, the mapping may be incomplete, and there is no information as to the extent to which this would be a barrier to urban development (for instance the existence of large boulders in the dredge areas).

High Value Habitats/Ecological Significance

A desktop search of Victorian Government Databases has not revealed any areas of highly significant habitats in the vicinity of potential growth areas.

Sites of Cultural, Heritage and Scientific Significance

These areas have been broadly mapped, however there may be gaps in the available information and further detailed work will be required prior to rezoning any land.

Aboriginal Heritage

Areas of potential cultural heritage significance are mapped by the Victorian Government. These areas trigger the need for Cultural Heritage Management Plans and associated archaeological surveys for areas that are proposed to be developed. Where actual artifacts are discovered, sites can be restricted from development depending on the significance of the discovery. Areas of cultural heritage significance are rarely a major constraint in themselves but they do trigger processes that need to be taken into account in the development of land. Further detailed planning work prior to rezoning would need to address this issue.

Landscape Significance

Certain areas of the Shire are protected by Landscape Significance Overlays in acknowledgement of the extraordinary views and vistas offered by the alpine landscape. There are also areas of the Shire that have been listed as a National Trust landscapes. These areas have been mapped.

It is considered that there are other areas that have not been protected that the community may consider worthy of protection.

Potable Water Catchments

Most of the Shire is covered by potable water catchments. There are requirements regarding development of land in potable water catchments so that water quality is not compromised.

Aquifer Recharge Areas

Parts of the Shire are regarded as aquifer recharge areas and are sensitive to the type of development that occurs on them so that water quality is protected. None of these areas are known in the potential urban growth areas.

High Quality Agricultural Land

The valleys of Alpine Shire are mostly of good to high quality agricultural land with reliable rainfall.

Where possible, it is preferable to avoid consumption of such land for urban purposes. These areas have been mapped.

Environmental Buffers

There are several areas within the Shire that are subject to environmental buffers, such as around sewerage treatment plants and certain industrial operations. These tend to be within or adjacent to urban areas and must be taken into account when considering new urban development. These areas have been mapped.

Geotechnical Barriers

Geotechnical risk can be a major constraint on development. Land that is subject to landslip, landslide, and erosion has been mapped.

Transport

Transport infrastructure can be vulnerable to environmental impacts that undermine safety and amenity. Roads that are subject to extreme frost, snowfall, rockfalls, landslip, flooding and high bushfire risk are factors that can impact on the suitability for urban development. Similar issues relating to walking and cycling apply. A separate transport assessment has been undertaken and is included as Appendix F to this report.

Transmission & other Easements

Easements, particularly major transmission easements, can be an important factor when assessing the suitability of land for urban development. They have been mapped as part of this project.

Excess Groundwater and Springs

There is a constraint that has not been assessed in detail at this stage. Where areas are selected for urban development it is appropriate that an assessment of the depth to water table and susceptibility to springs be undertaken.

4. Urban Suitability

The results of the constraints and opportunities analysis are mapped by town in the urban suitability maps in the following pages.

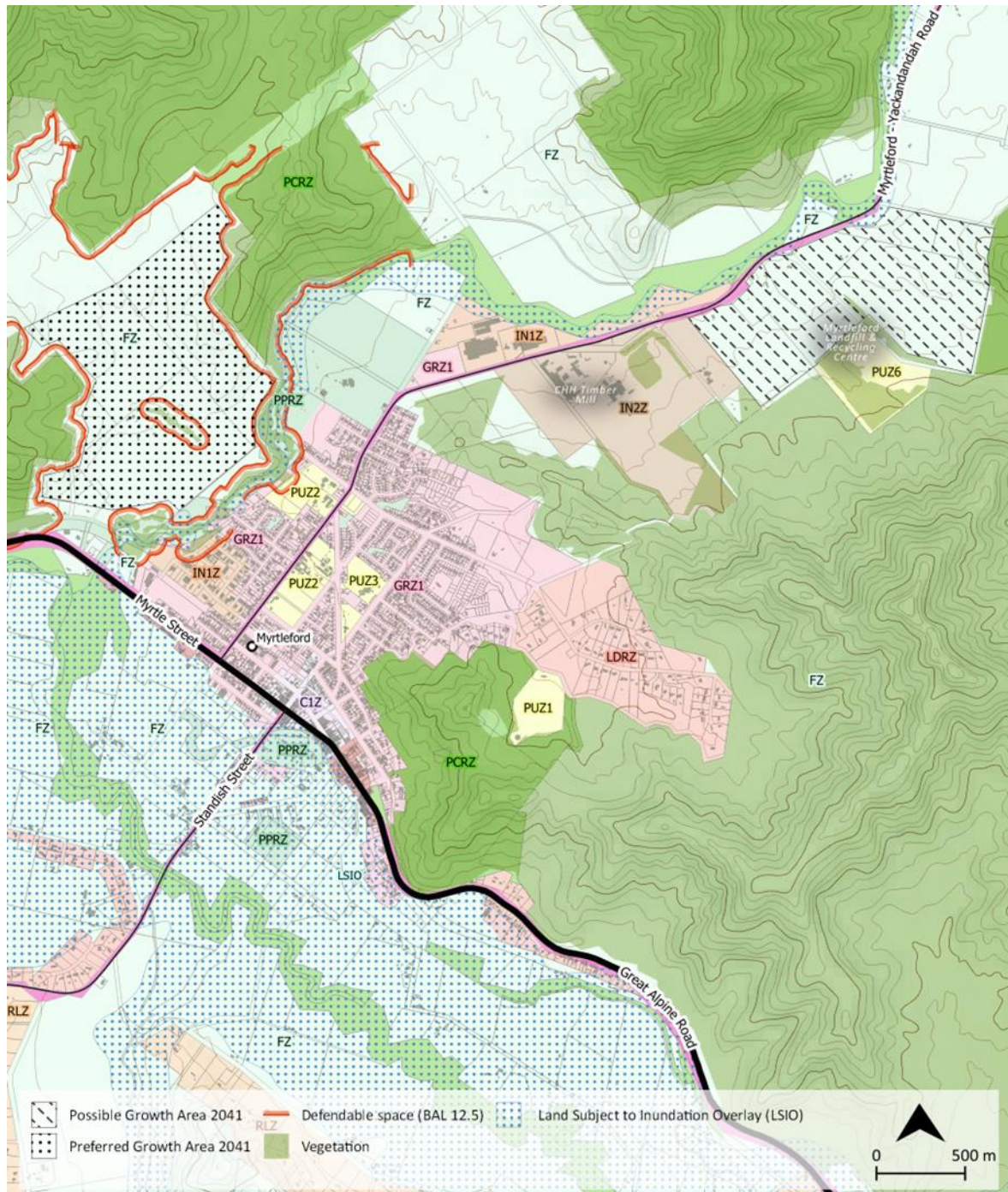
State planning policy states that the preferred areas for urban development are in or adjacent to existing serviced settlements where services can be easily extended. In practical terms, this means that planning policy options for urban growth are found in and around the settlements of Myrtleford, Porepunkah, Bright and Mount Beauty/Tawonga South.

The Multi-Criteria Assessment (MCA) that was undertaken of each of the identified greenfield sites to test the comparative suitability for development are expressed in the maps.

The major constraints of flooding and BAL 12.5 bushfire risk are shown, and the urban opportunity areas are indicated by either black stipples or dashed hatchings, as shown in the legends to the maps.

4.1 Myrtleford

FIGURE 4 - MYRTLEFORD ISSUES AND OPPORTUNITIES



Myrtleford West (open black stippling)

Situated on the north-western side of the town across Barwidgee Creek.

Total Area: Approx 100ha

Current land use: grazing.

Issues:

- Separation from existing Myrtleford by the Barwidgee Creek floodplain
- Much of the land, especially in the higher areas, is subject to extreme bushfire landscape risk
- No direct access from Myrtleford and only accessible via the Great Alpine Road at present.
- Outside current sewer district. High threshold costs for the construction of a bridge over Barwidgee Creek before development can proceed.

Opportunities:

- This area was identified in the Rural Land Strategy 2015 for protection for future urban growth of Myrtleford.
- A major transmission line easement covering 27Ha (approx.) forms a logical development boundary to the north as the area above the transmission easement is unlikely to be developed because of high landscape impact and bush fire risk.
- The 123Ha balance of the land appears technically be capable of development, however, total developable areas would more realistically be about 100ha after bushfire setbacks and drainage issues are addressed.
- The area has extensive potential for accommodating development in the longer term with a gross conventional density development potential of up to 1,000 dwellings and a population of up to 2,500 if fully developed.
- The Myrtleford Flood Study (currently underway) will provide information on the extent of flooding from Barwidgee Creek. This would assist in the determination of the best location for a bridge crossing as well assisting in the investigation of serviceability.
- Agricultural quality/versatility is moderate.
- The land is not required in the immediate future, however depending on whether forecast growth is realised for Myrtleford it may become needed towards the end of the 15-year time horizon of the Land Development Strategy.

Myrtleford North (dashed black hatching)

This area is situated on the southern corner of Myrtleford – Yackandandah Road and Morrisons Lane and is north of the existing INZ2 zoned land which accommodates the Myrtleford timber processing factory (Carter Holt). It wraps around the Myrtleford Cemetery and in its eastern corner is adjacent to the Council-owned quarry.

Area: Approx 105Ha

Current land use: grazing.

Issues:

- Separated by approximately 3.5km from the existing residential areas of Myrtleford by the Industrial 2 zoned area and the existing Plywood Factory.
- Subject to drainage issues.

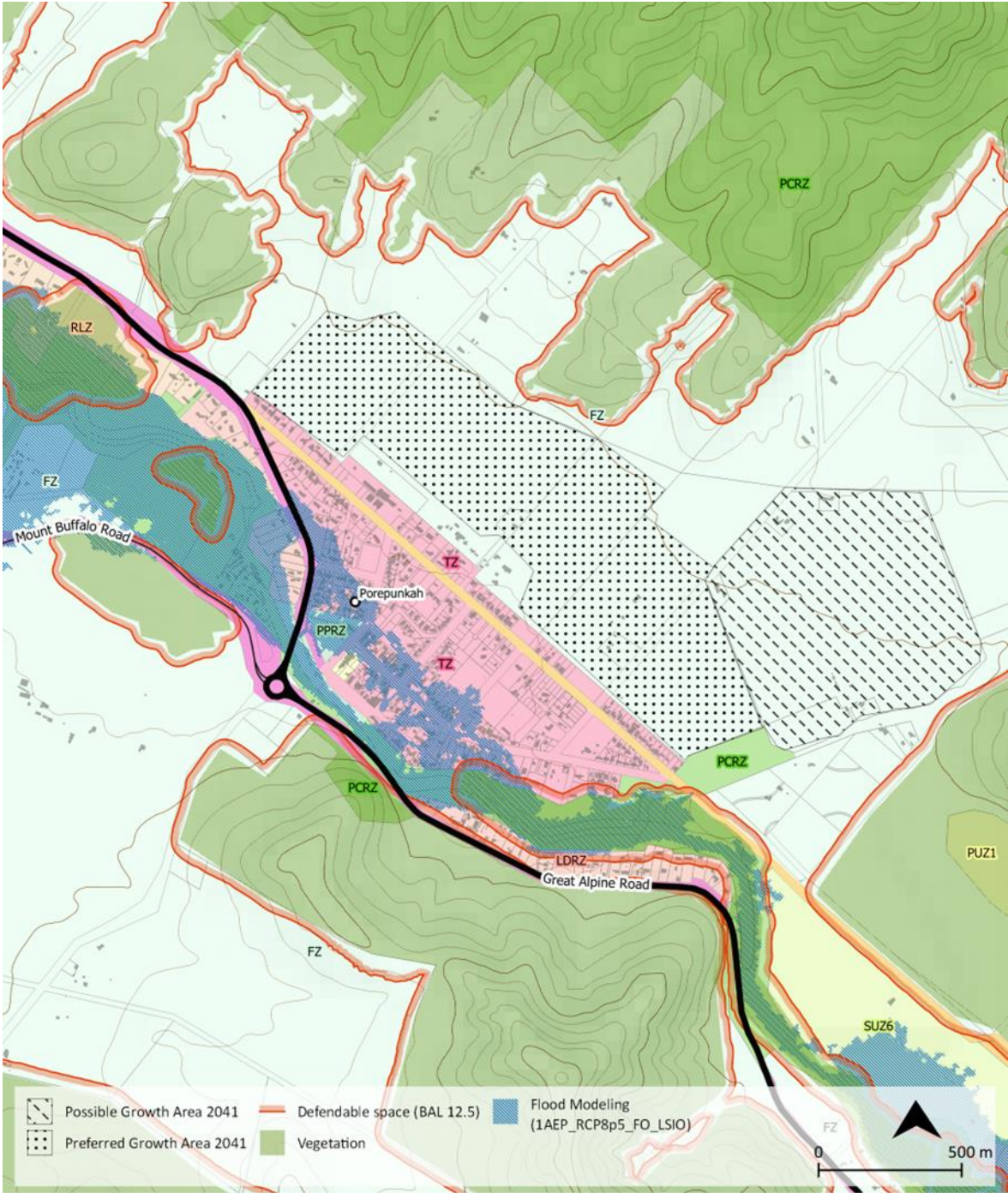
- Subject to buffer issues from a quarry.
- Development of this area would constitute a very poor urban design outcome for residential development due to separation from and poor connections to the township and exposure to potential amenity impact from industry.
- Much of this land is potentially constrained by buffer issues.
- The land is traversed by two creeks and will require further assessment regarding flooding potential.
- Only part of the area is inside of both water and sewer district requiring considerable infrastructure investment to catalyse development.

Opportunities:

- In the very long term, the land may have potential for industrial use, however presently there is sufficient industrial land supply in Myrtleford for the time horizon of this study.
- This land should retain the option for potential future unanticipated significant industrial development
- The area was identified in Rural Land Strategy for 'rural industry development'.

4.2 Porepunkah

FIGURE 5 - POREPUNKAH ISSUES AND OPPORTUNITIES



Porepukah (immediately adjacent to the town, black stippled area)

This area is situated directly to the north-east of Porepukah. The first stage constraints analysis identifies an area of approximately 160ha that does not have major constraints and is suitable for further assessment, this has been divided into the P1 and P2 areas.

Area: 98Ha (P1)

Current land use: grazing and horticulture.

Issues

- Landscape bushfire impacts increase the further north/upslope, development extends.
- Gravity fed water supply may not be possible at higher elevations.
- Porepukah is subject to drainage and flooding issues which will reduce its ability to accommodate increased densities.
- Investment in drainage infrastructure will be required.
- The potential growth area includes multiple landowners, which will require considered approach to structure planning and land release.
- Agricultural quality/versatility is high.

Opportunities

- The land is well sited to satisfy spill over demand from Bright as land availability in Bright reduces over time.
- Potential for up to approximately 80Ha of development when a more detailed assessment is undertaken, which may translate into up to 800 residential lots.
- Porepukah does not have a central activity focus. There is an opportunity to create a central activity core as part of an extension to the township.
- Porepukah provides good accessibility to key transport routes and facilities and services provided within Bright township.
- This area was recommended in the Alpine Rural Land Strategy to be investigated for rezoning.
- The area is less constrained by bushfire risk than the other sites examined in this study.
- The current water and sewer district extends approximately 340 metres north-east of Station Street.

Porepukah (eastern section, black dashed hatchings)

This area is situated directly to the north-east of the existing Porepukah Township. The first stage constraints analysis identifies an area of approximately 160ha that does not have major constraints and is suitable for further assessment, this has been divided into the P1 and P2 areas.

Area: 62Ha (P2)

Current land use: grazing and horticulture.

Issues:

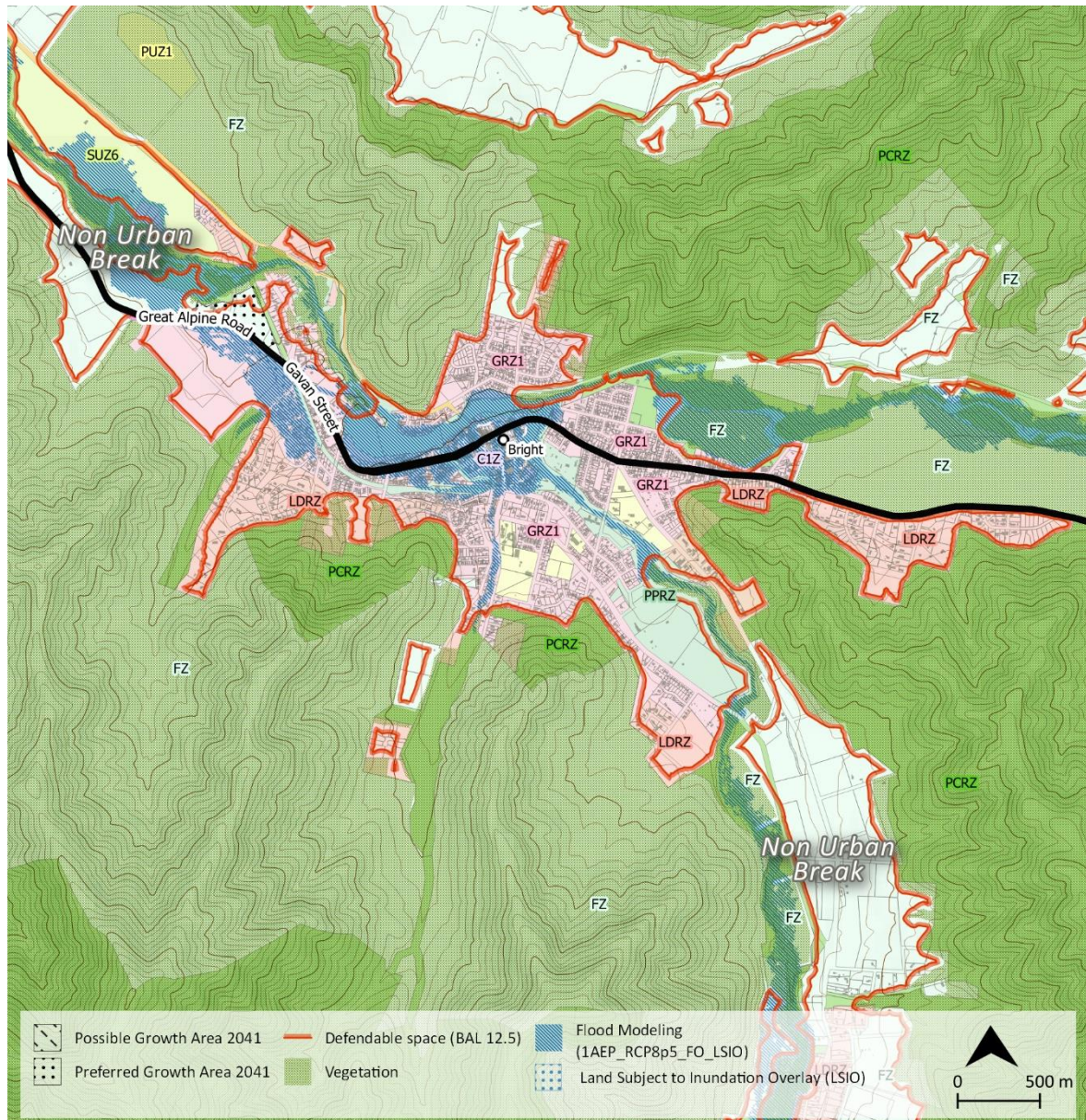
- Similar issues and opportunities to area P1 except that it is more remote from the existing town and is unlikely to be developed in the foreseeable future.
- Landscape bushfire impacts increase the further north/upslope, development extends.
- Gravity fed water supply may not be possible at higher elevations.
- The existing Porepukah Township is subject to drainage and flooding issues which will reduce its ability to accommodate increased densities without expenditure on drainage infrastructure.
- Agricultural quality/versatility is high.

Opportunities:

- The land has the potential to provide up to 600 lots or a population of 1,500 people if capable of full development,
- Porepukah does not have a central activity focus. There is an opportunity to create a central activity core as part of an extension to the township.
- The land is well sited to satisfy spill over demand from Bright as land availability there reduces over time.

4.3 Bright

FIGURE 6 - BRIGHT ISSUES AND OPPORTUNITIES



Bright Gateway (black stipple)

Situated on the north side of the Great Alpine Road, opposite land proposed for conventional density residential development of more than 200 lots.

Total Area: Approx 8Ha

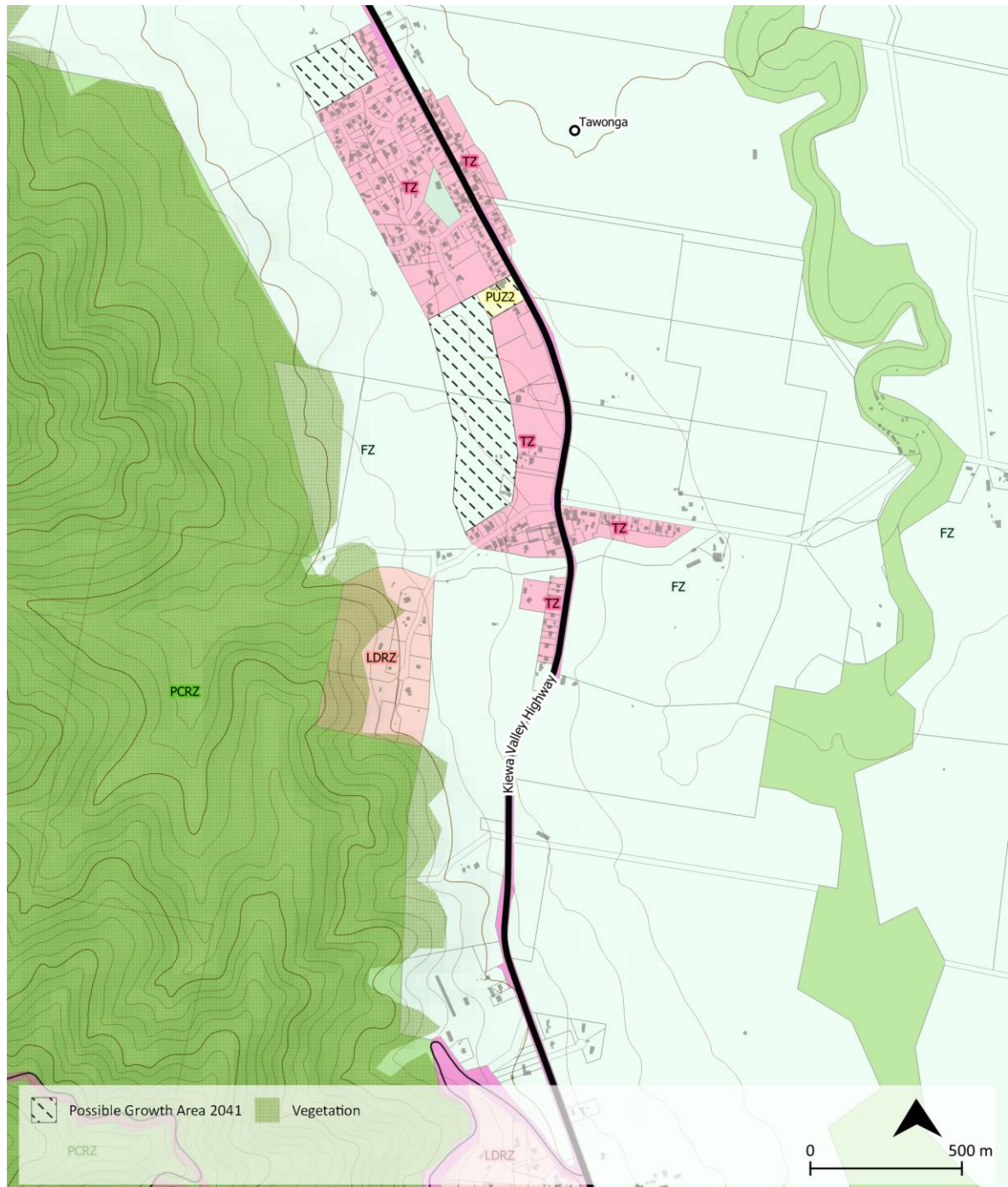
Current land use: Rural Living

Issues/Opportunities:

- Nominated in the Bright Structure Plan (Clause 11.01-1L-02 of the Alpine Planning Scheme) as an Urban Growth Area.
- Highly significant gateway entrance to Bright with the need for the retention of landscape buffers and lower density development.
- Interfaces the south side Murray to Mountains Rail Trail.
- Subject to significant topographical and bushfire issues at the western end which render that part unsuitable for development.
- Contiguous with existing and proposed residential development.
- Potential for approximately 10 low density residential lots.
- Agricultural quality/versatility is high, however:
 - Isolated pocket of Farming Zone not actively used for agricultural purposes.
 - Redevelopment of this site, adjoining existing residential areas, supports contiguous growth of Bright.
 - Best suited to low density residential development, and as such is likely to yield a limited number of dwellings.

4.4 Kiewa Valley

FIGURE 7 - KIEWA VALLEY ISSUES AND OPPORTUNITIES



North Tawonga

This area adjoins the north west of Tawonga township.

Area: 4 Ha

Current land use: grazing

Issues/Opportunities:

- From an urban design and community planning viewpoint the expansion of Tawonga is not recommended, as very limited services are available such that Tawonga is effectively a car dependent dormitory suburb. This presents issues for access to services for the population, with a greater impact on children and the elderly who are less likely to drive.
- Land located within SLO1 which includes an objective to: “contain urban development, specifically housing, to existing townships with definite visual boundaries.” Any decision relating to land to be released will be based on the degree to which landscape impacts are acceptable.
- Reticulated sewerage is not available in this location. However, the land is within the sewer district and in the future may have sewer made available to it. This is the reason for its inclusion in this evaluation.
- Reticulated water supply exists in this location.
- Potential for up to approximately 40 dwellings if fully developed at conventional density.
- would be contiguous with existing urban zoned land.
- The land is subject to extreme bushfire landscape risk.
- Agricultural quality is generally high.
- Landscape impacts from development of the land would be significant due to its elevation.

South-West Tawonga

This area is adjoins the south-west of Tawonga township and occupies higher ground above the town.

Area: 13.5Ha

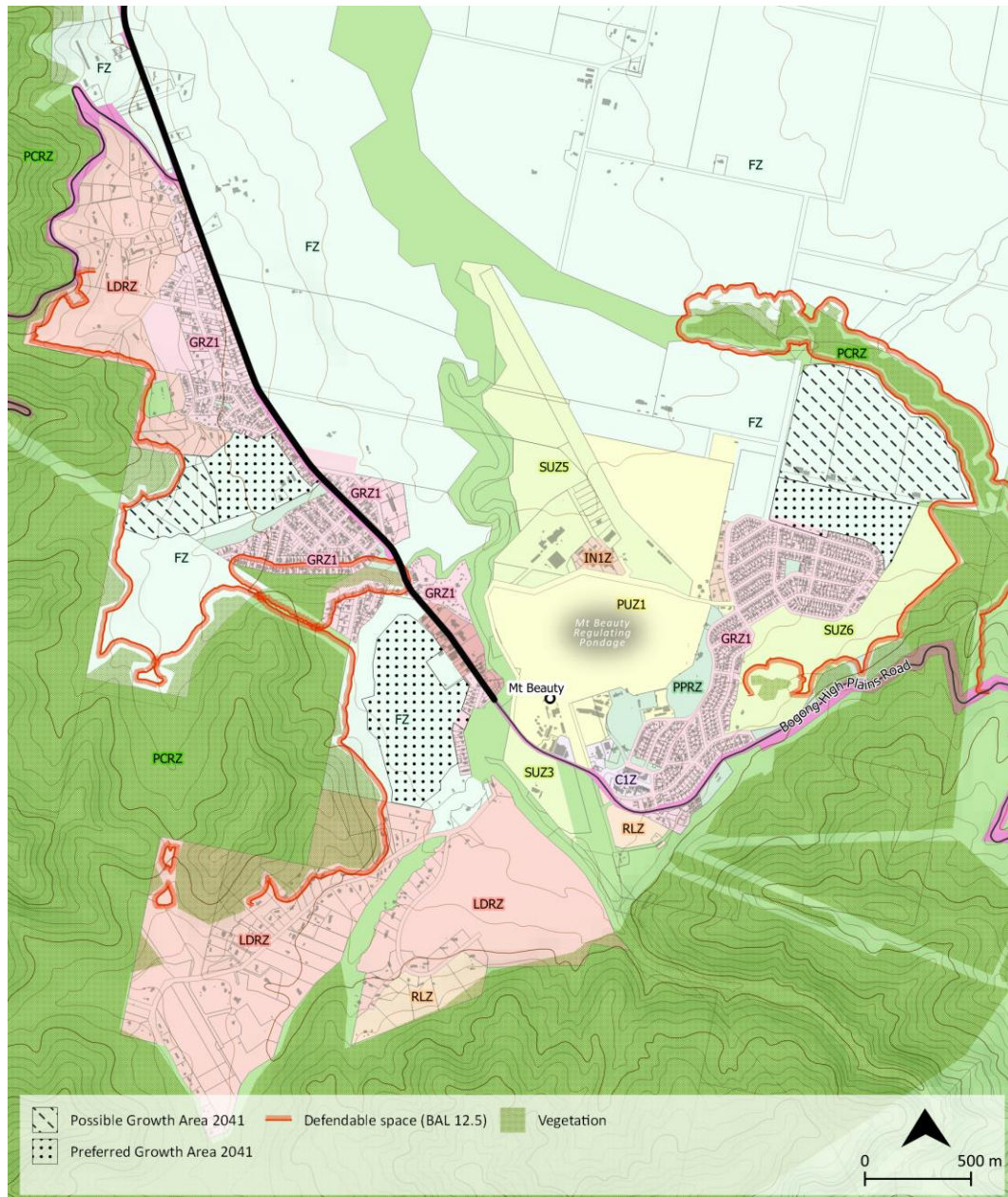
Current land use: grazing land

Issues/Opportunities:

- Similar issues and opportunities to North Tawonga.

4.5 Tawonga South and Mount Beauty

FIGURE 8 - TAWONGA STH & MT BEAUTY ISSUES AND OPPORTUNITIES



Tawonga South (northern section, dashed hatch, and stipple)

Area: 21.67Ha

Current Land Use: grazing.

Issues:

Nominated in the Tawonga South Structure Plan (Clause 11.01-1L-04 of the Alpine Planning Scheme) as an Urban Growth Area.

- Has significant landscape bushfire risk for a significant proportion of the site.
- Not situated within a Significant Landscape Overlay, however, development would have significant visual impact due to the high elevation of the land.
- Is partly affected by a major transmission line easement at its upper elevations.
- Agricultural quality/versatility is part moderate and part low.
- Site is situated further from the main services centre of Mount Beauty than other potential rezoning sites.

Opportunities:

- Subject to a current rezoning proposal of about 126 lots.
- Creates an infill between two other subdivisions and has the potential to provide improved linkages between these areas if properly designed.

TS3 – South Tawonga (southern section, stipple)

Area: Approx 50ha

Current Land Use: grazing.

Issues:

- Bisected by a major transmission line.
- At least partially subject to drainage issues. Further investigation of this issue is required before the land could be rezoned.
- Agricultural quality/versatility is moderate to high.

Opportunities:

- Nominated in the Tawonga South Structure Plan (Clause 11.01-1L-04 of the Alpine Planning Scheme) as an Urban Growth Area.
- Within a Significant Landscape Overlay, however, the land is not elevated and relatively flat and may be able to be developed without major landscape impacts.
- Within the sewer and water supply districts.
- Due to the flatter topography and highway location of the land, it has potential for industrial and commercial development and more affordable accommodation/housing.
- Close to existing services in Mount Beauty and Tawonga South, with a good level of pedestrian and cycle accessibility.

Mt Beauty North. (southern section, stipple)

Area: Approx 15Ha

Current Land Use: grazing.

Issues

- Land located within a Significant Landscape Overlay which includes an objective to: “contain urban development, specifically housing, to existing townships with definite visual boundaries.” Any decision relating to land to be released will be based on the degree to which landscape impacts are acceptable, and to what extent the land is constrained by flooding and drainage issues.
- The site is partly impacted by buffers from the Mount Beauty Transfer Station.
- Subject to unmapped drainage and flooding constraints (flood modelling yet to be undertaken).
- Agricultural quality/versatility is moderate to high.

Opportunities:

- Landscape bushfire risk is lower than most other sites.
- Inside of water district but only a small part on the southern edge is within the sewer district.
- Contiguous with urban area of Mount Beauty.
- Good accessibility to services in Mount Beauty for pedestrians / cycle access.

Mt Beauty North. (northern section, dashed hatch)

Area: Approx 39ha

Current Land Use: grazing.

Issues:

- The land located within a Significant Landscape Overlay but extends further into the area subject to the overlay than the area to the south of it.
- Any decision relating to land to be released will be based on the degree to which landscape impacts are acceptable, and to what extent the land is constrained by flooding and drainage issues.
- Outside of water district and sewer district.
- Subject to unmapped drainage and flooding constraints (flood modelling yet to be undertaken).
- Agricultural quality/versatility is high.
- Land not required in foreseeable future given growth forecasts for Mount Beauty.

Opportunities:

- Landscape bushfire risk is lower than most other sites.