Planning and Environment Act 1987

Panel Report

Latrobe Planning Scheme Amendment C87
Traralgon Growth Areas Review

22 June 2015

Planning Panels Victoria

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Planning and Environment Act 1987

Panel Report pursuant to Section 25 of the Act

Latrobe Planning Scheme Amendment C87

Traralgon Growth Areas Review

22 June 2015

Con Tsotsoros, Chair

Catherine Wilson, Member

Stephen Hancock, Member

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List of Abbreviations

AP	Australian Paper
DEDJTR	Department of Economic Development, Jobs, Transport and Resources
EPA	Environment Protection Authority
H_2S	Hydrogen Sulphide
the Framework	Traralgon Growth Areas Framework
LIDAR	Light Detection and Ranging
OU	Odour Units
ppb	Parts per billion
TRS	Total Reduced Sulphides
VPP	Victoria Planning Provisions

Overview

Amendment Summary	
The Amendment	Latrobe Planning Scheme Amendment C87
Common Name	Traralgon Growth Areas Review
Subject Area	Land in Morwell, Traralgon, the Traralgon West Growth Corridor, and the small towns of Glengarry and Tyers shown in Figure 1
Planning Authority	Latrobe City Council
Authorisation	14 August 2014 without conditions
Exhibition	Between 4 September and 31 October 2014
Submissions	42 submissions as shown in Appendix A

Panel Process	
The Panel	Con Tsotsoros (Chair), Catherine Wilson and Stephen Hancock
Directions Hearing	Latrobe City Traralgon Service Centre, 2 March 2015
Panel Hearing	Latrobe City Traralgon Service Centre, 20-23 April 2015
Site Inspections	Unaccompanied, 2 March 2015 and 22 April 2015
Date of this Report	22 June 2015

Executive Summary

(i) Summary

The Traralgon growth area is strategically located in what is considered to be Gippsland's economic and population centre. Two of Traralgon's major industries are the Loy Yang power station and associated coal mine that has operated since the 1980s and the Australian Paper Mill and associated plantations that has operated since 1937.

The Traralgon growth area has been experiencing steady growth and investment in recent years. However, this area has been described as being 'land locked' by a number of physical and land use constraints including the power station, coal mine, paper mill, plantations, major gas pipelines, regional airport, flood plains and the proposed Princes Highway realignment.

Council has had the complex task of weighing up these constraints while seeking to prepare a cohesive strategy for the region to 2041. The Panel considers the Traralgon Growth Areas Plan to be thorough and logical based on best available information at the time.

The Traralgon Growth Areas Plan and other supporting documents form the basis for Planning Scheme Amendment C87 to the Latrobe Planning Scheme that was exhibited in September and October 2014. The 42 Submissions received had diverging views on issues including the future Urban Amenity Buffer, land uses in certain locations and potential impacts to development near the coal mine.

In relation to the coal mine, geotechnical evidence indicates significant ground instability associated with the coal mine beyond the one kilometre coal buffer area and that existing monitoring is inadequate to determine the extent of this activity. The Panel concludes that the precautionary principle should be applied by excluding land within two kilometres of the coal mine from future urban expansion on an interim basis until better defined geotechnical evidence is available. When taking into account the timeframe for implementing the Traralgon Growth Areas Plan, Council could review the affected areas and determine their future once better quality information is known.

In relation to the paper mill, the Panel understands the concerns of both residents who supported the urban amenity buffer and those who opposed it. The reality is, a large proportion of Traralgon is located within the 5 Odour Unit contour. This contour would normally be applied as a buffer to restrict sensitive uses. However these circumstances do not exist because a significant level of sensitive land uses have encroached into the paper mill's buffer since it commenced operation in 1937. Taking into account this reality, the Panel recommends that urban amenity buffer be identified at the 10 Odour Unit contour in all strategic documentation and the Latrobe Planning Scheme. This buffer should not be open to any further negotiation because it reflects proven science and is already compromised. However, Council may seek to have different land use responses within the buffer, depended on location. This will be considered by Council as part of a future process to implement the Traralgon Growth Areas Plan.

The Panel is satisfied that existing provisions adequately respond to major gas pipelines and encourages relevant parties to continue communication on this matter. It agrees with the

principle of protecting wastewater infrastructure and considers that further work is needed to determine how best to respond to this matter.

Land rezoning was not in the scope of the Amendment therefore the Panel makes no recommendations in relation to land rezoning requests. It does however support Council's change to designate a property in Tyers for future rural living.

The Panel finds the Amendment's strategic direction on future land uses to be well supported by considerations found in the Traralgon Growth Areas Plan and associated supporting documents. The relevant authority is encouraged to implement better quality geotechnical monitoring without delay so that Council is provided with certainty about the future of areas south of the Princes Highway. This can form part of Council's future review of the Traralgon Growth Areas Plan.

This report includes:

- **Conclusions**: The Panel's response to an issue that does not recommend changing the exhibited Amendment.
- **Recommendation**: The Panel's response to an issue that recommends changes to the exhibited Amendment.

(ii) Recommendation

Based on the reasons set out in this Report, the Panel recommends:

Latrobe Planning Scheme Amendment C87 should be adopted as exhibited, subject to the following modifications:

1. **Change Clause 21.04 to:**
    a) **Include the following new strategy in Objective-1-Infrastructure of 21.04-6:**
    Implement Masterplans for the Latrobe Regional Airport, Latrobe Regional Hospital and the open space corridor within the Traralgon West Growth Corridor that maximises the use of existing infrastructure.

2. **Change Clause 21.05 to:**
    a) **Remove any future land use and staging that supports land use intensification in areas 5, 12b, 19, 21 or within the existing Environmental Significance Overlay Schedule 1 in the Traralgon Structure Plan.**
    b) **Realign the urban amenity buffer boundary along the 10 odour unit buffer modelled by GHD.**
    c) **Replace the final strategy in Commercial of 21.05-7 with the following strategy:**
    Encourage proposals for employment intensive businesses compatible with the nearby Latrobe Regional Hospital and Latrobe Regional Airport associated with health and aeronautics in Area 4.
    d) **Add a new strategy in Commercial of 21.05-7:**
    Consider proposals for other employment intensive businesses compatible with the nearby Latrobe Regional Hospital and Latrobe Regional Airport in Area 4.
    e) **Better define the location of the regional outfall sewer in the Traralgon Structure Plan and acknowledge its importance in 21.05-6.**

f) Better acknowledge the potential impact of new residential growth within close proximity of major gas pipelines in 21.05-6 and 21.05-7.

3. Change Clause 21.06 to:

a) Designate 106 Walhalla Road, Tyers for future rural living in the Tyers Structure Plan.

4. Change Clause 21.07 to:

a) Include a strategy to increase the width of Environmental Significance Overlay Schedule 1 to 2,000 metres east and south of the Traralgon township from the boundary of the Loy Yang mine open cut until a more specifically defined risk mitigation width is defined.

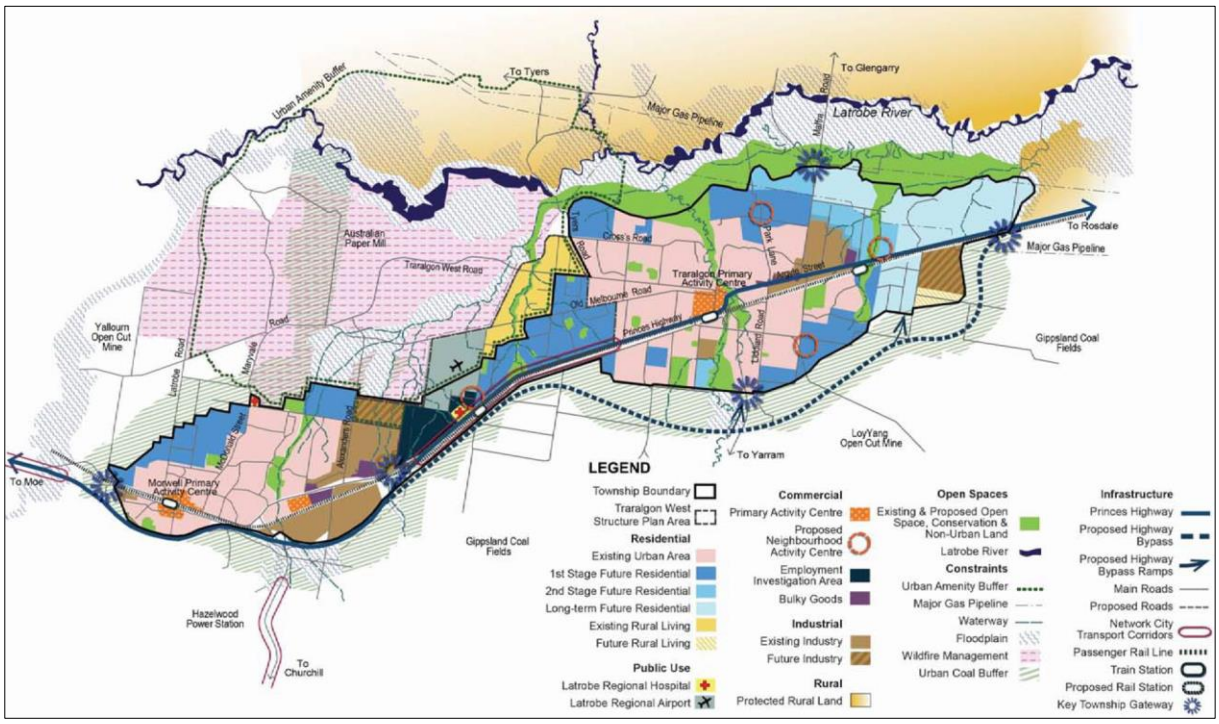
b) Include in Objective 4 - Industry the following new strategy:
Implement Masterplans for the employment investigations area, Latrobe Regional Airport and Latrobe Regional Hospital within the Traralgon West Growth Corridor that accommodates industry clusters linked to health aeronautics or agriculture research and development.

1 Introduction

1.1 The subject area and surrounds

The Amendment applies to land in Traralgon, the Traralgon West Growth Corridor, Morwell, and the small towns of Glengarry and Tyers shown in Figure 1.

Figure 1 Subject land



Source: Traralgon Growth Areas Framework

The Panel adopts Council's planning expert, Mr Barnes', description of Traralgon's context:

> *In the longer term Traralgon is effectively land locked. The long term future (ultimate) growth of Traralgon is constrained:*
>
> - *The Latrobe River and its extensive flood plain to the north.*
> - *The proposed Traralgon Bypass and coal reserves to the south.*
> - *Buffers to the Australian Paper Mill and Latrobe Regional Airport to the west.*
> - *Sheepwash creek, flood plains associated with the Latrobe River and coal resources to the east.*

1.2 Background to the proposal

According to the Traralgon Growth Area Framework (the Framework), Traralgon had a population of 31,105 in 2011 which is expected to grow to between 44,345 to 51,913 people in 2051. To accommodate this population, an additional 8,088 to 11,574 dwellings and between 904 to 1,294 hectares will be needed. It is anticipated that the Framework can facilitate 1,756 hectares of land available for residential purposes.

The Traralgon area has features that have attracted solid growth and investment. These include a regional airport, regional hospital, regional train station, major employers including the paper mill, forestry, power stations and open cut mines, associated commercial and industrial uses and its location on the Princes Highway.

Although Traralgon is expected to accommodate considerable growth, expanding the urban areas has its challenges. The Framework has taken into account an existing power station, open cut mines, an existing mine buffer, the paper mill and plantations, major gas pipelines, floodplains and existing water infrastructure.

The proposed Princes Highway Bypass adds a further complication by dissecting the eastern part of Traralgon, south of the existing Princes Highway, from the existing urban area.

1.3 The Amendment

The Amendment sets the strategic vision found in the Traralgon Growth Area Review Framework by changing Clauses:

- 21.02 (Municipal Vision)
- 21.04 (Built Environment Sustainability)
- 21.05 (Main Towns)
- 21.06 (Small Towns)
- 21.07 (Economic Sustainability)
- 21.08 (Liveability).

The following documents are proposed to be referenced in the clauses above:

- Traralgon Background Report (August 2013)
- Traralgon Growth Area Review Framework (August 2013)
- Traralgon West Structure Plan (August 2013)
- Australian Paper: Maryvale Pulp Mill Buffer Requirements (July 2011).

The Amendments changes and introduces strategies that implement:

- Recommendations of the Traralgon Background Report (August 2013), Traralgon Growth Area Review Framework (August 2013), Traralgon West Structure Plan (August 2013) and Australian Paper: Maryvale Pulp Mill Buffer Requirements (July 2011)
- The Growth Corridor Structure Plan
- Growth Framework Plan
- Preparation of Precinct Structure Plans and Development Contribution Plans.

The Amendment makes other drafting related changes to these clauses and does not rezone any land.

1.4 Procedural matters

The Panel originally comprised of Con Tsotsoros and Catherine Wilson. As part of its request to be heard, AGL Loy Yang confirmed that it would be seeking evidence from a geotechnical expert and asked if a third member with relevant specialist expertise could be appointed. In response, the Panel was reconstituted to include Stephen Hancock as its third member.

Expert witness statements on planning and geotechnical matters for AGL Loy Yang were not circulated to all parties by the required deadline. AGL Loy Yang agreed to a Panel direction for its experts not to be provided with copies of other expert reports that were circulated by the deadline directed by the Panel.

1.5 Issues dealt with in this report

The Panel considered all written submissions, as well as submissions presented to it during the Hearing. In addressing the issues raised in those submissions, the Panel has been assisted by the information provided to it as well as its observations from inspections of specific sites.

This report deals with the issues under the following headings:

- Planning Context
- AGL Loy Yang – power station and coal mine
- Australian Paper mill
- Sibelco site
- Employment investigation area
- Other issues.

2 Planning Context

Council provided a response to the Strategic Assessment Guidelines as part of the Explanatory Report, as identified in Table 1. The Panel has reviewed the policy context of the Amendment including relevant overlays and planning strategies.

Table 1 Policy Framework - relevant objectives and vision

State Planning Policy Framework

Clauses

11 Settlement

11.01 Activity centres

To build up activity centres as a focus for high-quality development, activity and living for the whole community by developing a network of activity centres.

To encourage the concentration of major retail, residential, commercial, administrative, entertainment and cultural developments into activity centres which provide a variety of land uses and are highly accessible to the community.

11.02 Urban growth

To ensure a sufficient supply of land is available for residential, commercial, retail, industrial, recreational, institutional and other community uses.

To locate urban growth close to transport corridors and services and provide efficient and effective infrastructure to create benefits for sustainability while protecting primary production, major sources of raw materials and valued environmental areas.

To facilitate the orderly development of urban areas.

To manage the sequence of development in growth areas so that services are available from early in the life of new communities.

11.03 Open space

To assist creation of a diverse and integrated network of public open space commensurate with the needs of the community.

To provide for the long term management of public open space.

11.05 Regional development

To promote the sustainable growth and development of regional Victoria through a network of settlements identified in the Regional Victoria Settlement Framework plan.

To develop regions and settlements which have a strong identity, are prosperous and are environmentally sustainable.

12 Environmental and Landscape Values

12.01 Biodiversity

To assist the protection and conservation of Victoria's biodiversity, including important habitat for Victoria's flora and fauna and other strategically valuable biodiversity sites.

16 Housing

16.01 Residential development

To promote a housing market that meets community needs.

To locate new housing in or close to activity centres and employment corridors and at other strategic redevelopment sites that offer good access to services and transport.

To provide for a range of housing types to meet increasingly diverse needs.

To deliver more affordable housing closer to jobs, transport and services.

17 Economic development

17.01 Commercial

To encourage development which meet the communities' needs for retail, entertainment, office and other commercial services and provides net community benefit in relation to accessibility, efficient infrastructure use and the aggregation and sustainability of commercial facilities.

17.02 Industry

To ensure availability of land for industry.

To facilitate the sustainable development and operation of industry and research and development activity.

To protect industrial land of State significance.

To create opportunities for innovation and the knowledge economy within existing and emerging industries, research and education.

18 Transport

18.01 Land use and transport planning

To create a safe and sustainable transport system by integrating land-use and transport.

To coordinate development of all transport modes to provide a comprehensive transport system.

18.02 Movement networks

To promote the use of sustainable personal transport.

To integrate planning for cycling with land use and development planning and encourage as alternative modes of travel.

To upgrade and develop the Principal Public Transport Network and local public transport services in Metropolitan Melbourne to connect activity centres, link activities in employment corridors and link Melbourne to the regional cities.

To manage the road system to achieve integration, choice and balance by developing an efficient and safe network and making the most of existing infrastructure.

19 Infrastructure

19.02 Community infrastructure

To assist the integration of health and education facilities with local and regional communities.

To develop a strong cultural environment and increase access to arts, recreation and other cultural facilities.

To provide fairer distribution of and access to of social and cultural infrastructure.

19.03 Development infrastructure

To facilitate the timely provision of planned infrastructure to communities through the preparation and implementation of development contributions plans.

To plan for the provision of water supply, sewerage and drainage services that efficiently and effectively meet State and community needs and protect the environment.

To facilitate the orderly development, extension and maintenance of telecommunication infrastructure.

To avoid, minimise and generate less waste to reduce damage to the environment caused by waste, pollution, land degradation and unsustainable waste practices.

To plan for the development of pipeline infrastructure subject to the Pipelines Act 2005 to ensure that gas, oil and other substances are safely delivered to users and to and from port terminals at minimal risk to people, other critical infrastructure and the environment.

To protect geodetic sites (survey marks) that support infrastructure projects, land development, survey, mapping and geographical information systems

Local Planning Policy Framework

Clauses

21 Municipal Strategic Statement

21.02 Municipal vision

The adopted vision in *Latrobe 2021- The Vision for Latrobe Valley* is: a vibrant region; a caring and enterprising community; a harmonious community; and a sustainable, safe, secure region.

21.03 Natural Environment Sustainability

To promote the responsible and sustainable care of our natural environment for the use and enjoyment of the people who make up the vibrant community of Latrobe Valley.

To responsibly manage the natural environment, to ensure its sustainability and diversity for the community.

21.04 Built Environment Sustainability

Same vision as Clause 21.03

21.05 Main towns

To promote the responsible and sustainable care of our built environment for the use and enjoyment of the people

who make up the vibrant community of Latrobe Valley.

To develop clear directions and strategies through consultation with the community ensuring sustainable and balanced development.

21.06 Small towns

To promote the responsible and sustainable care of our built environment for the use and enjoyment of the people who make up the vibrant community of Latrobe Valley.

To develop clear directions and strategies through consultation with the community ensuring sustainable and balanced development.

21.07 Economic sustainability

To provide leadership and to facilitate a well connected, inter-active economic environment in which to do business.

To facilitate a vibrant and dynamic economic environment.

21.07-3 Coal resources overview

To facilitate orderly coal development so that the resource is utilised in a way which is integrated with state and local strategic planning.

To provide a clear understanding within the regional community of the implications of designating land for future coal resource development or for buffer areas on the future use of land.

To ensure that new development is not undertaken in such a way as to compromise the effective and efficient use of existing or future infrastructure or resources such as the airport, coal resources, timber production, and high quality agricultural land.

To ensure that the use and development of land overlying the coal resources recognises the need to conserve and utilise the coal resource in the context of overall resources, having regard to social, environmental, physical and economic considerations in order to ensure a high quality of life for residents.

To maximise the protection of the coal resource to ensure resource security in the future.To ensure that the use, development and management of land in the coal resource areas mutually protect urban amenity and coal resource development as well as the continued social and economic productive use of land.

21.07-4 Coal buffers overview

To minimise the land use conflict between the coal resource development and other development and use in the municipality.

To ensure that adequate spatial separation is provided between existing and proposed urban and industrial uses and existing or proposed coal development so as to reduce the likely effects of earth subsidence, the emission of noise, dust, fire hazard and visual intrusion.

To provide for uses and developments which are compatible to coal development and ancillary services within the buffer area.

21.08 Liveability

To promote and support social, recreational, cultural and community life by providing both essential and innovative amenities, services and facilities within the municipality.

To enrich the vibrancy and diversity of community life through promoting and supporting recreational services and facilities.

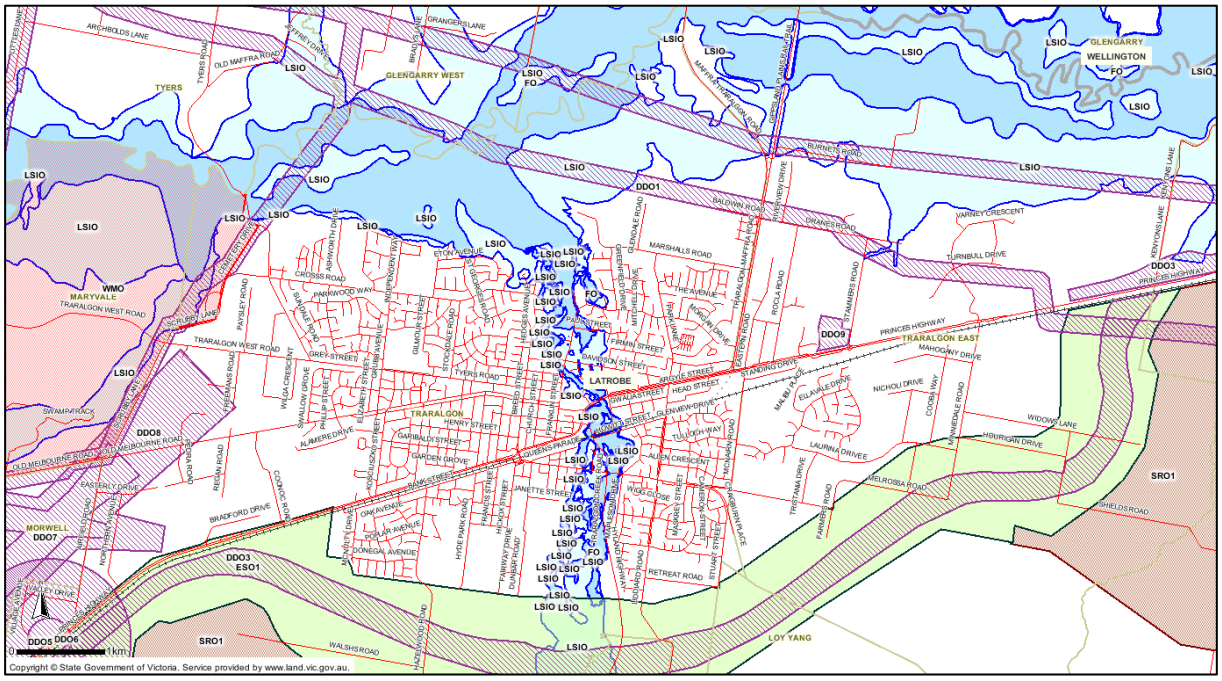
To enhance the quality of residents' lives by encouraging positive interrelated elements including safety, health, education, quality of life, mobility and accessibility, and sense of place.

To support arts and cultural opportunities that contribute to the vibrancy and diversity of community life.

2.1 Planning scheme provisions

There are several existing planning scheme overlays relevant to the Amendment, as shown in Figure 2.

Figure 2 Existing planning scheme overlays



Two notable overlays are:

- Environmentally Significant Overlay Schedule 1 that applies 1 kilometre from the Loy Yang open cut mine.
- Design and Development Overlay Schedule 1 that applies for development within close proximity to major pipeline infrastructure.

Environmentally Significant Overlay Schedule 1 (ESO1)

ESO1 seeks to:

- *Ensure that development in the Gippsland Coalfields Policy Area provides mutual protection of urban amenity and coal resource development and the continued social and economic productive use of land.*
- *Provide for development which is compatible within a buffer area including reservations and for services ancillary to a Brown Coal Open Cut outside the buffer area.*

ESO1 includes provisions that seek to address the relationship between the mine and surrounding land uses. A permit application for certain developments and subdivision are required to be referred to the Secretary to the Department administering the *Minerals Resources (Sustainable Development) Act 1990*. Currently, this is the Department of Economic Development, Jobs, Transport and Resources (DEDJTR).

Design and Development Overlay Schedule 1 (DDO1)

DDO1 seeks to:

> *Ensure that all buildings and works and in particular buildings designed to accommodate people are sufficiently separated from high pressure pipelines to avoid a safety hazard.*

One of the decision guidelines requires the responsible authority (Council) to consider the views of the Secretary of the Department administering the *Pipelines Act 1967*.

2.2 Gippsland Regional Growth Plan

The Gippsland Regional Growth Plan states that Latrobe City, consisting of Moe, Morwell, Traralgon and Churchill, is Gippsland's economic and population centre. It adds that the region will be one of the state's fastest growing with high quality urban and rural environments within easy access of Melbourne's east over the next 20 to 30 years.

The region's population is forecast to increase by 116,000 people in 2041, taking the population to 386,000. Significant new investment in clean and renewable energy and research and advanced manufacturing sectors may result in a higher population of 465,000 people. The growth plan adds:

> *This upper range figure envisages that Latrobe City, as the regional city, comprising Moe, Morwell, Traralgon and Churchill, has the capacity to accommodate this level of population and economic growth.*

One of the future land use strategies is the preparation of a strategic energy plan that identifies and protects the region's established and emerging energy resources in order to maintain Gippsland as Victoria's energy hub.

Future transport projects to improve the capacity and efficiency of the region's transport system include the Princes Highway duplication between Traralgon and Sale and the potential Princes Highway Traralgon Bypass that been reserved in the Latrobe Planning Scheme through a Public Acquisition Overlay.

2.3 Local planning documents

The Amendment introduces the following four new reference documents that justify the proposed updates to the Municipal Strategic Statement:

- Traralgon Growth Areas Review Background Report, August 2013
- Traralgon Growth Areas Review Framework August, 2013
- Traralgon Growth Areas Review Traralgon West Structure Plan, August 2013
- Australian Paper: Maryvale Pulp Mill Buffer Requirements, July 2011.

Traralgon Growth Areas Review Background Report: Traralgon Growth Areas Review, August 2013

The Traralgon Growth Areas Review Background Report, prepared by Hansen Partnership and Parsons Brinkerhoff, reviews the existing conditions which many influence future growth. The report investigates existing conditions, considers community feedback, and includes policy context, demographic trends, constraints, implications and opportunities.

Identified physical constraints include the Traralgon bypass, coal resources, flooding, gas pipeline, biodiversity values and cultural heritage.

Identified land use constraints include existing residential, industrial and retail zoned land, Latrobe Regional Airport, Latrobe Regional Hospital and land fragmentation.

Traralgon Growth Area Framework: Traralgon Growth Areas Review, August 2013

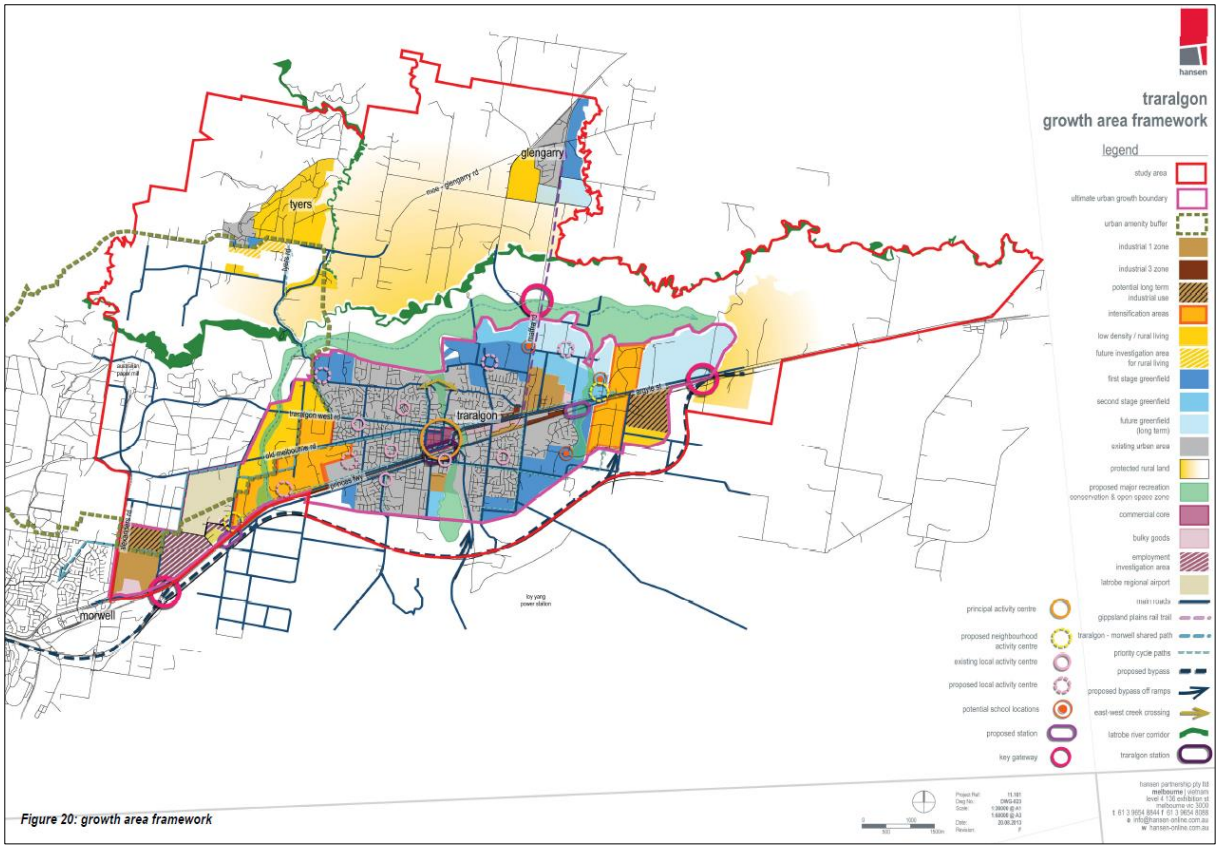
The Traralgon Growth Areas Review Framework was prepared by Hansen Partnership and establishes:

- A growth area framework for Traralgon and surrounding areas including Glengarry and Tyers
- A more detailed Structure Plan for an area to the north of the existing Princes Highway between Traralgon and Morwell (the Traralgon West Structure Plan).

The review commenced after approximately 500 hectares identified in the Traralgon - Morwell Corridor Concept 2007 was impacted by the decision to locate the future Traralgon Bypass along its northernmost alignment. The Framework recognises that opportunities for long term growth and expanding Traralgon are heavily constrained.

The Traralgon Growth Area Framework is shown below.

Figure 3 Traralgon Growth Area Framework



Traralgon West Structure Plan: Traralgon Growth Areas Review, August 2013

The Traralgon West Structure Plan was prepared by Hansen Partnership and states:

> *The Traralgon West Structure Plan will become a key guiding document designed to shape the future development of a significant area of land strategically located between the Latrobe City towns of Morwell and Traralgon.*

The Traralgon West Structure Plan is shown below.

Figure 4 Traralgon West Structure Plan

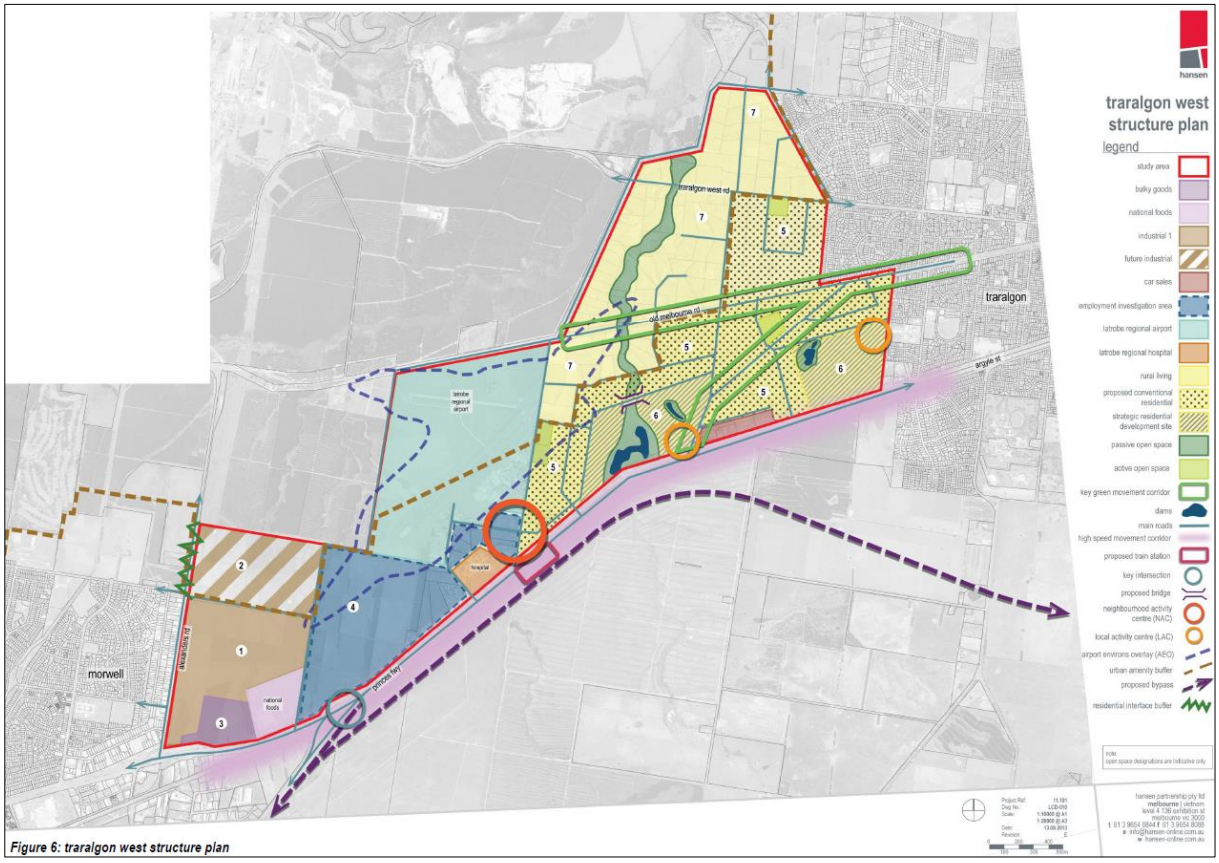


Figure 6: traralgon west structure plan

Australian Paper: Maryvale Pulp Mill Buffer Requirements, July 2011

The Australian Paper: Maryvale Pulp Mill Buffer Requirements document was prepared by GHD and recommends that:

> *In undertaking and implementing findings of the current Growth Areas Review, Latrobe City Council could reinforce the need to protect the Maryvale Mill from encroachment of sensitive uses by depicting a buffer area on the revised Traralgon Structure Plan, and associated local policy regarding urban growth and development.*

Figure 11 of the report shows an urban amenity buffer that applies a 10 Odour Unit contour and an adjusted (reduced) buffer that takes into account land that has already been identified for residential development.

2.4 Conclusion and recommendation

The Panel finds the strategic direction proposed by the Amendment to be supported by a thorough and well considered framework plan (the Traralgon Growth Area Framework) based on best available information.

The Panel concludes that the Amendment is supported by, and implements, the relevant sections of the State and Local Planning Policy Framework.

The Panel recommends that Latrobe Planning Scheme Amendment C87 be adopted as exhibited subject to changes recommended in this report.

3 AGL Loy Yang - power station and coal mine

Amendment C87 proposes that:

- Area 5 be encouraged as a short-term residential area
- Area 12b be encouraged to move from its present rural living zoning to longer-term residential
- Area 21, which is currently a farming zone, undergo an intensification of land use to rural living zone
- Area 19 be considered for future industrial usage options
- Delete the following strategies in Clause 21.05-6 that seek to:
  - Resolve Environmental Significance Overlay Buffer conflicts along the southern boundary of Traralgon and assess its impact.
  - Investigate opportunities for long term urban growth to the south east of Traralgon once the Loy Yang mining license has ceased (approximately 2040 - 2050).

Traralgon has expanded over many decades to support the coal mines and associated power stations using Victoria's enormous brown coal deposits.

Managing the urban, industrial and infrastructure development interfaces with the operational realities of these very large, important and dynamic mining operations has applied since the mine commenced. AGL Loy Yang, the power station and associated mine operator, is concerned the proposal to expand and intensify land uses within close proximity to the interface and buffer area south and south-east of Traralgon. AGL Loy Yang is concerned with the impact the mine operation will have on these future land uses and vice-versa and the intention to delete sections of Clause 21.05-6.

3.1 The issues

The issues are:

- Whether Urban land uses abutting the ESO1 should be expand and intensified
- Whether the two strategies in Clause 21.05-6 should be deleted

3.2 Evidence

Mr Peter O'Farrell, representing AGL Loy Yang, called evidence from Mr Sullivan of Pells Sullivan Meynink (PSM Consult Pty Ltd) on geotechnical issues and Mr McGurn of Environmental Resources Management Australia (ERM) on planning.

(i) Geotechnical

Mr Sullivan's report and his evidence were thorough in covering the geotechnical issues and data relating to the Latrobe Valley coal mining and in particular to the issues and risks he perceives in respect to the incursion into the buffer zone (ESO1) and incursion into the urban and industrial areas abutting the buffer zone.

He outlined the history of brown coal mining in the Latrobe Valley and the gradual recognition of the geotechnical issue arising as the mines developed and increased in area, location and depth. He described the geotechnical and hydrological technology applied to

mitigate the stability issues as they arose. He noted that an SECV report in 1977 addressed the ongoing nature of the geotechnical issues. It recognised that with mining after 1960 that '*long-term continuing community and urban planning is based upon a background knowledge of regional earth movements likely to accompany open cut developments in the future'.* It is important that planning recognises the experiences of the last 55 years.

Mr Sullivan noted that the Amendment looks out 30 to 40 years and this requires future geotechnical stability factors and their implication to be taken into account in planning. The degree of confidence which applies to any prediction made in respect to the 30 to 40 year period also needs to be taken into account.

Mr Sullivan listed 10 unforeseen stability issues which have arisen around various Latrobe Valley mines, including recent and historic incidents. One of these, the Lewis Anomaly 1966, has affected areas beyond what is now the ESO1 coal buffer. Mr Sullivan presented a plot of the distances of the 10 earth stability failures recorded, as measured from the Batter Toe towards the adjacent town boundary. The closest of these extended to only 270 metres from the town boundary of the buffer zone. This was the Princes Highway failure adjacent to the Hazelwood open cut north boundary in 2011.

He explained that the brown coal is a low density, low plasticity index material which occupies the majority of the batter faces due to there being comparatively little overburden or inner-burden material to use. Long term dewatering of the coal and depressurisation of associated aquifers to depth around all the mines had given rise to widespread settlement (subsidence) and movement. This movement is continuing.

Mr Sullivan presented many figures evidencing settlement (vertical movement) and horizontal movements. Notably, the former showed the settlement to extend both beneath and well beyond the coal mine buffer zones into the township areas. It is presently in excess of 0.4 metres beneath Traralgon and even more beneath Morwell. The magnitude of vertical settlement increases toward the mine batters.

Mr Sullivan states, in his written evidence, that '*The Latrobe Valley and the mines it contains is now a system with a large number of mutually interacting parts'* and that the area is prone to '*sudden transition from quiescent state to an unstable incident or collapse'.* He states that all the Latrobe Valley mines are subject to the following four types of movement:

- *Valley wide groundwater induced settlement (subsidence).*
- *A zone of in-situ horizontal stress relief extending outside the mine crest.*
- *Ongoing creep movements still occurring decades after mining was completed in the area.*
- *Movement related to slope instability type mechanisms, which can also be reinitiated a long time after mining is completed.*

He stated:

> *…even though some of the past and ongoing movement by themselves constitute a hazard, these movements may make the area sensitive to external water loading events, for example rainfall runoff and earthquakes.*

Mr Sullivan described the significant mass earth movements that have occurred and, where these failures occur, at least two common elements contribute to the sudden and unforeseen incidents:

- The presence of differential stress which relieve along previously unknown geological weaknesses (failure planes)
- An initiating event relating commonly to water ingress into sub-surface 'sink holes' created by the stress relief.

While other elements, including local infrastructure design, acted to aggravate some failures, Mr Sullivan clarified that the above two factors were not predictable from present monitoring. Indeed, the need for monitoring was foreseen in 1970s reports and has been continued. He commented that the significance of the geotechnical issues which could arise appeared to have been 'forgotten' over time as mine operators struggled to deal with low frequency but high impact incidents. This problem is exacerbated where incidents arise in areas not subject to mining company management. These issues may have become more frequent since 1990 when the mines, power station facilities ownership and their geotechnical service providers transferred from the single authority (the SECV) to private enterprise.

Mr Sullivan stated that the coal mines in the Latrobe Valley now represent a complex geotechnical system which has many elements. These can be expected to, or are already interacting, to create complex stresses in both vertical and horizontal axes. These may give rise to future failures at locations which cannot be predicted. He particularly noted that the batters of the Yallourn Eastfield open cut had been closely monitored, however, the failures along Latrobe Road (2014) and adjacent to the Latrobe River flood plain (2007) were unforeseen even though they involved very large mass earth movements. With the eastern batter, the movement was experienced across a 1,000 metre parallel to the batters. In both cases, the impact extended well outside the mining licence boundary. These failures foreshadow what could occur if urban development is allowed to get too close to the margins of the mining operations.

Mr Sullivan noted that present subsidence and horizontal movement monitoring was indicating some anomalous areas to the north of the Loy Yang mine within the buffers. These were similar to anomalies to the north of the Hazelwood open cut mine south of the Morwell town boundary where failures have occurred in the past. Notably, Mr Sullivan stated that the data density and frequency here is still insufficient to define the basis for these anomalies.

Mr Sullivan analysed monitoring data using the rates of horizontal movement coupled with distance from the toe of the adjacent mine batter. His analyses led to the concept of a three zone Area of Influence around the mine perimeter where risks of ground instability events might take place. The three zones are described generically as:

- Zone 1 - nearest to the toe of the batter where the majority of the vertical and horizontal movement has occurred and the majority of the in-situ stress has been completely relieved.
- Zone 2 - some distance from the toe of the batter (but probably encompassing the buffer zone width) where in-situ stresses are interpreted to be partially relieved.

- Zone 3 - beyond Zone 2 and extending away from the batter where high in-situ stresses remain but where limited movement has occurred yet.

The Area of Influence concept was further illustrated by study of the data which applied at the Lewis Anomaly failure in 1966, 1975 and 1988 and at the more recent failure Latrobe Road Failure in 2013. Monitoring data was used to define ground movement vectors to identify developing stress plane locations following subsidence on horizontal movement from residual hydraulic pressures and adjacent mine voids.

Mr Sullivan presented subsidence data around the Loy Yang open cut mine (1982 to 2010 with some point predictions beyond 2020) along with horizontal movement data and vectors for three ground movement monitoring lines (N3, N5 and N7A). These extend across the northern batters into and beyond the buffer zone. The three lines include data collected variously from 1982 up until 2014. The frequency of monitoring varies from line to line and from point to point from six monthly to once every three years.

Mr Sullivan used data from these lines to define the present boundaries between Area of Influence Zones 1 and 2 and between 2 and 3 across the western end of the Loy Yang pit northern batters, across the buffer zone ESO1 and over the south eastern area of the Traralgon township. The defined zonal boundaries do not extend to line N7A as the data along this line and to the east is inadequate to be definitive as to the Area of Influence. Notably, the area to the east, currently unmapped as an Area of Influence, is close to where the subsidence mapping zone suggests there may be a geotechnically anomalous area. An anomaly is evident in the horizontal movement data, although Mr Sullivan stated that it is insufficient to be interpreted in terms of stress generation or where the focus of any mass or sudden ground movement might initiate.

In response to Panel questions, Mr Sullivan advised that as the mine expanded to the east and south and to greater depths, ground movement must be expected to continue as it had around the Hazelwood and Yallourn pits. Some rehabilitation may be possible around the western end of the mine however, in his opinion, this is unlikely to mitigate existing stresses in the northern batters for some time. Some elements of the rehabilitation may, for a time, exacerbate the stresses.

Mr Sullivan was concerned that the monitoring data is too diffuse and infrequent to reveal the development of a failure foci. He was especially concerned that the various stresses between the mines in the Latrobe Valley may start to interact and create new patterns that may not be detected due to insufficient data. Future rehabilitation of the mines in the Latrobe Valley could impose new sources of stress, the patterns and interactions of which cannot be modelled or predicted at this time.

He noted that Zone 3 already covered much of the south eastern area of Traralgon. It appeared to him that while differential ground movement had yet to occur sufficiently to cause damage to buildings and infrastructure, he could see evidence of ground movement, albeit he believed this was only due to subsidence.

The Panel questioned whether engineering design codes could protect infrastructure and buildings from damage consequent upon ground movement. He agreed that this is possible but at a cost. Mr Sullivan added that there needs to be sufficient data to provide a basis for

damage risk mitigation designs. He expressed concern about potential problems which could arise with existing and future infrastructure efficiency. For example, pipes and channels may lose their gradation and result in cracks and decreased delivery capacity. These could lead to local ground seepage and act in the same manner as the low flow drain adjacent to the Princes Freeway which was considered to have created the sinkhole and destabilised the structure. Similarly, he noted that subsidence could exacerbate the area and frequency of flood inundation around flood plains and drained areas.

The Panel questioned Mr Sullivan about guidelines being prepared titled *Managing Ground Control Risks Associated with Open Cut Mining* (the Mining Guidelines). He stated the Mining Guidelines were intended to address the consequences resulting from the presence and form of the mine openings in relation to the sequence of material being excavated and related activities. Activities, including groundwater pressure and pressured management, are among the issues relating to coal excavation and transport from the mines.

Mr Sullivan added that the Mining Guidelines had been prepared by a committee including all Latrobe Valley mine operators and the State government and it was due to be finalised shortly.

The Mining Guidelines will seek to mitigate risks by getting better data so that mining operations can be optimised to avoid the exceedance of societal norms related to land stability outside the areas of mining operations. Mr Sullivan stated that with better mining engineering many significant ground failure incidents could have been avoided. He did not agree that guidelines could be developed at this time to sufficiently mitigate all the impacts currently occurring in Zone 3 of the Area of Influence. This was because the area that needs to be monitored and the frequency of monitoring necessary to be cost effective and sufficient to provide design guidance and management is so great.

The Panel questioned Mr Sullivan as to alternative monitoring approaches. He considered that LIDAR[1] surveys could be a valuable step forward in covering the area in terms of subsidence, but it could not represent horizontal mass creep movements. He stated that monitoring data needs to be integrated into land management planning.

In relation to intensifying the land use around the south-east of Traralgon, Mr Sullivan stated that he did not have enough data to understand the risks and hence discouraged any change that could increase the magnitude and severity of loss which might be encountered should there be a significant ground failure. He was concerned about the proposed Traralgon Bypass Freeway scheduled for construction within the buffer ESO1 but he accepted that good engineering design could mitigate the potential for failure provided adequate geotechnical data for design was collected in advance.

Mr Sullivan considered that the existing 1 kilometre buffer is too narrow and should be increased to provide at least a 50% safety factor. Further, he considered that increasing urban development and residential density as is proposed represents risks that are unacceptable and probably in excess of societal norms. When questioned by Council, Mr Sullivan stated that the Traralgon Bypass Freeway design considered the impact of subsidence around the nearby mine but not in any detail.

[1] LIDAR is remote sensing technology that measures distance.

He based this opinion on:

- his knowledge of geotechnical risks of ground stability and movements in the Latrobe Valley
- his knowledge of the potential consequences of geotechnical failures
- considering that mining was going to continue for at least 30 to 40 years
- the fact that the Area of Influence already extends well into the Traralgon township.

When questioned by Council, Mr Sullivan advised that Guidelines have not been peer reviewed, do not have government endorsement and will not have statutory authority.

He added that the monitored survey markers occur in the Traralgon Growth Areas Review (TGAR) area and include subsidence monitoring points which are well outside this area. He added that the subsidence extends over an area of 20 kilometres north to south by 45 kilometres east to west around the Latrobe valley coal mines. Data from the monitoring can be relied upon, but data trends observed may not be understood, at least initially.

Mr Sullivan stated that the Area of Influence as mapped for the Loy Yang mine overlaps with some of the TGAR area. Area 5 does not fall within Zones 1 or 2 of the Area of Influence. The Area of Influence is not mapped beyond stability line N5 because the data is too uncertain or has not been collected. The extent of the Area of Influence may expand in the future as the mining gets deeper to the east. This could see areas 5, 12b, 19 and 21 encompassed albeit 12b, 19 and 21 are not covered at present because delineation of the Area of Influence cannot be extended on the data available at this time. The extent of the Area of Influence distinguishes between what is known and what is not known. The best data exists close to the north west corner of the Loy Yang mine and reflects the geology as exposed in the batters in that area. To the north east, the geology of the coal becomes more complex and fold crenulations are observed. These are, from experience, likely to represent areas of higher stress and potentially areas greater concern in respect the ground stability.

In relation to the mine, Mr Sullivan considered that if the mine operator altered the batter angles it is unlikely to modify the mass creep behaviour since these derive from some different factors of which the batter angle is but one. However, if the operator modified the direction of mine development away from an easterly and southerly direction this might influence ground stability in regard to mass creep.

(ii) Planning

Mr Barnes, a planning expert on behalf of Council, stated:

> *Given the statutory nature of ESO1 (i.e. it is an overlay control not a policy), in my opinion the boundaries of that overlay should be definitive in terms of determining how close urban development may extend towards the coal resource and vice versa.*

Mr McGurn stated that the Amendment proposes to reference the Traralgon Growth Area Review Framework in the Latrobe Planning Scheme which means that *'while the amendment will not have the effect of rezoning the land for residential purposes it would , in effect, reinforce the future urban development of land for this Purpose'.*

Mr McGurn adopted Mr Sullivan's evidence in respect to his concerns in relation to the highly specialised impacts and effects that may apply to proposed amendment centres. He noted that the *'southern boundary of Traralgon township comprises largely conventional residential areas and some rural residential areas as well as farming land that is within the town boundary'.* The buffer to the south of the town boundary is primarily used for open farming and agriculture and some low density rural residential uses. The proposed Princes Highway Traralgon Bypass freeway will be located in an area currently identified by a Public Acquisition Overlay.

Mr McGurn noted the many risks and uncertainties in respect to ground stability and control within Mr Sullivan's evidence and commented:

> *It is difficult to quantify the potential risks in terms of probability and severity but based upon Mr Sullivan's report and opinion there is evidence to suggest that such incidents will continue regardless of the future operations of the mine.*

He noted that the existing context of the town, which includes farming and low density residential uses, provides part of an extended buffer to the existing coal mine. Future rezoning, as could occur as a consequence of the Amendment, could allow for more conventional urban residential development or intensification of residential land development, in effect increasing the density of development (buildings, structures and infrastructure) and human occupation in these areas. In this context consequences deriving from ground instability, which Mr Sullivan considers are a possibility in the future, are elevated and a significant matter which needs to be taken into account before rezoning.

Mr McGurn's conclusions in summary are that:

- While there may be strategic support for residential expansion through future rezoning towards the Loy Yang mine , the particular geotechnical circumstances and the associated significant risk to life and property do not appear to support this outcome.
- The above concerns relate to Areas 5a, 12b, 19 and 21 which are nominated on the proposed Structure Plan (Clause 21.05-6) and in the TGAR.
- The above listed areas should not be rezoned without further investigation which could reduce or eliminate the geotechnical risks. In the interim the status quo of the existing statutory and strategic context should prevail.
- Reference to ESO1 should not be deleted and that the guidelines are necessary to direct the use and design of land use within the ESO1 land.

Mr McGurn determined that any document in the Amendment which identify these areas for future rezoning would be inconsistent with planning for the orderly use and development of the land and does not meet the objectives of planning in Victoria and the Strategic Assessment Guidelines for planning scheme amendments.

3.3 Submissions

Mr Pullman submitted the following summary of changes proposed around the coal mine buffer:

- Area 5 - no change from existing residential so it is status quo. Area 5 had been considered in Amendments C47, C56, C58 and C62, approved by the Minister for Planning in 2010-2012.
- Area 12b - proposes to change from present rural living zoning to longer-term residential. The small area of encroachment into ESO was a mapping error that has been corrected in the post exhibition changes.[2]
- Area 19 - proposed to change from FZ to Industrial Zone subject to an industrial strategy. It is outside the ESO.
- Area 21 - Amendment C87 recognises what is already there. It identifies an existing rural residential precinct in a Farming Zone as future rural living. The Amendment does not propose to encourage further subdivision.

Mr Pullman said the real focus is therefore Area 12b. He noted that no land monitoring data had been provided to confirm land subsidence is occurring or will occur.

Council submitted that it was not made aware of geotechnical issues when it proposed to delete references to the two coal mine related sections of Clause 21.05-6. Mr Pullman acknowledged that the geotechnical issues are challenging and confirmed that Council is working with the Coal Council of Victoria to consider issues related to coal mining in TGAR.

Council invited Loy Yang to participate in the TGAR process but did not receive a reply. The Panel was informed that this may be due to the change of ownership of Loy Yang around the time the invitation was sent. A further invitation was sent before the Hearing and again there was no response. Mr Pullman said that DEDJTR did not flag any issues associated with the coal mine or the buffer and it only became aware of the geotechnical issues after receiving Mr Sullivan's late evidence.

Mr John Mitas, who represented DEDJTR, stated that the Technical Review Board comprised a broad group of experts who sought to develop a complex geotechnical and physical model to guide how the purposes of the *Mineral Resources Sustainable Development Act 1990* could best be achieved and to plan for mine rehabilitation. He noted that there are gaps in the understanding of the geotechnical and hydrogeological systems operating in the Latrobe Valley which had to be resolved before the model could be completed.

Mr Mitas confirmed that Guidelines being prepared by the three mine operators, DEDJTR and Mr Sullivan are nearly completed. The report seeks to capture best practice technology in this field to guide industry and will not have statutory weight.

As the Guidelines have not been published or adopted by State Government, Council submitted that it had nothing before it that changes the Amendment in respect to areas 5, 12b, 19 and 21. Furthermore the guidance Council has is provided in Clause 14.03 *Resource exploration and extraction* which requires that the brown coal resources in Central

[2] Latrobe City Council, *Changes to Amendment C87 – Post Exhibition for Panel consideration,* version 3, 10 April 2015, page 23.

Gippsland be protected and refers to a fairly old publication Land Over Coal and Buffer Area Study (Ministry for Planning and Environment, 1988). While Mr Pullman considered that important issues have been raised this information is embryonic and needs to be at State level.

At the Hearing, Mr Mitas said that the use of Lidar data as a supplement to other monitoring of ground stability would assist and had already been used in relation to the Princes Highway geotechnical failure. He added that Mr Sullivan, through Pells Sullivan Meynink, had been briefed to undertake geotechnical audits of the three active mining operations and had completed Loy Yang which revealed that the mines may be starting to interact geotechnically. DEDJTR had received similar advice on the geotechnical conditions around Loy Yang to that provided to the Panel by Mr Sullivan and found his evidence to be consistent. Mr Mitas said that DEDJTR is concerned about the potential for ground movement more than 1 kilometre from the mine crest especially as the crest is moving as the mines expand in depth and area. He added that DEDJTR can raise any concern about intensifying land uses adjacent to the present buffer zones when future amendments propose these changes.

In relation to the claimed inadequacy of the 1 kilometre coal buffer policy support is provided in Clause 21.07-4 and a 500 metre buffer between coal production and sensitive uses in Clause 52.10 *Uses with Adverse Amenity.*

3.4 Discussion

Mr Sullivan's evidence regarding geotechnical risks and uncertainties that apply across the interface buffers between the township of Traralgon and the Loy Yang mine are accepted by the Panel. It is not only comprehensive and encompassing of the issues which relate to the Amendment, but is also accepted and supported by the government department with responsibility for mining.

With the exception of the Lewis Anomaly failure in 1966 across the northern batters of the Hazelwood mine, the 1 kilometre buffers established between the coal mining operations in the Latrobe Valley and the townships of the Latrobe Valley have served the community well. Such geotechnical failures to date have all been within zone. Indeed, two of those failures related to infrastructure developed within the buffer zone (Princes Highway Freeway 2011 and Latrobe Road 2014) and may have acted to stimulate or expedite the initiation of mass ground creep already underway consequent upon the nature and management of the adjacent mines.

It is clear that the mine operators, including AGL Loy Yang, with the government have commenced significant reviews to improve their understanding of the ground movement issues resulting from mine operations but many areas of uncertainty remain. There is currently a lack of predictability which is likely to continue for a long time as the mines continue to expand in area and depth or move into mine rehabilitation.

In relation to vertical movement (subsidence), the evidence clearly demonstrates that dewatering and deep aquifer depressurisation impacts are cumulative from mine to mine. It is yet to be evidenced that other stresses which stimulate horizontal mass ground creep around the mines are interacting. Mr Sullivan considered that the interaction of horizontal

stresses will commence in the future if they haven't already. The outcomes of this interaction, combined with existing subsidence, cannot be predicted at this time.

Mr Sullivan has, where monitoring data allows, projected the Area of Influence of the Loy Yang Mine across the buffer zone ESO1 to the south and south east into the township of Traralgon. The consequences of this projection are that risks exist not only from ongoing albeit minor subsidence but of more serious ground instability such as have been experienced in the past around other mines in the Latrobe Valley.

While to date all of the ground failures around the Latrobe Valley coal mines, except one, have occurred within the width of the buffer zone, the complexity of the elements which have given rise to the failures indicate that the risk of serious consequences exist into the future as the Loy Yang mine expands. These ongoing risks need to be recognised in planning.

Two planning approaches that can be contemplated to mitigate the risks arising from ground instability are:

- Expand the ESO1 buffer width into the town area with building permits being required for urban, industrial or infrastructure works which meet engineering design standards that can confidently be predicted to mitigate the risks of serious failure deriving from ground instability issues, or
- Invoke the Precautionary Principal and preclude new development until such time as the ground instability risks can be sufficiently understood to allow responsible decisions to be taken on what forms of land use would be acceptable.

The issue with applying the requirements in the first option is that the type and probability of the ground instability risks being confronted are not clearly definable by existing data. It may be anything between slow and quiescent subsidence to extremely damaging mass earth movements involving the translation of severe differential movement on affected structures. The latter have already been experienced in the failures of linear infrastructure (roads, drains and pipelines) within the buffer.

Until there is adequate knowledge of the potential risk profile which applies across the three zones of the Area of Influence both from ongoing mining and from the period of mine rehabilitation, it would seem unwise to presume that an ESO can ensure that societal norms can be met in keeping the community safe from economic and personal risks associated with being in the Area of Influence of the existing mining operations. In the absence of quality monitoring data, the land uses east of Traralgon should remain at their existing density. Mr Sullivan's recommendation to expand the ESO1 buffer to about 2 kilometres is desirable as an interim measure. A more justifiable width may emerge once ongoing monitoring and data analysis can allow risks to various structures to be assessed.

The Panel agrees with Mr Sullivan and Mr McGurn that increasing land use intensity, urban development and residential density immediately adjacent to the buffer zone which abuts the Loy Yang mine represents an unacceptable risk. They considered it premature to expand the urban area when considering that mining will continue for 30 to 40 years not including the rehabilitation period. They believed that urban growth in this area should be considered after further investigations better define the risks associated around all the Latrobe Valley mines both in operation and as they may be rehabilitated. The Panel accepts the evidence

of Mr Sullivan that further trialling of Lidar topographic mapping could add value to the investigation work currently proceeding and should be considered if found to be cost effective.

While evidence was provided in relation to the Loy Yang mine and Traralgon, no similar evidence has been provided in relation to Morwell which is abutted by the Hazelwood mine to the south, the Yallourn Eastfield mine to the west and the now closed North Yallourn mine to the north-west. This is an area where the close proximity of the mines is most likely to see an interaction of horizontal stresses between the mines if such is to occur. It would seem that this area should be a priority for ground movement monitoring if it is not already and possible for the ESO1 buffer to be expanded without impacting on existing land uses.

The Panel is conscious of the evidence presented of past failures of infrastructure constructed within the coal mine buffer zones adjacent to Morwell township and is concerned that proposals for the Princes Freeway Traralgon Bypass and for various pipelines and drains to cross the buffer should be examined to ensure that the implications and risks arising from ground movement are recognised and allowed for.

The Panel notes that the Technical Review Board is the relevant organisation to consider whether the width of the buffer area to mitigate ground instability risks to land uses to the west and north-west of Morwell township is adequate.

3.5 Conclusions

The Panel concludes:

- Geotechnical monitoring of both subsidence and horizontal ground movement needs to be extended and improved using cost effective technologies to better define the consequences of open cut coal mining and related operations within the Traralgon growth area.
- Land uses in designated Areas 5, 12b, 19 and 21 should not be expanded or intensified until further geotechnical details is available and understood.
- The two strategies proposed to be deleted from Clause 21.05-6 are important and should remain.
- The Princes Highway Traralgon Bypass and associated structures should be designed after more detailed geotechnical data is available to mitigate risks which can arise from constructing in an area at risk from significant ground instability.

3.6 Recommendation

The Panel recommends:

Change Clause 21.05 to:

a) **Remove any future land use and staging that supports land use intensification in areas 5, 12b, 19, 21 or within the existing Environmental Significance Overlay Schedule 1 in the Traralgon Structure Plan.**

Change Clause 21.07 to:

a) **Include a strategy to increase the width of Environmental Significance Overlay Schedule 1 to 2,000 metres east and south of the Traralgon township from the boundary of the Loy Yang mine open cut until a more specifically defined risk mitigation width is defined.**

4 Australian Paper mill

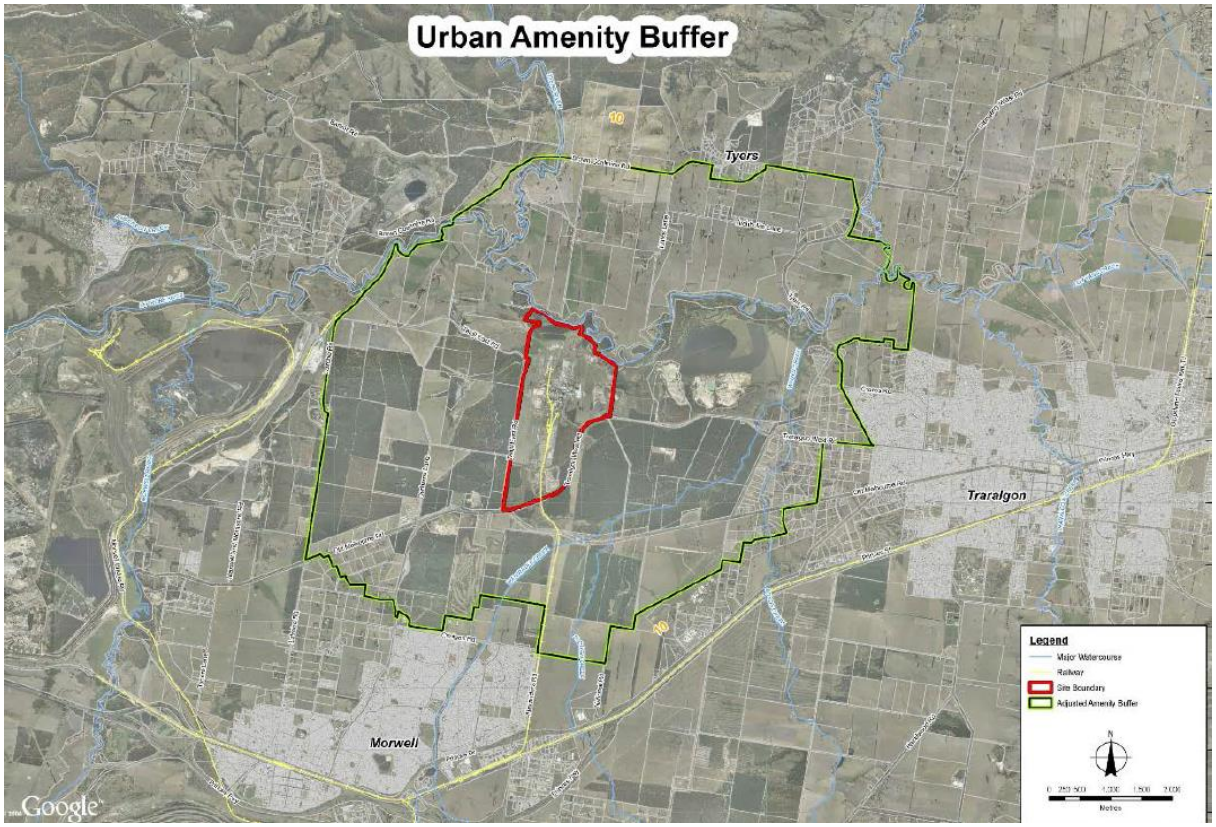
The Amendment proposes to introduce a buffer around the Australian Paper Mill to ultimately limit further intensification of sensitive uses in the buffer area as these could be subjected to odorous emissions from the mill.

It does this by including in the Municipal Strategic Statement:

- the buffer in the new and amended structure plans
- the Australian Paper Mill odour modelling report of July 2011 as a reference document
- reference to identified future strategic works to translate the buffer into appropriate land use and development provisions.

The extent of the proposed buffer, intended to be called the Urban Amenity Buffer is shown in Figure 5. The exhibited buffer is based on the Traralgon Growth Area Review Framework, August 2013, which is a proposed as a reference document to the Amendment.

Figure 5 Urban Amenity Buffer, as exhibited



Source: *Traralgon Growth Area Review Framework Hansen Partners* August 2013 Page 63

Additionally, as mentioned in Council minutes and elsewhere Council acknowledged *that an area in Morwell North around Paul Street and an area immediately south of Tyers township*

may require further odour modelling by Australian Paper that may result in future minor amendments to the boundary of the proposed urban amenity buffer map.[3]

4.1 The subject site and surrounds

A pulp and paper mill has operated from the 360 hectare site at Maryvale-Morwell Road, Maryvale since 1937. The mill has been owned by Nippon Paper Industries since 2009 which, in Australia, trades as Australian Paper.

The Maryvale mill is the largest private sector employer in the Latrobe Valley and is considered to be of state significance. It has approximately 845 direct employees and a further 2,550 indirect employees across Victoria.[4] It is the only Australian manufacturer of office printing and packaging papers and exports products to approximately 75 countries. It produces other paper based products such as bag and sack papers.[5] It is estimated that the Mill contributes $360 million to the local economy and $612 million to the Victorian economy.[6]

The mill site is zoned Industrial 2. In the immediate areas surrounding the site are plantation and farming activities. Approximately 3 kilometres to the north-west of the mill's boundary is the small town of Tyers with dwellings around 1.6 kilometres from the mill. About 2.5 kilometres from the site boundary, to the south west is the Maryvale hospital and there are dwellings of North Morwell approximately 2 to 2.5 kilometres from the mill. Also to south of the mill and north of Crinigan Road some land has recently been rezoned residential and is approximately 1.3 kilometres from the mill.

To the east of the mill is the Latrobe Regional Airport and further east the township of Traralgon. There is rural living on the outskirts of Traralgon approximately 2.5 kilometres from the mill in the vicinity of Scrubby Lane.

4.2 Background to the proposal

The Maryvale mill which operates continually uses the Kraft Process to produce wood pulp from chipped wood. Ms Blackburn, who represented Australian Paper, summarised in her written submission to the Hearing:

> *The kraft process involves the digesting of the wood chips at elevated temperature and pressure in a water and chemical mixture known as white liquor, after which the pulp goes through a washing and, a bleaching process. A further 'recovery' process is designed to recover the cooking chemicals and heat by a concentrating the used white liquor and pulp wash into a concentrated 'black liquor'. This 'black liquor' is burned to produce heat which captured for use in the pulping process and to produce chemicals which can be converted back to 'white liquor'.*

[3] Council minutes 28/4/2014
[4] Council minutes, 9/2/2015
[5] Ms Blackburn, document 8,
[6] Submission 8 Mr Lovell

Australian Paper holds an EPA licence (licence no 46547) which allows it to discharge emissions to air, water and land. The licence covers the operations of two kraft pulp mills, a neutral sulphite chemical pulp mill (NSSC), five paper machines, a chemical recovery complex , a waste water treatment plant, an on-site landfill used for the disposal of pulp mill waste and an onsite composting facility for up to 60,000 tonnes of mill waste. Its EPA licenced discharge points are located around the pulping and recovery areas. Conditions on the licence requires that Australian Paper not to discharge odours which are offensive in a residential area or to emit noise which is unacceptable in a residential area.

As the mill is a very large complex operation, in addition to its stack emissions and emissions from area sources such as the water treatment plant and a trade waste site operated by Gippsland Water, there are thousands of small emission sources such as flanges.[7]

The Panel was informed by Ms Blackburn that the mill underwent a $30 million upgrade which was completed in 2008. During this upgraded it installed the best available technology into its bleaching and pulping processes and this had made significant environmental improvements. The mill has also almost completed a $90 million project to install a pulp deinking facility which will allow it to produce fine white paper from white waste paper. Additionally Australian Paper has plans to further expand its operations at the Maryvale mill.

Both the EPA's *Recommended Separation Distances for Industrial Residual Air Emissions*[8]*,* a reference document at Clause 13.04-2 of the State Planning Policy Framework, and Clause 52.10 (Uses with adverse amenity potential) specify a default buffer zone for up to 5 kilometres for paper or pulp processes involving combustion of sulphur or sulphur containing materials. These distances for pulp and paper are in recognition of the potential for highly odorous emissions caused by sulphurous material. Separation distances and buffer distances generally can be used interchangeably.

Both EPA's separation guideline and Clause 52.10 say that the default radial buffer can be varied depending on a range of factors. EPA's guidelines which relate to emissions during upset conditions such as equipment failure, provide more details as to the circumstances under which the default buffer may be varied, either reducing the buffer or increasing it. Factors that can provide justification for changing the default buffer include the technology used in the plant, equipment and processes and materials used, the size of the plant, site specific meteorology or topography, an environmental risk or assessment of the likelihood of upset conditions.

There was no evidence presented to the Panel to indicate that the 5 kilometre default buffer distance related to the mill's operations has been considered in planning decisions.

Australian Paper commissioned GHD to undertake odour emissions modelling and other related reviews of its Maryvale mill. The first of a series of odour modelling studies was completed in 2011 and each additional study build on the previous study. These reports provided the basis for altering the buffer distance from the default 5 kilometre radial buffer.

[7] Mr T Pollock hearing

[8] EPA publication 1518 March 2013

Australian Paper submitted:

> *Maintaining sufficient buffers to the site is therefore not only critical to securing the long term viability and operational future of the mill but also indirectly the social and economic viability of the region.*

It added that if the buffer is not included in the Amendment, Australian Paper '*will be required to revert to the default 5 km buffer'* and it will ask Latrobe City Council to refer all applications to Australian Paper. This is a sentiment shared by EPA who advised the Hearing that '*Failure to adopt this buffer in guidance material when making land use decisions will require EPA to default to the 5 km buffer'*.

Council contended in its submission that the proposed '*buffer is intended to better identify separation distances from AP Maryvale Mill and sensitive uses around the existing and future urban interface'*. It added that the Amendment does not propose any zone or overlay changes and therefore does not alter the existing development potential of any land within the municipality.

Summary of issues raised in submissions

Twenty-two of the 42 submissions to the Amendment opposed the proposed urban amenity buffer. These were from resident submitters. Several submissions, including Mr and Mrs Bennett supported an urban amenity buffer. The key issues raised in the submissions are briefly summarised as follows:

- There isn't an odour problem.
- The modelling on which the Urban Amenity Buffer is based is flawed.
- The adjustment of the buffer is unfair.
- The buffer proposed by the community should be applied.

4.3 Is there an odour problem?

(i) Evidence and Submissions

Some submitters said they can smell the mill while others said they did not notice the mill odour.

Mr Lorenz, who lives in the proposed buffer at Traralgon, submitted that since the mill upgrade he and his family had experienced a slight odour about twice a year when the wind is from the north/north-west. Mr and Mrs Dundek said that they can smell the mill but do not complain.

A number of submitters, including Mr and Mrs Albanese who have two properties one to east and the other to the west of the Tyers and Glengarry Road intersection, said they cannot smell the odour from the mill. Likewise Mr Kobiela, who lives in Hoven Drive, and the Reality Christian Fellowship at Larnach Road Traralgon indicated that odour wasn't a problem anymore.

There was much praise for the work that Australian paper had done in recent years that has reduced the odorous emissions. The Reality Christian Fellowship said that in the past the odour from the mill had been extreme *'to say the least'* and the 5 kilometre buffer would have been vital but the odour has disappeared now. Mr Watson said workers from the mill

previously smelt the odour but this changed since the upgrade. Other submitters such as Ms Durward said that since the mill upgrade there is no problem to be addressed anymore. Similarly, Mr and Mrs White said odour has not been apparent for some years and Mr Mc Gown has not detected odour from the mill for about 20 years. Mr Mc Gown submitted:

> *Their management has gone to extraordinary lengths, and cost to mitigate the obnoxious odours they once produced which at one time occasionally pervaded the whole municipality.*

Dr Panther, on behalf of the North Morwell Residents Group, submitted that the North Morwell area is not and has not been impacted by odour.

For general purposes, Mr Bryant representing EPA submitted that a concentration of 5 OU is recognisable in ambient air. At 5 OU the mill odour is likely to be offensive but consideration of duration and frequency also need to be taken into consideration.

At the Hearing, Mr Pollock, an expert witness for Australian Paper stated that people can become habituated to the odour but newcomers to the area won't be but '*they get use to it after a while'*.

In his evidence, Mr Barnes stated:

> *From a strategic planning perspective I fully support the need to clearly identify a buffer around the mill. This is due to:*
> - *its importance to the local and regional economy;*
> - *its large scale and potential for off-site amenity impacts;*
> - *its proximity to Traralgon, Morwell, Tyres [sic] and intervening low density and rural living zoned land in Traralgon West; and*
> - *the existence of pressures for urban development, low density subdivision and additional housing that exist within the Traralgon West area and surrounds.*

At the Hearing, EPA submitted that both EPA and Australian Paper receive odour complaints about the site's operations. In the last two years (March 2013 – March 2015) EPA has received 68 complaints about odour but this includes some duplication. From an examination of the odour reports EPA estimated there were 31 validated odour complaints. It said that there is no pattern to the complaints except that the number of complaints seem to be lower for the most recent year. Most complaints occur within a few kilometres of the mill but one complaint was received 25 kilometres away which may have been associated with the mill as odours can travel these types of distances under certain atmospheric conditions. There were two noise complaints in the same period.

(ii) Discussion

There is no question that the upgrade works undertaken at the mill have significantly reduced odour emissions. However odour is subjective and as Mr Pollock indicated people become use to the smell and then generally don't notice it. This is evident from the variation in views between submitters.

EPA's complaints data over the last two years confirms that, in spite of the upgrade works that have reduced odour emissions, emissions from the mill cause odour.

4.4 What is the appropriate buffer?

(i) Evidence and submissions

At the Hearing, EPA submitted that Schedule A of the State Environment Protection Policy (Air Quality Management) requires that generators of emissions to use best practice to minimise their emissions and the Schedule has a design criteria of 1 OU at or beyond the boundary for new or expanded operations. The submission added that the separation distances in EPA guidelines are for upset conditions such as equipment failure, accidents or extreme weather events; not for normal operations. Australian Paper's EPA Licence includes conditions that require it not to discharge offensive odours in a residential area.

Mr Buckingham submitted that a buffer (or separation distance) may only be varied from the default buffer distance in the guidelines as subsequent to detailed assessment of site specific conditions.

EPA's submission to Warrnambool Planning Scheme Amendment C90, referred to by Ms Blackburn, neatly encapsulated this:

> *Separation distances do not provide a guarantee of no impact at any location. It is a tool to manage the potential risk and impact. These calculations are not exact and there are always uncertainties in the data and each particular scenario.*

At the Hearing, EPA listed a number the key environmental risks associated with the mill site which included noise from the wood chipping and site operations, land and water contamination however its main concern is odour. It said that the odour from the mill can be very noticeable and, to some, highly offensive. It can, under certain weather conditions, travel long distances.

EPA added that technological remedies or solutions may not be economically feasible or fully effective to address the odour issues and it encourages the Urban Amenity Buffer be incorporated into the Latrobe Planning Scheme. At the Hearing, Mr Bryant submitted that EPA's principal interest in the Amendment is to introduce the Maryvale Pulp Mill Buffer (July 2011) as a reference document in the Municipal Strategic Statement and did not object to the Amendment.

EPA identified the four main sources of odour as:

- The pulping area which includes the wood chip digestion and various washing and bleaching processes. This can generate odours from the stack and vents.
- The recovery area where chemicals are recycled or recovered for reuse – this has a large wood fired/ natural gas boiler and a lime kiln.
- The wastewater area in the northern part of the site and where wastewater from the mill's operations is processed. It has a primary treatment process and a secondary settling pond.
- The Gippsland water dam area which is owned and operated by Gippsland Water and provides extra wastewater capacity in the southern part of the site for Australian Paper prior to transfer to Gippsland Water's Water Factory. It is considered a minor odour source.

EPA explained that the odorous gases from the mill are mostly Total Reduced Sulphur (TRS) which is usually dominated by hydrogen sulphide (H_2S) with its distinctive rotten egg gas like smell. TRS which is a mix of hydrogen sulphide, methyl mercaptan, dimethyl sulphide and other volatile sulphur compounds is highly odorous so that even at small concentrations it can be detected. The TRS odour is produced in the early stages of the process but continues right through to wastewater treatment. While H_2S is produced by all wastewater treatment plants, the Kraft mills have their own TRS odour because of the different mix of compounds.

Using modelling to determine the buffer

Australian Paper commissioned GHD to assess the odour emissions from the mill particularly in relation to the default 5 kilometre buffer. GHD used emissions modelling of odours being released from its Maryvale plant to inform its assessment. This has resulted in a number of reports:

- Report for Pulp Mill Maryvale – assessment of odour dispersion modelling on Pulp Mill Default Buffer, June 2011
- Australian Paper: Maryvale Pulp Mill Buffer Requirements, July 2011
- Australian Paper Maryvale, Maryvale Mill Odour Buffer Review of Terrain Influence on Odour Dispersion, June 2014
- Australian Paper Maryvale, Maryvale Mill Odour Buffer, Review of North Morwell Odour Impact Frequency, August 2014
- Odour Amenity Buffer Assessment using AERMOD, July 2015.

This Amendment proposes to include the July 2011 report as a reference document at Clause 21.04-8, Clause 21.05-8 and 21.07-13.

A brief summary of these reports with commentary are provided below.

Report for Pulp Mill Maryvale – assessment of odour dispersion modelling on Pulp Mill Default Buffer, June 2011

This report provided the foundation for the later reports. Ausplume 6.0 which was until 1 January 2014 EPA's regulatory air dispersion model, was used to undertake an assessment of odour. Models such as Ausplume require a number of inputs which in this case included:

- meteorology data initially from EPA's Traralgon site for the year 2001,
- terrain and geographical data,
- hourly stack emissions of TRS over a 14 month period from continual stack monitoring.

Total Reduced Sulphides (TRS) were converted into odour units using three different conversion rates (which are discussed later) and mapped in a series of iterations for stack emissions only. Stack emissions were found not to be a factor in odour off site impacts even when they exceeded their EPA licence limit. Both EPA and Mr Pollock were surprised that the modelling indicated that the stacks are not the source of odours. Mr Testa gave the Panel a copy of the October 2013 edition of Maryvale Linx, a newsletter published by Australian Paper. The newsletter said that following the mill upgrade the stacks only contribute about 1% of the site odour sources whereas traditionally 90% of odour came from stacks.

In an effort to understand the mill's fugitive emissions, some direct measurements of H_2S were taken along a crosswind transect downwind of the mill on 28 April 2011. The transect measurements coincided with an upset in the emergency storage lagoon. An assessment of these measurements identified three distinct peaks. These peaks were assessed to be from the wastewater aeration lagoons, the mill and trade waste holding dam.

Australian Paper supplied GHD with complaints data for two days when there were upset conditions at the mill. On one of these days, stacks emissions were 17 times above the Mill's EPA licence limit and on the other day there was a fugitive emission release. GHD compared these two days with the results from modelling. It was found that Ausplume did not adequately characterise the transport and dispersion of emissions over the terrain near the mill. The modelling was then repeated using the commonly used CALPUFF model. CALPUFF requires similar types of data input as Ausplume, although the formats are different. 2008 meteorological data from a range of local sites using CALMET, which is a meteorological model, was integrated into CALPUFF. The resulting odour level contour plots were shown to correspond with odour complaints data.

This report, while recognising that it is a compromise, recommended that the 10 OU contour be applied to constrain further residential development rather than the preferred 5 OU as residential expansion had already occurred between the 5 OU and 10 OU contours. At the 10 OU contour, GHD considered that there would be odour complaints when an upset occurred at the mill. The report concluded that a site specific directional buffer is needed to give equal protection from odour.

In his evidence, Mr Pollock said that the wind climate in the Latrobe Valley is well understood as a result of the Latrobe Valley Airshed study undertaken in the 1980s. The mill is at floor of the valley and when there are light stable winds downwind to the east of the mill, and to some degree up valley to the west, dispersion of odour emissions is poor.

He added that because Ausplume gave implausible odour contours, based on what was known about wind behaviour in the valley, EPA gave approval for GHD to use CALPUFF, a model based on puffs of wind, and CALMET. EPA worked with GHD to choose the model settings and agreed on the meteorological inputs.

Maryvale Pulp Mill Buffer Requirements, July 2011

As outlined in section 2.2 of this report, the Maryvale Pulp Mill Buffer Requirements report summarises the planning and policy context in relation to the mill and its surrounds. It also summarises the findings of the June 2011 report (above) and traffic movements near the mill. There were estimated to be 300 truck movements and possibly up to around 1,980 cars movements at the Australian Paper site over 24 hours.

The report suggests that the mill buffer could be implemented through an Environmental Significance Overlay, as has been used elsewhere, to protect industry from urban encroachment. Or another mechanism suggested is the use of local policies to identify areas for urban growth.

Australian Paper Maryvale, Maryvale Mill Odour Buffer Review of Terrain Influence on Odour Dispersion, June 2014

This report examined the local terrain and how it influences the dilution of odour emissions from the Australian Paper site particularly under calm wind conditions. Both the Ausplume and CALPUFF were used to separately model stack emissions and emissions from diffuse sources emanating from ponds and dams as well as buildings and structures. One particularly prominent feature included in the modelling was the commonly named Chook Hill which is located south-east of the Australian Paper site at 90 metres above ground level.

The terrain of the area indicates that Chook Hill shields the low density residential sites from high odour events: for the stack emissions by a factor of at least 10 and by halve for concentration of low level releases. The modelling showed that stack and low level releases have different trajectories: the low level releases are dispersed around Chook Hill whereas the stack releases have a more direct path.

Maryvale Mill Odour Buffer, Review of North Morwell Odour Impact Frequency, August 2014

This report gave results from CALPUFF modelling that was used to determine relative odour impacts at 42 receptor sites from stack and fugitive emissions. Once again the fugitive emissions were seen to cause the greatest odour impact. CALPUFF was used to assess the frequency of relative odour concentrations on the buffer boundary. It was determined that due to the predominant wind direction and the terrain inner North Morwell (that is at receptors near Old Melbourne Road) could be exposed to around three times more high intensity odour events than those that on the eastern Traralgon side of Australian Paper site. Using a scale of odour intensity where one equated to a low odour level and four a high odour level it was estimated that inner North Morwell experienced 77 hours at level three odour compared to 23 hours for the western side of Traralgon. However the Traralgon side is more likely to be exposed to a greater frequency of lower level odour intensity events, 1 on the 1-4 scale, than North Morwell (1485 hours compared to 736 at the urban amenity buffer boundary). Plots of two normalised relative odour intensities are presented in the report.

EPA submitted that it had reviewed the GHD reports and noted that North Morwell, based on the modelling, will be subjected to a greater frequency of high odour events than West Traralgon. It was concerned that this area has been excluded from the buffer and residents in the recently rezoned North Morwell areas are very likely to be subjected to adverse odours from the mill.

Odour Amenity Buffer Assessment using AERMOD, April 2015

On 1 January 2014 AERMOD became EPA's new regulatory air dispersion model. GHD used AERMOD to repeat previously modelling undertaken using CALPUFF, for fugitive emissions only, to compare the 10 OU result contour around the mill. In addition, 5 years of meteorology data supplied by EPA for years 2006 to 2009 was used, as well as GHD's original meteorology file for 2008.

AERMOD was found overall to give a much larger buffer area than CALPUFF. The buffer using AERMOD extended further along the east-west alignment. The north-south alignment

was similar for both models. Upon further examination into the assumptions underlying the two models the meteorological data used and the difference in stability were considered to have only minor effects on the modelled results. As AERMOD only uses straight line trajectories and does not therefore adequately consider the terrain AERMOD is limited in its ability to calculate concentrations during calm conditions. Based on its assessment GHD considered that CALPUFF provides a more accurate depiction of the dispersion of the mill's odour emissions than AERMOD.

In his evidence, Mr Pollock stated that recent work examining AERMOD results found that emissions travelled 12 km down valley and 10 km up valley in 60 minutes and this is not possible when there are light winds. This rendered AERMOD as an inappropriate model for examining the mill's emissions.

Submissions that queried the modelling were forwarded to GHD to which GHD respond to in *Australian Paper: Odour Amenity Buffer, Response to Submissions, April 2015*.

In response to submitters such as Mr and Mrs Albanese and Mr Testa who claim they cannot smell odours from the Mill, the GHD report commented that odour is subjective and be influenced by factors such as the frequency, intensity, offensiveness and location of the source of the odour. At the hearing, Mr Pollock stated that there are differences between city and country noses and what they smell. Mr Pollock said he used a rule of thumb that people notice odours of between 5 OU and 10 OU and may complain depending on the level of offensiveness. This is why he wasn't concerned about going from 5 OU to 10 OU for the buffer. However Mr Bryant said that 5 OU could be smelt by the community.

Some submitters such as the North Morwell Residents Group, queried the meteorology used in the modelling. The GHD report responded that primarily two data sets, 2001 and 2008, were used. In the initial modelling, the 2001 dataset was available for the format used in Ausplume modelling and supplied by EPA. The 2008 dataset which used data from a number of meteorology monitoring sites in the Latrobe Valley was available in the form for use in CALPUFF. EPA explicitly requested that wind data from the Bureau of Meteorology (BOM) not be used in the CALPUFF modelling. The GHD report responded that it did not know the exact reason for this request but said it thought it could be because the BOM data does not have the same sensitivity to measure light wind conditions as meteorological data measured at EPA monitoring stations. Other BOM data such as cloud cover, pressure and the like was, on EPA's instructions, incorporated into the modelling, along with data from Powerworks.

In regards to submitter criticisms about the Ausplume model not being able to handle wind speeds less than 0.5m/s. The GHD report responded that Ausplume had a set minimum wind speed of 0.5m/s but CALPUFF which uses puffs of released emissions in time and 3 dimensions can handle low wind speeds and calm conditions. Under these circumstances the puff doesn't move but its size will spread laterally due to turbulence and diffusion. It was the modelling done with CALPUFF, which EPA approved, that was used to define the shape of the non-radial buffer.

Several submitters including the North Morwell Residents Group claimed that the weather on 28 April 2011, when the physical measurements of H_2S were taken was not representative of the weather conditions around the mill. The GHD report states that when measurements of atmospheric stability, wind speed and direction are taken at the same

time as the H_2S levels along the monitoring transect. These results can be used to project back to the location of H_2S sources and their emission rates estimated. These results then become independent of the weather conditions. The H_2S odour sources were identified as the northern lagoons, the mill building and the Gippsland Water trade waste lagoons. The GHD report states that this method for identifying source is an approved method in Australia and the USA.

The North Morwell Residents Group submitted that the monitoring equipment used to measure H_2S was inappropriate, not sufficiently accurate and as TRS was not measured so the link between TRS and H_2S was not validated. The GHD report advises that the monitor used to measure H_2S had a detection limit of one 1ppb, precision of 5% and accuracy of +/- 3ppb and it can measure other sulphide compounds as H_2S equivalents. Referring to the Ontario study[9] of the Kraft mill, the GHD report observed the high degree of correlation between the measured TRS and the assessed odour levels in that study and this lead to the determination of the TRS/H_2S relationship. The GHD report considered the Ontario relationship was preferable to using odour complaint history or subjective odour levels.

The GHD report added that Gippsland Water commissioned direct source odour sampling at the trade waste lagoons in 2011 and indirect transect measurements. The outcome of the Gippsland Water work estimated that that 1 OU = 0.23 H_2S (equivalent) ppb and was four times more odorous compared to the Ontario study where a relationship of 1 OU = 1.4 H_2S (equivalent) ppb was estimated. At the time the Gippsland Water lagoon measurements were taken the lagoon was nearly empty. The GHD report considered the Gippsland Water lagoon was dried out and the material in it was highly concentrated. GHD considers that the Ontario relationship better represents all mill sources and commented that under normal operating conditions the trade waste lagoon is not filled with waste liquid and left to dry out.

At the Hearing, Mr Pollock said that different areas of the mill have different mixes of TRS but the use of 1 OU equalling 1.4 TRS is the best that could be done. EPA submitted that validation of the Ontario relationship between odour and TRS would be a complex task. From the mapping it was determined that the relationship between odour units and TRS derived from a 1977 study of a Kraft pulp in Ontario Canada provided the best fit based on the mapping.

The GHD report responded to the North Morwell Residents Group's concerns about the possibility that H_2S and other reduced sulphides react in the atmosphere and the modelling did not take this into consideration. The GHD report discussed the reactivity of H_2S in the atmosphere over a 5 km distance (the default buffer) and it said that under a wind speed of 0.5m/s it would take 2.8 hours to reach the buffer boundary and this time period is only, from a review of the literature, a fraction of the atmospheric lifetime of H_2S. However after some further assessment, the GHD report determined only the more reactive methyl mercaptan is likely to oxidise to any great extent. The GHD report stated that it is possible under very light winds that H_2S could oxidise to some degree and the odour levels would reduce.

[9] *Development of a Continuous Odour Warning Device Based Upon Objective-Sensory Analysis Correlation Data*, Department of Environmental Chemistry, Ontario Research Foundation, 25 February 1977.

Submitters, including Mr Lorenz and Ms Durward, suggested that the modelling did not consider atmospheric removal of TRS through, for example, deposition in the plantation areas. The GHD report could not find useful information in the scientific literature on this however did comment that the complaints data did not support this proposition.

In considering the justification for varying from 5 kilometre default radial buffer to a non-radial buffer, Mr Pollock referred to table 4 of EPA's Separation distance guidelines which lists criteria on which a buffer can be varied. Mr Pollock considered topography the most important reason to vary from the default radial buffer to a non-radial buffer.

Ms Blackburn submitted that the evidence of Mr Pollock is sufficient for the Panel to recommend that the separation distance be varied in accordance with its findings.

(ii) Discussion

The modelling reports apply three different commonly used air dispersion models that seek to understand the movement of odour emissions from Australian Paper. Applying these models to situations where there are many emission sources and complex terrain requires extensive expertise. The Panel acknowledges that Mr Pollock is a highly experience expert in his field and accepts that the modelling work is of a high standard.

Air dispersion modelling is only as good as the models and the input data used. This is evident when it became apparent that Victoria's former regulatory model Ausplume and its current regulatory model AERMOD did not generate supportable contours for reasons outlined in the GHD reports. Of the three models, CALPUFF provided the most credible odour contours because of it use of puff of emissions rather that trajectories of emissions.

The Panel is aware there are differences in the types of data collected by BOM and EPA at their respective monitoring sites and adopts the EPA meteorological data as the preferred data for use in air dispersion modelling. This applies generally and is not specific to the Valley. In factor it is fortunate that there was so much meteorological data available for the Latrobe Valley for use in applications such as modelling as this is not the case for most areas outside Greater Melbourne.

The CALPUFF model appears to align with the complaint patterns. The pattern of complaints is generally limited to areas where people live and there are large areas within the domain that are sparsely populated. As informed by submitters at the Hearing, many people don't complain and just put up with the odour. Many residents are likely to be habituated to the odour and therefore do not notice it. The Panel became aware late in the Hearing that there are a group of about ten trained community odour monitors, established about 20 years ago, who log odour events. The Panel is not aware if this data was supplied to GHD to assist with its model verification and, if so, to what extent it was used. Ms Blackburn indicated that the complaints lined up with the odour reports of the community odour monitors. While not necessarily discrediting the modelling on this basis, it does introduce a level of uncertainty around the east-west alignment of the odour contours which are the areas of greatest variation in the three air dispersion models used.

While Mr Pollock considered that the contours produced by the modelling are conservative, the modelling is highly reliant on the ratio of odour to TRS found in a 1977 study of a Kraft pulp mill in Ontario Canada. The GHD report considered three options for converting TRS

into odour units and predicted odour levels for each. In addition to the Ontario relationship, the threshold concentration for H_2S being 0.1 ppb as given in Schedule A of the State Environment Protection Policy (Air Quality Management) and the Australian Water Technologies odour threshold for H_2S at 0.5ppb were considered. The odour contours generated for both when using Ausplume are more expansive and extend beyond the default 5km buffer distance than the odour contours are plotted using the TRS/ odour link measured in Ontario. In the response to submissions document GHD also mentions some direct measurement work undertaken for Gippsland Water to assess odour emissions from the trade waste lagoon and it was estimated that 1 OU = 1 OU = 0.23 H_2S (equivalent) ppb which is four times more odorous than the Ontario mill emissions. While GHD provided rational reasons for using the Ontario relationship, the most conservative of the four relationships, it does bring into question the true level of conservatism in producing the contour plots used to define the urban amenity buffer. It highlights that some further direct odour sampling would be beneficial in advancing the knowledge about source contributions and their composition. This would increase confidence in predictions about Australian Paper's odour impact in the area. This is particularly so given that the aeration lagoons are shown through the transect sampling to generation higher emissions of H_2S than the trade waste lagoons.[10]

The Panel acknowledges the vary probing questions raised by the North Morwell Residents Group as they raised some interest concerns about the modelling.

The Panel considers that the odour contour plotting may not be perfect and more work could be done, however the modelling provides an insight into the behaviour of the odour emissions from a complex site over a challenging terrain. On this basis, the Panel accepts the modelling as presented subject to further investigation into the high levels of odour predicted in North Morwell.

(iii) Conclusion

The Panel concludes that while it has some concerns about various aspects of the modelling as outlined above, the implementation of a non-radial of the shape depicted by the CALPUFF modelling is justified.

4.5 Which non-radial buffer should be applied?

A number of non-radial buffers were presented during the course of the Amendment:

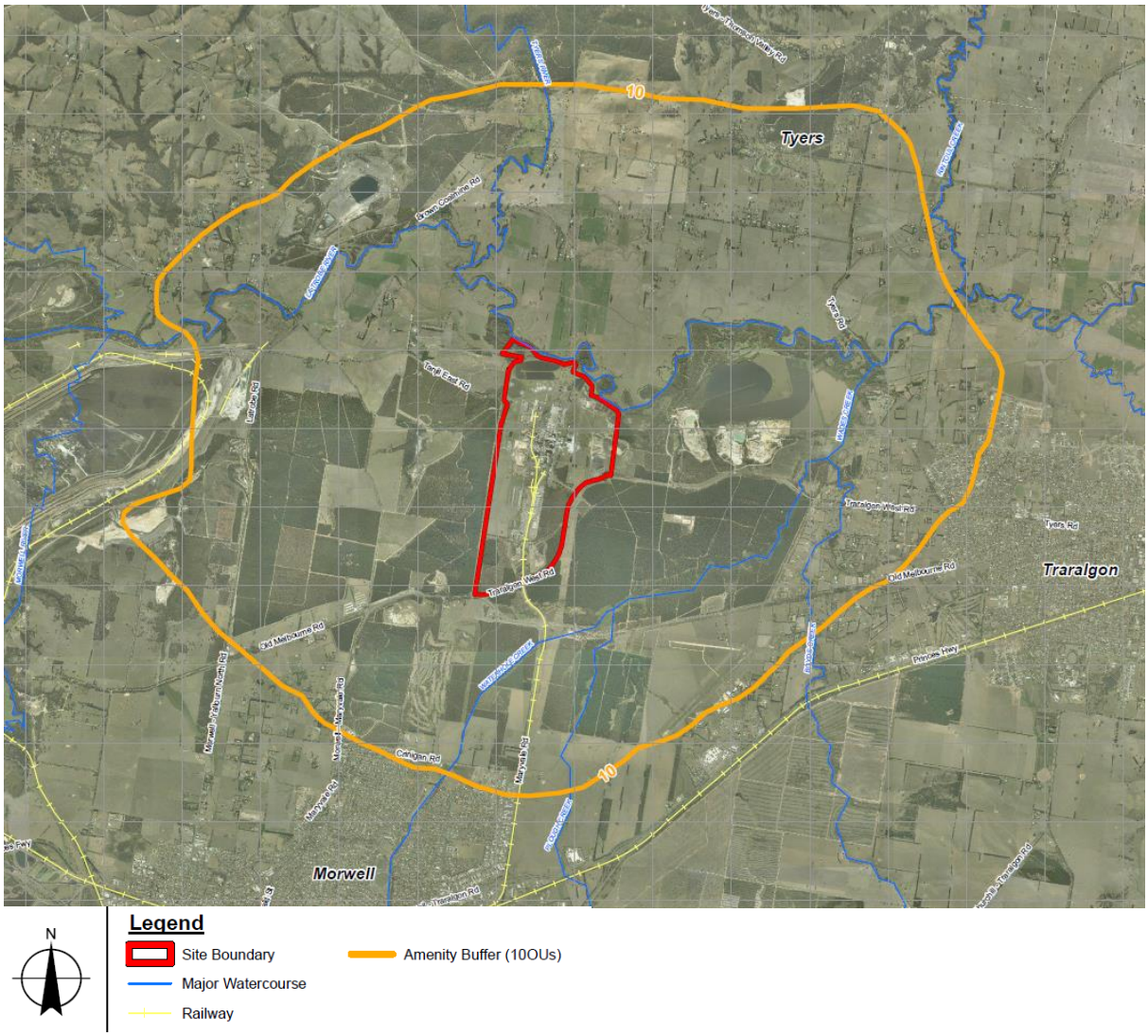
- A non-radial buffer based on modelled 5 OU
- A non-radial buffer based on modelled 10 OU
- An adjusted non-radial buffer based on modelled 10 OU which acknowledges existing areas with housing subdivision potential and reflects title boundaries and road reserve alignments, particularly in the south eastern section of the proposed urban amenity buffer as proposed by Council.
- The buffer proposed by the TGAR Workgroup Committee which further adjusts to the south, east and northern boundaries proposed by Council to instead follow the roads of Valley Drive (excluding the Village Lifestyle and Leisure Centre), Airfield

[10] See figures 14 and 15 in *Assessment of Odour Dispersion on Pulp Mill Buffer*, June 2011.

Road and Scrubby Lane, Cemetery Drive, Tyers Road and Archbold and Sawyers Lanes.

The non-radial 10 OU buffer is shown in Figure 6, the Council proposed adjusted non-radial buffer shown in Figure 7 and the TGAR Workgroup Committee is shown in Figure 8.

Figure 6 Non-radial 10 OU buffer



Source: Figure 10, July 2011 GHD report

Figure 7 Adjusted Urban Amenity Buffer

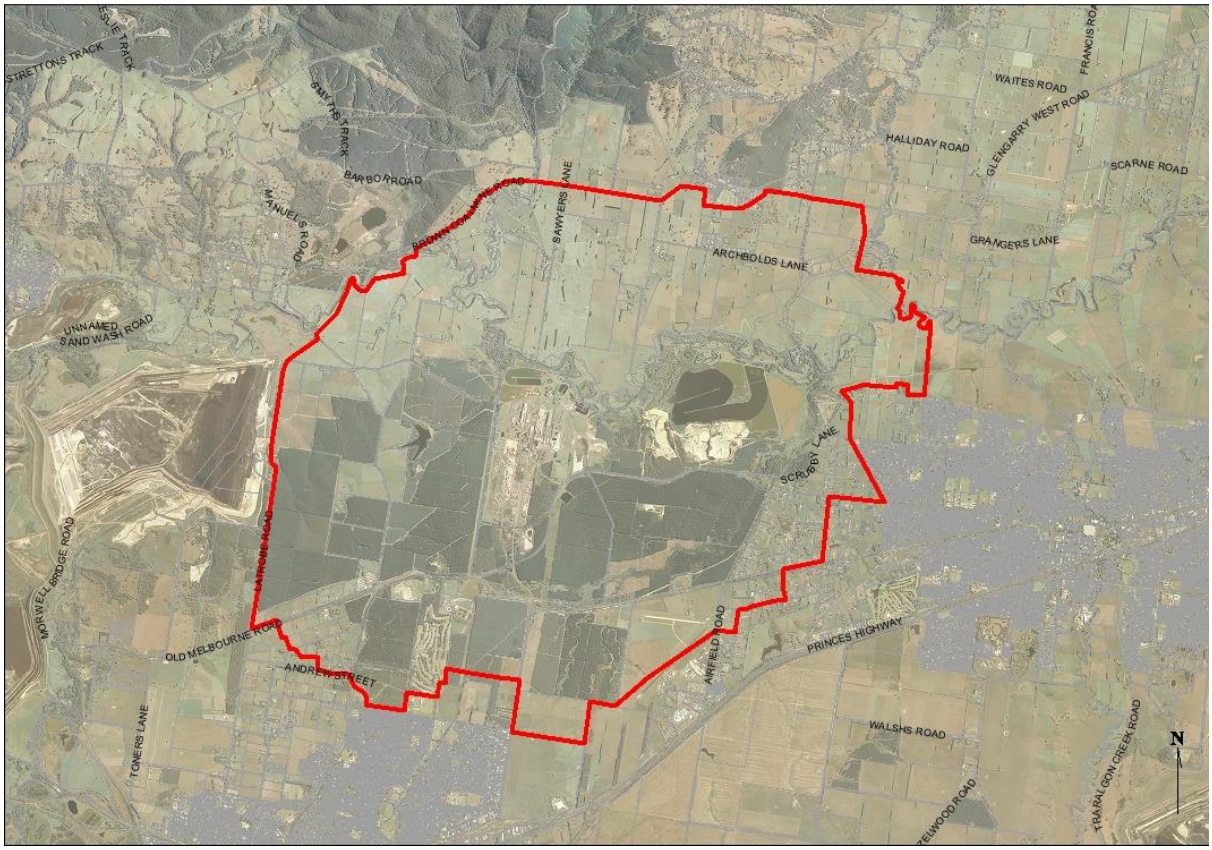


Figure 8 TGAR Workgroup Committee Suggested Buffer

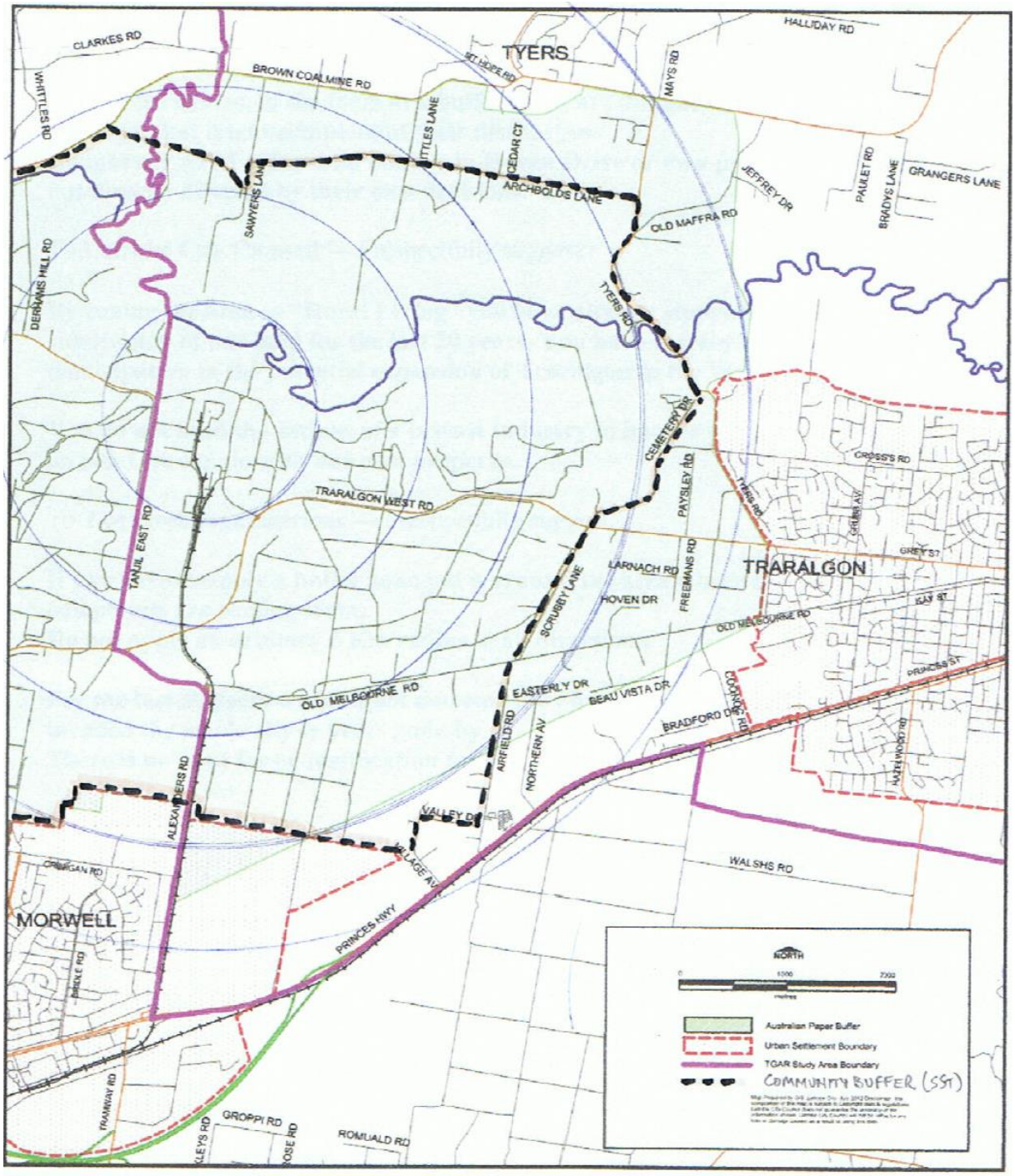


Table 2 compares the number of existing dwellings within the various iterations of the buffer which were considered during the identification of the most appropriate buffer to apply around the mill.

Table 2 Number of dwellings in Australian Paper Buffer

Buffer measure	No. of existing Dwellings
EPAs 5 km default radial buffer	4,071

Australian Paper 5 OU non-radial contour	11,109
Australian Paper 10 OU non-radial contour as shown in Figure 6	1,120
Australian Paper adjusted non-radial urban amenity buffer as shown in Figure 7	219*

* Council submission (Part B) had 244 dwellings but at the Hearing it was adjusted to 219 dwellings as a result of an issue with the contours.

4.5.1 Evidence and submissions

In its Part B submission, Council stated *'a balance has been struck between the various interested parties to reach a compromise that provides an appropriate land –use framework for future implementation'*. In closing comments, Mr Pullman acknowledged *'that the Urban Amenity buffer had been a tough issue but it does provide a way forward. He considered the proposed adjusted buffer is based on fairness, equity and scientific modelling'*.

In his evidence, Mr Barnes stated:

> *In principle, from a strategic planning perspective, I support the approach of 'adjusting' the buffer to relate to existing zoned land, development and physical features such as roads and property boundaries. However, I defer to evidence to be presented by Australian Paper to justify the actual location of the buffer.*

Australian Paper submitted:

> *a buffer consistent with the Australian Paper's modelled 10 odour unit contour would provide an acceptable level of protection for both industry and residential, however it should be modified to exclude existing developed or residentially zoned areas. The buffer could also be adjusted where the land is already zoned R1Z or is included within the urban growth boundary in the existing Traralgon Structure Plan and will be developed for residential purposes.*

At the Hearing, Ms Blackburn submitted that the area TGAR Community Working Group's recommends be excluded from the buffer could include approximately 125 houses. She added:

> *If the area was then rezoned to allow a residential density of .04ha this could equate to a total of 600 houses and even more if it was zoned to general residential.*

Submitters such as Mr Testa on behalf of the TGAR Community Working Group and Pastor Walsingham of the Reality Christian Fellowship claimed the adjusted non-radial buffer has been manipulated *to* suit planning and existing development and adjusting the boundaries makes the scientific evidence worthless. Pastor Walsingham added that this was in response to commercial interests in Tyers Road and Crinigan Road. They are located well inside the 5 OU buffer and he considered this to be unfair and discriminatory.

EPA submitted that it did not endorse any adjustment based solely on residents wishing to move the buffer off their land.

Ms Blackburn said that Australian Paper did not agree with excluding areas suggested by submitters from the urban amenity buffer. She based her objection on the TGAR Community Working Group's preferred buffer being in an area subject to high levels of odour intensity when there is a plant upset. Ms Blackburn added that rezoning from a rural zone to a residential zone in the Traralgon west area would facilitate a significant amount of land being developed well within the 10 OU contour line outlined in expert evidence. She opposed the buffer being adjusted in the North Morwell area as it is in the 10 OU buffer. She also opposed adjustments being made to Tyers south of the existing township unless further modelling, required by the proposed amendment documentation, suggests that this will not have a significant impact on Australian Paper's operation.

In relation to the TGAR Community Working Group buffer, Mr Barnes stated:

> *Most of the Rural Living Zone (RLZ) land affected by the exhibited draft TGAR proposed urban amenity buffer is already at the minimum subdivision allotment size and these allotments do not have potential development subdivision opportunities. There are only 8 additional allotments able to be applied for and assessed under the existing RLZ in the area. The exhibited draft TGAR proposed urban amenity buffer map has been retained in-principle but discussion within the TGAR reports now acknowledge that there may be potential (subject to planning permit application assessment) to honour the limited subdivision potential in the existing RLZ within the proposed urban amenity buffer that existed in the Latrobe Planning Scheme prior to the Australian Paper odour modelling being undertaken. Any RLZ land outside the proposed urban amenity buffer that was proposed for residential type subdivision density in the future would need to be justified as part of a separate planning scheme amendment process that would need to be approved by the Minister for Planning.*

Council responded to the TGAR Community Working Group's concerns. It said that properties that could currently be subdivided in west Traralgon will not be denied the opportunity once the urban amenity buffer is introduced into the planning scheme.

At the Hearing, many submitters informed the Panel that Council knowingly approved subdivisions within the planning scheme 5 kilometre default buffer including schools. Submitters were especially critical of the relatively recent subdivision that had occurred in the Crinigan and Cross Road areas saying that the 5 kilometre default buffer has been consistently ignored by Council, EPA and Australian Paper. Mr Lorenz said at the Hearing that Crinigan Road, which is excluded from the adjusted buffer, is closer to the mill than Scrubby Lane which is proposed to be included. At the Hearing, Pastor Walsingham claimed that Council has been negligent and that had Council and EPA been '*undertaking their duties the buffer would have been in place and residents advised'.* He considered that the areas inside the urban amenity buffer will become a non development zone.

Other submitters said that when they were unaware of the mill and the potential to be impacted by odour when they purchased their property. They believed that their properties will be tainted because of the urban amenity buffer and subsequently lose value.

4.5.2 Discussion and Conclusion

Identifying an urban amenity buffer in the Municipal Strategic Statement will provide the strategic basis for future work that will determine the appropriate land use response to implement the buffer.

This can include planning scheme provisions such as the Environmental Significant Overlay to the identified buffer area.

An urban amenity buffer set at 10 OU is already a significant compromise to the usual establishment of a buffer between industry and sensitive uses and this means that those residents near, but outside a 10 OU buffer as modelled in the GHD report, would be expected to, on occasions, experience odours that could be offensive. Council is proposing further compromises to the modelled 10 OU buffer to recognise existing subdivisions through the adjusted urban amenity buffer. This does not represent sound planning and goes against some of the objectives found in the Latrobe Planning Scheme. These include seeking to achieve fair and orderly planning and to provide a pleasant environment.

Adjusting the urban amenity buffer may benefit some property owners, depending on their location and perspective, however, it doesn't change the reality that they are located within a 10 OU buffer area. While making this comment, the Panel is conscious that most of the dwellings within the proposed buffer were approved after the mill commenced its operation.

Importantly, the adjustments do not have a scientific basis and do not adequately reflect the considerable work that has gone into modelling the contours.

As outlined earlier, the Amendment seeks to establish the urban amenity buffer in the Municipal Strategic Statement. The land use response and appropriate provisions to implement the buffer will be introduced through further planning scheme amendments. The Panel therefore considers the appropriate buffer to be applied in the Municipal Strategic Statement is the non-radial 10 OU buffer as modelled. A future planning scheme amendment will determine the planning response for future development within this buffer and it may be appropriate and justified to apply different responses to different area. Areas where different planning responses could be applied include the 801 existing dwellings which would be in the 10 OU buffer but not in the adjusted 10 OU buffer as well as the areas that the TGAR Community Working Group Committee nominated to be excluded.

The Panel recognises that over time the buffer may require adjustment. This may be as a result of further modelling such as that proposed for the Tyers area (Clause 21.04-7 *Further Strategic Work*) and that recommended in the GHD report in the North Morwell area. It may also be as a result of further improvements at the Australian Paper site that reduce odour emissions.

Several submitters raised the impact of the urban amenity buffer on their property value, however, there was insufficient information provided to support these claims. It is often difficult to single out one matter as the reason for property values changing.

4.6 Recommendation

The Panel recommends:

Change Clause 21.05 to:

a) **Realign the urban amenity buffer boundary along the 10 odour unit buffer modelled by GHD.**

5 Sibelco site

5.1 The issue

What are the impacts of this Amendment on the future operations of Sibelco's operations at 28 Janette Street Traralgon?

5.2 Evidence and submissions

Sibelco operates at a site that is about 2 kilometres south of the main Traralgon commercial precinct and is designated as being in Traralgon Growth Area Review Area 8a.

The Panel was informed in various submissions made by Sibelco throughout the Amendment process that at this site Sibelco (previously known as Unimin):

- Operates from the Industrial 1 zoned 6.88 hectare site.
- Has been operating continuously since the 1950s.
- A small strip of the site is in the Public Conservation and Resource Zone (PCRZ) on the eastern boundary and there is a Land Subject to Inundation Overlay over part of the site.
- Has produced carbonate products including quick lime at the site since 1993.
- Purchased the Janette Street site in 2002 and currently operates 24 hour per day 7 day a week to produce about 200 tonnes of products per day.
- Raw materials for its Janette Street operations are transported by road from Sibelco's Buchan quarry 200 kilometres away. The Buchan limestone quarry has an estimated life span of around 100 years.
- Is in the process of rationalising its Victorian operations and this includes closing its Lilydale site and relocating those operations to Traralgon.
- Is currently undertaking a $25 million upgrade to the Janette Street site. The upgrade received a planning permit in March 2012. The upgrade which is scheduled for completion in late 2018, includes a new dust collector system, new bag storage, improved stormwater drainage and treatment system, acoustic treatment of the building and associated infrastructure to house the upgraded second lime kiln. The upgrade once completed will, it is predicted, increase production from 49,510 tonnes of product in 2011 to 122,110 tonnes and increase truck movement from a current 22 movements per day to about 74 truck movements per day. When completed it will employ an extra 6 people with an additional extra 6 people employed in transport and services to support operations plus an estimated 4 additional people indirectly be employed for each person employed directly at the plant.
- Makes a significant contribution to the local economy through direct and indirect employment and by spending approx. $6.4 million each year (2009) on products and services most of which are from Gippsland.
- Has decided to strategically centre its lime facility at Traralgon. Reasons include the site's proximity to Buchan and its customer base in LV and eastern part of the state.

- Claims to be the major supplier of high quality lime in Victoria. Customers of its products include the steel, construction, chemical and stockfeed industries, as well as the Maryvale pulp mill.
- Projecting to 2050 Sibelco anticipates growth in its sales to customers in for example the coal, paper and water treatment industries.
- Has an EPA licence for its discharges.
- Estimates that relocation from Janette Street would cost around $110 million.

Mr Kraan of Focus CDS Consultants on behalf of Sibelco explained that the closest residential dwelling is approximately 80 metres north of the site and 200 metres from the production plant. He also said that there is a developing residential area to the south west. These sensitive uses are well within the 500 metre threshold distance designated in Clause 52.10 Uses with Adverse Amenity Potential.

Mr Kraan informed the Panel that Sibelco has no intention of relocating however Sibelco will, even with existing use rights, be severely constrained if the site and its surrounds are rezoned to residential and the onus will be on Sibelco to ensure there are no adverse off site impacts. Sibelco is opposed to the rezoning of the land and its surrounds to residential and wants the whole of the threshold distance of 500 metres protected.

In its written submission to the hearing EPA's Mr Bryant[11] advised that Sibelco has an EPA corporate licence which is inclusive of all Sibelco's Victorian sites. The licence permits discharge to air however there are conditions on the licence to protect off site amenity from air and noise emissions. The Panel was also informed that in the last two years EPA had received two noise complaints related to the Janette Street site. One noise complaint was from a residence just beyond the Sibelco boundary to the north and the other was from a residence just over 100 metres from the boundary. There have been no complaints in relation to air emissions. EPA[12] also in its initial written submission opposed the rezoning of the area south of Sibelco. This refers to the area designated Area 8b in the Amendment.

Mr Kraan also said that before the last two years there were more complaints but these have diminished with ongoing environmental improvements to the plant.

In his expert witness statement, Mr Barnes described Area 8a as an older style industrial area. Mr Barnes considered that from a strategic planning perspective if Sibelco was to move from Janette Street there is strong merit to transition area 8a to residential. However with Sibelco's commitment to the site he did not see this occurring in the foreseeable future.

Further, in Mr Barnes' opinion:

> *This does bring into question the need to retain the strategy in the planning scheme. The issue still remains, however, of what is the role of other industrial zoned land in the precinct if Silbeco* [sic] *remains in the long term, and if it is to remain industrial, what can be done to better utilise that land. That, in my mind, is a question for the municipality wide industrial land use review identified as being required by this amendment.*

[11] Submission by Mr Leigh Bryant Acting Manager Gippsland, EPA, pages 16-17.
[12] Appendix 1, Traralgon Growth Area Framework, Hanson, August 2013 (updated December 2013).

> *Whilst the option exists to delete the strategy from the scheme, my preference is to retain it until the industrial study is undertaken.*

Sibelco was alerted to the possibility of a rezoning of Area 8a in 2008 just prior to Amendment C62 going on exhibition.[13] Sibelco (then Unimin) made submissions to that Amendment.

In its Part B submission, Council submitted that the C62 Panel's recommendations have been carried through, adopted and approved. It submitted that it is outside the scope of Amendment C87 to make changes that relate to Area 8a. In response to EPA's opposition to residential development south of the Sibelco site[14], Appendix 1 of the Traralgon Growth Area Framework states:

> *Sites to the south of Sibelco in Traralgon have previously been flagged for future residential development, but any rezoning for these purposes will need to acknowledge the implication of the ongoing viability of activities at the Sibelco industrial site.*
>
> *However, given the long term nature of this framework it is considered appropriate to identify the long term future use for the area south of Sibelco TGAR reports and plans also identify the need for a future industrial strategy that may inform the future use of the Sibelco site and surrounding sites.*

However the Panel notes that the Framework designates land to the south of Sibelco (then Area 3b, now Area 8b) as a second stage greenfields site to be zoned Urban Growth Zone[15], and it is identified as priority 12 of 26 potential residential development areas[16]. The Amendment proposes to reference the Framework in Clauses 21.04 and 21.05. The northern boundary of Area 8b is shared with Sibelco and if residential development does occur to the boundary it is likely to further reduce the threshold distance to sensitive uses.

5.3 Discussion

The Panel inspected the Janette Street area and observed that the area generally seems to be run down with several uninhabited houses and, apart from Sibelco, has limited industrial activity.

Amendment C62 to the Latrobe Planning Scheme comprised a new Local Planning Policy Framework with a revised Municipal Strategic Statement. In the July 2009 the Panel Report[17] considered the Sibelco site in some detail, outlining (the then) recent upgrades and expert evidence provided on emission and other environmental conditions. The expert evidence provided by Mr Ramsay[18] as reported by the C62 Panel:

[13] In C62 Area 8a was referred to as Area 3 in that Amendment.

[14] Submission 5, Mr Gary Kay, EPA, summary in Appendix 1, Traralgon Growth Area Framework, Hanson, August 2013 (updated December 2013).

[15] Traralgon Growth Area Framework, Hanson, August 2013 (updated December 2013) page 59.

[16] Ibid, page 62.

[17] Latrobe C62 Panel Report pages 36 -38.

[18] Peter Ramsay of Peter J Ramsay and Associates Pty Ltd.

> *concluded that despite the best manufacturing practices, buffers were an important control measure to separate sensitive uses from potential industrial impacts, and thus "… it would be inappropriate to allow any part of the existing industrial zoned land to be used for residential purposes, for so long as the Unimin plant is operational." He also noted the issues of potential land contamination, noise and traffic which are a consequence of a large processing site such as Unimin.*

Mr Kraan expressed Sibelco's desire for the whole of the site to be protected by the Clause 52.10 threshold distance[19] of 500 metres. However with residential development already well within the 500 metres this appears to the Panel to be unlikely. EPA's *Recommended separation distances for industrial residual air emissions*[20], a reference document in the State Planning Policy Framework at Clause 13.04-2 also has a separation distance of 500 metres between sensitive uses and a plant of Sibelco's size. However a variation in the separation distances is allowed under site specific criteria such as for a site with exceptionally high standard of emissions control, risk assessment for justifies a variation or the likelihood of residual air emissions. Based on what the Panel has learned about Sibelco, a reduction in the separation distance based on air emissions could be justified but the case needs to be made.

In its assessment of the Janette Street area, the C62 Panel noted the absence of any strategic analysis such as an industrial strategy, an assessment of net community benefit for rezoning the area or estimated costs to bring a possibly contaminated area to market if rezoned to residential. While it considered the area requires a more detailed examination it did consider that based on sound planning the area has potential, in the long term, for residential development if remediation of any contamination, from present and past industries can feasibly be resolved.

The Panel was also critical of ad hoc rezoning of parcels of land within the area as being unsound planning that does not meet the state planning policy requirements to protect industry from encroachment by sensitive uses.

The C62 Panel recommended that the proposed rezoning of the land to residential to be replaced with:

> *review the existing industrial area of Janette Street /Dunbar Road, with a view to confirming the role and viability of this area as service industrial development or conversion to residential development." Or words to this effect.*

The current wording in Clause 21.05-6 of the Planning Scheme (as relevant) reflects this:

Clause 21.05-2 Main Towns Overview

> *Objective 3 - Main Towns*

[19] Threshold distances, buffers and separation distances are the same concepts and are often used interchangeably.

[20] Clause 13.04-2 references EPA's 1990 publication *Recommended Buffer Distances for Industrial Residual Air Emissions. Recommended separation distances for industrial residual air emissions* (EPA 2013 publication 1518) is an updated version of that reference document.

- *To reduce industrial-residential land use conflicts.*

Strategies

- *Review existing smaller pockets of industrial areas and isolated industrial areas.*
- *Confirm the role and viability of these small and isolated industrial areas for service industrial development, isolated larger industrial development, or conversion to residential development.*
- *Provide buffers between industrial and existing (and potential) sensitive use areas.*

21.05-6 Specific Main Town Strategies – Traralgon

Residential

- *Future land uses and zoning in Areas 3a and 3b should be investigated subsequent to a detailed assessment of industrial land requirements for Traralgon as part of an industrial strategy.*

Industrial

- *Encourage the early transition of industrial land uses in the southern parts of the Transit City Precinct to enable the conversion of land to residential uses.*
- *Review the existing industrial area of Janette Street/ Dunbar Road (Area 3a), with a view to confirming the role and viability of this area as service industrial development or conversion to residential development.*
- *This Panel confirms that in relation to Sibelco and its surrounding area to the only proposed changes to the relevant clauses in the current scheme update the numbering of the areas 3a and 3b to areas 8a and 8b to align with the numbering of areas used in the TGAR.*

It is apparent to this Panel from its site inspection and from reviewing the C62 Panel report, that little has changed in Area 8a over the intervening years and apart from the Sibelco site, the area may have deteriorated further. This may be due to the uncertainty over future zoning of the area or it may be for other reasons. What is clear is that until the area is given greater certainty about its future it is unlikely to improve. The proposed industrial land strategy would be one step to assist in bringing some clarity to in the right direction.

As noted above the Framework identifies the area 8b, directly south of the Sibelco site, as stage 2 greenfields site to be zoned Urban Growth Zone. In his expert witness statement, Mr Barnes stated that further work is needed in Area 8a before establishing the long term future of this area and whether a strategy for this area should remain in the planning scheme. The Panel agrees with Mr Barnes in relation to Area 8a and adds that the same should apply to Area 8b based on the potential for off-site amenity impacts.

The Framework and background work that has gone into generating it has taken hard work and persistence over a number of years. It is proposed that this Framework be referenced in Clauses 21-04 and Clause 21.05 of the Planning Scheme. With the issues and doubts about the future of Areas 8a and plans to rezone 8b to the Urban Growth Zone at stage 2 of implementation the Panel considers this to be premature. Development of the area would

be better placed as an area for further investigation and be based on a completed industrial land strategy. It could also benefit from air and noise emission modelling of the potential off site impacts based on the completed Sibelco plant upgrade.

5.4 Conclusion

Sibelco has been a long term contributor to the local economy and has strategically expanded, improved and centred it operations at its Traralgon site. The current multi-million dollar upgrade to its plant was sanctioned by Council when it granted Sibelco a planning permit for building and works in 2012 while considering the area for residential development in Areas 8a and 8b.

While this Panel has some sympathy with Sibelco's position regarding the encroachment of residential development within its buffers, any substantiative changes to Clauses 21.04 and 21.05 to address Sibelco's concerns are outside the scope of the Amendment.

As noted above, through the Amendment, the Traralgon Growth Area Framework is proposed to be referenced in Clauses 21-04 and Clause 21.05.

The Panel concludes that rather than removing reference to the Framework at Clauses 21.04 and 21.05, an addendum should be added to the Framework to:

- Delete Area 8b from stage 2
- Include areas 8a and 8b after stage 4, as areas for further investigation.

6 Employment investigation area

6.1 The issue

The Amendment proposes an employment investigation area mostly south-west, and partly north, of the Latrobe Regional Hospital and south-west of the Latrobe Regional Airport.

6.2 Evidence and submissions

In support of the employment investigation area, Council submitted:

> *Area 4 is ideally suited for employment uses associated with the Latrobe Regional Airport or the Latrobe Regional Hospital. The Amendment, Traralgon Growth Area Framework and Traralgon West Structure Plan continue to promote this given the importance of employment in promoting the growth of both Latrobe City and the wider Gippsland region.*

Council added that it consulted with the Latrobe Regional Airport Board which informed the *Latrobe Regional Airport Masterplan 2009 Review*. The review reinforced that development in Area 4 that is not associated with Latrobe Regional Airport or Latrobe Regional Hospital needs to be discouraged.

Council sought further changes to Clauses 21.04, 21.05 and 21.07 of the exhibited Amendment to better recognise the importance of a Latrobe Regional Airport Master Plan.

There were mixed submitter views on the employment investigation area. Mr Diaz submitted that his land be included in the employment investigation area and sought for this area to be investigated within the next 12 months. Kasam Suleman Pty Ltd submitted Area 2 should allow residential uses instead of industrial land because it believed that there was an oversupply of industrial land and future industrial land would impact on existing residential uses adjacent to this area.

Mr Barnes did do not support changing the designation of this area to an 'Urban Investigation Area' because he considered that this would provide the potential for conventional residential uses. Mr Barnes stated:

> *Whilst there may be potential for some 'integrated' residential accommodation associated with hospital or airport related uses, I do not support more conventional forms of residential development in this location.*

In response to submissions, Council revised the relevant provision to add the words shown in underline:

> *Encourage proposals for employment intensive businesses <u>compatible with the nearby Latrobe Regional Hospital and Latrobe Regional Airport</u> associated with health and aeronautics in Area 4.*

6.3 Discussion and conclusion

The Panel commends Council for working with the Latrobe Regional Airport Board to ensure that development within its environs do not adversely impact on its operation. Ensuring that employment businesses that are compatible with the nearby Latrobe Regional Hospital

and Latrobe Regional Airport represents sound and orderly planning. The Panel likens the employment investigation area to employment clusters that are encouraged in *Plan Melbourne.* *Plan Melbourne* outlines the benefits of locating similar and complementary businesses within a defined location. Adopting a similar approach in Area 4 aligns with the strategy to implement masterplans for Latrobe Regional Airport and Latrobe Regional Hospital that maximise the use of existing infrastructure.

Airport master planning is an important process that should be recognised in the relevant strategic provisions. The Panel therefore supports Council's proposed changes to Clauses 21.04, 21.05 and 21.07, as shown in the recommendation below.

The Panel does not accept that low impact industrial uses cannot be located next to sensitive uses such as dwellings. There are numerous provisions in the Latrobe Planning Scheme that can address issues related to industry being located within close proximity of dwellings. For example, Clause 52.10 (Uses with adverse amenity potential) has separation distances to protect sensitive land uses from industrial uses.

The Panel concludes that locating employment businesses that are compatible with the Latrobe Regional Hospital and Latrobe Regional Airport within close proximity of each other can complement their operation and encourage further investment into the region. Council's revised wording for the relevant provisions can achieve this aspiration.

6.4 Recommendations

The Panel recommends:

Change Clause 21.04 to:

a) **Include the following new strategy in Objective-1-Infrastructure of 21.04-6:**

Implement Masterplans for the Latrobe Regional Airport, Latrobe Regional Hospital and the open space corridor within the Traralgon West Growth Corridor that maximises the use of existing infrastructure.

Change Clause 21.05 to:

a) **Replace the final strategy in Commercial of 21.05-7 with the following strategy:**

Encourage proposals for employment intensive businesses compatible with the nearby Latrobe Regional Hospital and Latrobe Regional Airport associated with health and aeronautics in Area 4.

b) **Add a new strategy in Commercial of 21.05-7:**

Consider proposals for other employment intensive businesses compatible with the nearby Latrobe Regional Hospital and Latrobe Regional Airport in Area 4.

Change Clause 21.07-7 to:

a) **Include in Objective 4 - Industry the following new strategy:**

Implement Masterplans for the employment investigations area, Latrobe Regional Airport and Latrobe Regional Hospital within the Traralgon West Growth Corridor that accommodates industry clusters linked to health aeronautics or agriculture research and development.

7 Other issues

7.1 Flooding

The issue is whether the most recent flood extent mapping should be incorporated into the *Small Town Structure Plans – Boolarra, Glengarry and Tyers* (the Small Town Structure Plans). This document was prepared in 2009 and revised in 2010.

The exhibited Amendment included the following implementation strategy in Clause 21.05 for main towns:

> *Apply the Land Subject to Inundation and the Floodway Overlay (with modified schedules) to flood prone areas as identified by the West Gippsland Catchment Management Authority.*

In its submission, West Gippsland Catchment Management Authority stated that the municipal flooding mapping was reviewed in 2010-11 and implemented through a Land Subject to Inundation Overlay by Amendment C9. Although it did not object to the Amendment, the West Gippsland Catchment Management Authority sought to incorporate the most recent flood extent mapping into the Small Town Structure Plans.

The Panel agrees with West Gippsland Catchment Management Authority that the most current mapping should be shown in the Small Town Structure Plans. This can be done next time Council reviews this document. It is noted that although there is an implementation strategy in Clause 21.05 to apply the Land Subject to Inundation and the Floodway Overlay to main towns, this strategy is absent in Clause 21.06 for small towns including Glengarry. The Panel considers that this strategy should be included in Clause 21.06 to help implement the Small Town Structure Plan.

7.2 Water and sewerage infrastructure

Gippsland Water submitted that it will comprehensively analyse and development infrastructure plans in consultation with Council. It added:

> *Potentially large wastewater and water asset reserves will be required to allow the transfer of water and sewerage. Once Gippsland Water understands further the impacts of the additional land will have on existing critical assets and the best way to run the systems, additional information will be provided.*

Gippsland Water submitted that servicing Glengarry beyond the existing small town structure plan would require significant infrastructure upgrades to service a small number of properties.

(i) Gippsland Water assets

In order to protect its assets, Gippsland Water suggested that the regional outfall sewer, which traverses through land east of Traralgon where future urban expansion is proposed, be shown of the plans as part of the Amendment. It submitted that it is important that the easement is converted to its reserve during subdivision so that pipeline assets can be constructed.

In response to Gippsland Water's suggestion, Council proposed the following post-exhibition changes to the Amendment:

- *Better define the location of the Gippsland Water regional Outfall Sewer on the proposed Traralgon Structure Plan and its importance in Clause 21.05-6.*
- *Better define the location of the Gippsland Water Wastewater emergency Storage Facilities on the proposed Traralgon Structure Plan and the proposed Traralgon West Growth Corridor Structure Plan and acknowledge the potential for interface issues with sensitive uses.*

In his evidence, Mr Barnes stated further work is required to determine whether it is appropriate to apply a buffer and, if appropriate, what that buffer may be.

The Panel agrees that Gippsland Water's assets need to be better identified and considers that Council's changes to the Amendment can achieve this. Council's post-exhibition changes are therefore supported. The Panel agrees with Council and Mr Barnes that further work is needed to determine whether it is appropriate to apply a buffer and, if appropriate, what land use this buffer should apply.

(ii) Wastewater emergency storage facilities buffers

Gippsland Water submitted that it has two wastewater emergency storage facilities that require odour buffers. One facility is on Old Melbourne Road, north of the airport, and the other west of Marshall Road. It requested that the buffers, as modelled by GHD and shown in its submission, be included the Amendment. It said it is working with Council and EPA to refine the buffer distances and ultimately wants the buffers recognised in the planning scheme with an ESO. Council submitted that it is too early for them to be recognised through the Amendment because it is still negotiating on these buffers. The Panel supports Council's position on these buffers.

(iii) Recommendation

Change Clause 21.05 to:

a) Better define the location of the regional outfall sewer in the Traralgon Structure Plan and acknowledge its importance in 21.05-6.

7.3 Major gas pipelines

The Amendment proposes to include the following strategy in Clause 21.05-6 (Main Town Strategies:

> *In the medium term facilitate the orderly planning of Areas 9 and 10 for residential development with an appropriate interface with the Major Gas Pipeline and buffer to industrial zoned land.*

(i) Issue

The issue is whether major gas pipelines have been adequately considered at this stage of the planning process.

(ii) Evidence and submissions

In its submission, APA Gasnet Australia (Operations) Pty Limited (APA Group) identified five gas pipelines that are located in the Traralgon Growth Area. Council submitted that an existing Design and Development Overlay applies to the major gas pipelines. Council added that the overlay schedule requires relevant parties to seek the views of the relevant State government department, now DEDJTR, who then forward the proposal to APA Group for comment.

Mr Barnes agreed with Council and stated that, from a planning perspective, the existing Design and Development Overlay Schedule 1 adequately identifies and protects the pipelines. He added:

> *Such a designation also ensures that the location of the pipelines will be taken into account in the preparation of future development plans required to precede any future subdivision and urban development that might occur in the vicinity of the pipelines in the future.*

APA Group emphasised the importance of being notified during the design stage to ensure that appropriate engineering responses are implemented around the major gas pipelines. It added:

> *It is APA's objective to protect human life and infrastructure whilst ensuring future land use, subdivision and development will not inhibit the potential of an existing high pressure transmission pipeline to be able to provide capacity required to meet the needs for natural gas in Victoria.*

APA Group suggested that Council have ongoing correspondence with APA Group to discuss the scope of issues to ensure that its assets are protected.

(iii) Discussion and conclusion

It is important that comment is sought from AGA Group before finalising development plans around major gas pipelines. The Panel is satisfied that the existing Design and Development Overlay Schedule 1 ensures that this communication will be achieved. The Panel supports Council's post-exhibition changes to better acknowledge the potential impact of new residential growth within close proximity to major gas pipelines in Clauses 21.05-6 and 21.05-7.

(iv) Recommendation

Change Clause 21.05 to:

a) Better acknowledge the potential impact of new residential growth within close proximity of major gas pipelines in 21.05-6 and 21.05-7.

7.4 Site specific requests

(i) The issue

The issue is whether requests to rezone specific sites are appropriate.

(ii) Submissions

There were several submitters that sought to have their property rezoned. Mr Edwards submitted that it is important for owners that the proposed zoning is consistent across the entire property title. The property owner of 106 Walhalla Road in Tyers sought to have his property in Tyers designated for future rural living. Council agreed to amend the Tyers Structure Plan to designate 106 Walhalla Road accordingly and noted that this would form part of a separate amendment.

Mr Jones also sought to have his property in Tyers designated for a future rezoning to the Township Zone. Council submitted that this property was a small farming lot outside of the Tyers settlement boundary and that further strategic work was necessary before it could consider designating the land for future residential purposes. It added that this strategic work would be separate to Amendment C87.

Council submitted that the Amendment discourages bulky goods at a property on the Princes Highway referred to as 'Hollydale'. The property owner, Mr Buhagiar, informed the Panel that he has been seeking to have Hollydale designated for a large scale neighbourhood activity centre including a Masters store. Council added that it has previously appointed a consultant economist to peer review this proposal. The economist did not support bulky goods being located at Hollydale because:

- There is an existing oversupply of bulky goods land
- The planning scheme identifies two other precincts for bulky goods
- The new centre may cause shops in other locations to close
- The Framework seeks to avoid ad-hoc strip development
- Hollydale is a strategically located greenfield site that can accommodate significant residential development.

At the Hearing, Mr Buhagiar said that due to Council not agreeing to rezone his land for commercial purposes, Masters has lost interest in the project which has resulted in a loss of approximately $60 million of development and 300 potential new jobs for the local community. Mr and Mrs Dundek and Mr and Mrs Vacca opposed the Hollydale site being rezoned and developed for medium density housing.

(iii) Discussion and conclusion

The purpose of the Amendment is to introduce strategic direction into the Latrobe Planning Scheme to guide the implementation of the Framework. The appropriate zones, overlays and associated provisions will be considered in planning scheme amendments subsequent to Amendment C87. The Panel concludes that the Traralgon West Growth Corridor Structure Plan sets an appropriate strategic direction for the Hollydale site, especially when considering Traralgon's physical urban growth constraints.

The Panel supports Council's proposed change to the Tyers Structure Plan to identify Mr Fullerton's property as suitable for future rural living.

(iv) Recommendation

The Panel recommends:

Change Clause 21.06 to:

a) Designate 106 Walhalla Road, Tyers for future rural living in the Tyers Structure Plan.

Appendix A List of Submitters

No.	Submitter	No.	Submitter
1	Environment Protection Authority	22	AGL Loy Yang
2	Gippsland Water	23	Barry and Leanne White
3	West Gippsland Catchment Management Authority	24	Sibelco Lime (Victoria) Pty Ltd
4	Department of Environment and Primary Industries	25	Kery and Lauris Watson
5	APA Gasnet Australia (Operations) Pty Ltd	26	Morwell North Residents Group
6	Department of State Development, Business and innovation	27a	Stefan and Meg Dundek
7	Mr Ruben Diaz	27b	Charlie and Nick Vacca
8	Australian Paper	28	Alex and Leanne Van Den Dolder
9	Leanne Sutton	29	Vito and Debra Albanese
10	Lloyd Edwards	30	Paul Kobiela
11	Robert Fullerton	31	Robert Lorenz
12	Neil Jones	32	Gerald, Sue and Adam Conway
13	Latrobe Community Health Service	33	Daryl and Lyndee Hodder
14	Judy Alexander	34	Astrid Eerens
15	Kasam Suleman Pty Ltd	35	John and Rosie Di Ciero
16	'Hollydale' property owner	36	Julie Durward
17	Craig Watts	37	Jim and Lauren Stevenson
18	Kevin and Minke Bennett	38	Aaron and Nicole Doupain
19	Neil Prestipino	39	Reality Christian Fellowship Inc
20	Salvatore Testa	40	Ken Bailey and Family
21a	Ian McGown	41	Ian Watson
21b	Ian McGown	42	TGAR Workgroup Committee

Appendix B Parties to the Hearing

Submitter	Represented by
Latrobe City Council	Mr Jason Pullman and Ms Danielle Simpson and calling the following expert witness: - Mr David Barnes of Hansen Partnership on planning
AGL Loy Yang	Mr Peter O'Farrell of Counsel instructed by Ashurst Australia and calling the following expert witnesses: - Mr Stuart McGurn of ERM on planning - Mr Tim Sullivan on geotechnical engineering
Australian Paper	Ms Michelle Blackburn of Corrs Chambers Westgarth and calling the following expert witness: - Mr Tim Pollock of GHD on environmental engineering
Department of Economic Development, Jobs, Transport and Resources	Mr John Mitas
Environment Protection Authority	Mr Leigh Bryant, Acting Gippsland Regional Manager
Gippsland Water	Mr Paul Young
Mr Ian McGown	
Kasam Suleman Pty Ltd	Mr Nick Sissons of Hunt and Hunt Lawyers
Sibelco Lime (Victoria) Pty Ltd	Jack Kraan of Focus CDS Consultants
TGAR Workgroup Committee	Mr Salvatore Testa
Mr Salvatore Testa	
Reality Christian Fellowship	Mr Keith Walsingham, Senior Pastor
Mr Neil Jones	
Ms Leanne Sutton	Mr Dell
Mr Robert Lorenz	
Mr Kevin and Ms Minke Bennett	
Mr Ian Watson	
Ms Judy Alexander	
Mr Stefan Dundek	
Mr Vito and Mrs Debra Albanese	
Mr John Buhagiar	

Appendix C Document List

No	Date	Description	Presented by
1	20/4/2015	Panel Submission - Part A	Latrobe City Council
2	20/4/2015	Panel Submission – Part B	Latrobe City Council
3	20/4/2015	Submitter map	Latrobe City Council
4	20/4/2015	Environment Protection Authority submission	Environment Protection Authority
5	20/4/2015	Australian Paper EPA Licence	Environment Protection Authority
6	20/4/2015	Sibelco EPA Licence	Environment Protection Authority
7	21/4/2015	Map with correction	Latrobe City Council
8	21/4/2015	Submission – Australian Paper with 3 attachments	Ms M Blackburn
9	21/4/2015	Copy of memo to Mr T Pollock from Dr K L Nguyen Australia Pulp and Paper Institute with attached Ontario Study	Ms M Blackburn
10	21/4/2015	Submission	Mr I Mc Gown
11	21/4/2015	PowerPoint presentation, Gippsland Water	Mr P Young
12	22/4/2015	Maps 1-6	Mr P O'Farrell
13	22/4/2015	Extract 'Developing the Latrobe Valley, Resources Future: Coal Resources, Planning Provisions Overview' SKM 18 May 2009	Mr P O'Farrell
14	22/4/2015	'Land Over Coal', Ministry for Planning and Environment February 1988	Latrobe City Council
15	22/4/2015	Letter from Department of Primary Industries to Mr Lim LCC, 7 August 2012	Latrobe City Council
16	22/4/2015	Submission – AGL Loy Yang	Mr P O'Farrell
17	22/4/2015	Submission Depart of Economic Development, Jobs, Transport and Resources including maps	Mr Mitas
18	22/4/2015	Submission and series of maps (18a)	Mr Suleman
19	22/4/2015	Dust Complaints received by EPA related to Loy Yang	Environment Protection Authority
20	22/4/2015	Submission – Sibelco Lime (Victoria) Pty Ltd, Parts A & B	Mr J Kraan, Focus CDS Consultants
21	22/4/2015	Historic Photos (one copy only)	Ms Blackburn
22	22/4/2015	Lots breakdown near Loy Yang	Latrobe City Council
23	22/4/2015	Submission: TGAR Workgroup Committee	Mr S Testa
24	22/4/2015	Submission on behalf of Ms L Sutton	Mr Peter Dell

No	Date	Description	Presented by
25	22/4/2015	Submission – Reality Christian Fellowship	Pastor K Walsingham
26	22/4/2015	Submission	Mr N Jones
27	22/4/2015	Maryvale Linx October 2013	Mr Testa
28	22/4/2015	Photos	Mrs Bennett