Bomen Strategic Master Plan 2009

Document Control

Rev No	Date	Revision Details	Typist	Author	Verifier	Approved
o	1/5/09	Preliminary Draft	JMD	JMD	LS	AL
1	6/5/09	Final Draft	JMD	JMD	LS	AL
2	1/6/09	Final	JMD	JMD	LS	AL
3	14/12/09	Wagga Wagga City Council : Adoption of plan	VS	JCD	FW	WWCC
4	22/11/10	Wagga Wagga City Council : Minor Amendment	VS	JCD	CR	WWCC

This document was prepared by Aurecon and PTW Architects for the project partnership of Wagga Wagga City Council and the Industry and Investment NSW. The document was amended by Wagga Wagga City Council on the 14 December 2009 to reflect those changes adopted resulting from submissions made during the public exhibition stage. [1]

[1] The Wagga Wagga Local Environmental Plan 2010 was gazetted on 16 July 2010. Nominated landuse areas defined in the Bomen Strategic Master Plan are indicative only. The Wagga Wagga Local Environmental Plan 2010 is the primary source for landuse zones.

New South Wales Government

City of Wagga Wagga

Department of State and Regional Development

Contents

FIGURES

1. Introduction

1.1 Background

In October 2008 Wagga Wagga City Council commissioned Aurecon with sub-consultants PTW Architects to prepare a master plan for the "Bomen Business Park", located on the northern outskirts of Wagga Wagga. The master plan is a project partnership between Council and the NSW Government's Department of State and Regional Development.

1.2 Aims and objectives

In our appreciation of the project brief, we described the project's key aim, or vision, as follows:

> *The Bomen Business Park will be a high-quality and nationally renowned place for transport and logistics-based enterprises, well-designed and integrated with existing industry, which meets the requirements of a targeted range of businesses and supporting activities; to complement and nurture a more sustainable City of Wagga Wagga and Riverina Region.*

Accordingly the project objectives are to review, explore, analyse or identify:

- The means of achieving such a vision
- Planning for capitalising on and marketing the site's strengths:
  - Location
  - Land
  - Infrastructure
- Local and regional market conditions
- Potential for support from Government stakeholders
- Neighbouring and nearby land use, to manage externality issues arising from relative (in) compatibility between those uses and the site's future development
- The existing and planned hierarchy of activity/industrial centres in Wagga Wagga and the region, referring to Council's Community Strategic Plan 2008/2018, GROW_Wagga Wagga - A blueprint for continued economic growth of the City from 2008 through to 2018
- Location, size and percentage of land developed for commercial, industrial and bulky goods land supplies across Wagga Wagga
- Demand for alternative land uses, such as commercial, accommodation, light industrial and bulky goods/showroom floor space, by reviewing relevant Council and industry publications and interviewing local stakeholders
- Road network and hierarchy
- Infrastructure for meeting future needs
- The statutory and non-statutory planning framework, focusing on existing and proposed planning instruments, industrial subdivision and urban design; site management and emissions controls
- Production of a master plan capable of guiding future planning and development; and be used or adapted for marketing the estate or as promotional material for the City and region
- Development of ecologically sustainable development principles to complement the master plan, capable of being transformed into aims and objectives for planning instruments

During the course of the project it was necessary to clarify the project's scope and direction particularly with regard to the draft Wagga Wagga Local Environmental Plan 2008. The draft LEP was publicly exhibited during the project from January until April, 2009. This became apparent due to public consultation workshops identifying a perceived misalignment of objectives between the two projects, mainly brought about by their timing and scope. The project steering committee, consisting of senior Council staff, the Department of State and Regional Development and Aurecon agreed that the project outputs would focus on delivering:

a) A master plan with a strategic focus that integrates land use and transport planning over a 25 – 30 year timeframe, together with the other outputs described above

b) An implementation strategy which generally aligns with Council's planning instruments, by:
   i. Recommending development and land use patterns to be generally consistent with the draft Wagga Wagga LEP 2008, as amended following it's public exhibition (from January until April, 2008)
   ii. Also recommending changes to land use and development patterns that may prompt a review of the draft or subsequent versions of the said LEP, where this report identifies that such changes would assist in attaining the Council's and NSW Government's strategic objectives for sustainable economic growth and the vision for the 'Bomen Business Park'

1.3 Methodology

The methodology deployed in preparing the master plan is summarised below.

1.3.1 Stage 1 Inception and situation analysis

Inception

The project inception meeting was held on 24 November 2008 with the project steering committee, to discuss and agree on study parameters, project objectives and confirm a project program.

Information collection: Relevant data and publications were provided to Aurecon by Council.

Stakeholder contact: On the following day a Bomen briefing was hosted by the Department of State and Regional Development at Council's chambers and stakeholder contact details were provided.

Study area reconnaissance: Several tours of the site were undertaken to gain an understanding of the issues to be addressed by the project.

Data review and gap analysis

The data provided was reviewed and no data gaps considered critical to the project's attaining its objectives were identified.

Planning analysis

Spatial context
To complement site visits, images and mapping were analysed to gain an appreciation of existing conditions, covering the following themes:

- Landscape values
- Context and adjoining land use
- Existing uses, transport and utility infrastructure
- Relationships with and connections to key nodes of economic activity

Strategic context
A summary and review of the key strategies of the NSW Government and Council that relate to Bomen was made.

Statutory context
Existing and proposed statutory plans have been reviewed and considered in formulating the master plan. Its design and complementary recommendations aim to be both a 'strategic' master plan and a 'road map' for development over a long period, of 30 years and beyond. Within this strategic context the master plan also aims to inform more detailed planning via the statutory planning framework to be established for Bomen under the Environmental Planning & Assessment Act 1979 (EPA Act). Recommendations are made at the conclusion of this report (section 8) supporting Bomen's declaration as a state significance site, with proposals to be assessed under Part 3A of the EPA Act. Measures to amend the draft Wagga

Wagga Local Environmental Plan 2008 are also recommended. Material is included in this report capable of adaptation or incorporation into a development control plan Council is preparing to complement the LEP. The recommendations and this report are designed to inform a planning framework under Part 4 and Part 3A. The master plan and this report have no statutory standing under the EPA Act and should not be interpreted as such.

Particular attention has been paid to the draft Wagga Wagga Local Environmental Plan 2008, and associated documents. That Council's project brief specified a review of these provisions and other statutory frameworks available under this Act is worth noting, as Council was of the view that a 'traditional' approach, assessing development applications according to Part 4 of the EPA Act (requiring compliance with a LEP, other relevant planning instruments and development control plans), may not be the optimum assessment and approvals regime to promote the sustainable development of Bomen. As is often the case across NSW, a more predictable and speedier approvals process is seen as essential to inward investment, economic development and jobs growth.

SWOT and STEP analyses

A workshop was held for invited stakeholders on 17 December 2008. Four sessions were held:

1 Presentation of project objectives and information collected and analysed to date
2 STEP Analysis: small groups examined the strategic influences on Bomen's development using the STEP (society, technology, environment, politics) technique to promote discussion
3 SWOT Analysis: the strengths weaknesses and opportunities and threats were identified
4 The workshop concluded with a discussion on the future of Bomen, with a view to compiling a vision for the site

The results were then compiled to inform the design process and development of sustainability criteria, described in Section 6 of this report.

Competition

Based on our preliminary analysis of vacant land (from previous reports) we proposed to record the main areas of vacant land in the City that has been earmarked (by zoning or other strategy) for industrial development. From this and our previous investigations we were to build a land supply profile to better inform development of the master plan. A demand profile was to have been based on interviews and other consultation, as outlined above.

Current market conditions were to be examined. Interviews were conducted with agents and others in Wagga Wagga's property development industry, to gain insights into current demand and supply of industrial and commercial land.

Commercial, retail and other employment generating activities

As indicated earlier, it appeared worthwhile to exhaust possible alternatives in order to make the estate more robust as a marketable commodity and in its contribution to Wagga Wagga's sustainable future.

1.3.2 Stage 2 Options analysis

Scenario development

From the foregoing analyses and consultation, PTW's urban designers then prepared three options for developing the master plan. Each option was based on a series of assumptions and desired outcomes; or scenarios. These scenarios and the resultant design options were then tested at a second workshop held 4 February 2009.

Sustainability assessment

A sustainability assessment framework was developed which was used to assess the options. The framework consists of a number of sustainability objectives against which the design options and later the draft master plan was assessed. The sustainability objectives were separated into four sustainability 'elements' comprising social, economic, environmental and governance. The objectives are complemented by a ranking system specifically designed for the project. Further details of the sustainability assessment framework are provided in section 6.

Site analysis

In developing the options for the 4 February 2009 workshop, the presentation aimed to describe the results of our analysis of:

- The site's land use context
- Existing development
- Transport corridors
- Infrastructure
- Landscape qualities
- Vegetation
- Soil and water conditions

Infrastructure upgrades and costs

Infrastructure investigations began with contacting identified agencies and corporations to determine what affect the proposed development will have on its infrastructure, namely:

- Road networks
- Rail
- Electricity
- Telecommunications
- Gas
- Water, sewer and stormwater

Our discussions focused on the effect of proposed development on the existing infrastructure as well as requirements for upgrading and provision of new infrastructure.

An integral component of the successful development of Bomen is optimal use of rail infrastructure. Detailed discussions were conducted with the Australian Rail Track Corporation (ARTC) to ascertain their specific requirements for improving rail access to the area including connection points, rail corridors and intermodal hub facility area requirements. Rail siding proposals for the area were also examined.

In summary, the following tasks were undertaken:

- A desktop review of existing infrastructure servicing the area and current issues and potential shortcomings
- Targeted consultation with relevant government agencies and service providers. This consultation involved telephonic communication and 2 days of meetings with government agencies and service providers to discuss infrastructure issues in more detail
- Assessment and determination of the development capacity of existing services infrastructure based on the information sourced from government agencies and service providers
- Road upgrades have been identified to provide adequate access points to the site from the existing road network. Recommendations are also made for new road infrastructure
- The Council proposed Byrnes Road realignment and integration options for development of an inter-modal hub have been investigated
- The ARTC were questioned regarding the implications of having additional railway sidings

- Demand for services based on local conditions and expected future conditions have been estimated
- Potential funding sources for infrastructure are identified
- Infrastructure has been integrated with the master plan, to support the growth and development of Bomen. Maps showing existing and required infrastructure are included

Urban design principles framework

A design principles framework is an integral element of the report, linking data collection and analysis stages to the development of the master plan.

This task prepared design principles and their illustration. The framework describes spatial development and design concepts embraced by the master plan, highlighting aspects such as:

- Where buffers may be required
- Significant site constraints and opportunities
- View corridors
- Gateway sites/access points
- Vehicular connections
- Pedestrian/cycleway locations
- Links to surrounding areas.

The design principles take the form of character precinct descriptions illustrated in Section 6, a character precinct plan, and a proposed road network plan. The precincts are described in (Appendix C).

1.3.3 Stage 3 Prepare draft master plan

Based on our analysis of the data collected, the options presented to stakeholders on 4 February 2009 and the refinement of the options presented to the steering committee on 18 February 2009, the draft master plan has been prepared. Its preparation was preceded by discussions with Council officers, infrastructure agencies and key stakeholders. A preferred development scenario, or assumptions and desired outcomes that underpin the draft master plan are included. The report includes its ranking, having been assessed against the sustainability criteria as part of a sustainability assessment framework (Section 6).

Master plan preparation

This phase involved preparation of master plan documentation, which includes urban and landscape design guidelines for future development and a graphic illustration of the master plan. These have been prepared in a format capable of being included in a development control plan. This report complements the master plan, by addressing all matters specified in the Project Outputs section of the brief; and other matters brought to light during the conduct of the project, including:

- Access and lot layout plans
- Phasing strategy for infrastructure and land development
- Integrated guidelines for development
- Recommendations to prepare environmental performance standards
- An evaluation and recommendations regarding various assessment and approval regimes available under the EPA Act, namely
  - Part 4 development applications
  - Part 3A – with the site being assessed and determined to be a site of State significance
  - As part of the Part 3A assessment, potential application of the state environmental planning policies (SEPPs) for infrastructure and major projects
- An implementation action plan

Master plan illustration

The master plan has been prepared to presentation standard and highlights:

- Major new and upgraded roads
- Gateways/site access points
- Possible pedestrian/cycleway locations
- Environmental/drainage corridors
- Visual buffers
- Public areas
- Land use patterns including two industry support centres
- Cross-sections to illustrate road design, building sitting and massing; and landscape treatment

Urban/landscape design guidelines

A set of site-specific design guidelines suitable for inclusion or to be compatible with Council's existing development and subdivision controls were to be prepared. They were to address:

- Design principles drawn from an analysis of the site and its context
- A site responsive approach to establishing a desired future character
- The scale of the development and its integration with the existing landscape
- Pedestrian, cycle and road access and circulation networks based on legibility and connectivity
- Building envelopes and built form controls that protect the visual integrity of the site
- Provision of suitable open space
- Conservation of natural values

These have been prepared for adaptation into Council's preferred planning and design framework, noting that Council is presently preparing a citywide development control plan (development guidelines), to come into effect when the recently exhibited local environmental plan (land use zoning) is published, expected early in 2010.

Draft master plan finalisation

The final draft master plan and design guidelines are included in Section 6 and Appendix C.

1.3.4 Draft master plan review workshop

To present, review and refine the master plan a second series of workshops was held. Workshops were held with the project steering group and Council staff on 22 April 2009 and a public workshop was held on 13 May 2009.

At these workshops, the draft plan and highest priority recommendations were presented, to explain the master plan and how it best achieves the vision, objectives and sustainable development principles.

1.3.5 Prepare a land release phasing strategy

Based on the infrastructure review and the final draft plan, a phasing strategy is recommended. Marketing and the ability to exploit the strengths of the final plan for the estate have been considered.

1.3.6 Stage 4 Finalise master plan and report

The concluding stage of the project involved a review of the final draft by Council and apt incorporation of feedback by Aurecon and PTW, with the final master plan and report submitted on 1 June 2009.

1.4 Stakeholder consultation

As with most planning projects, a fundamental is sound collective participation and transparent process, inviting stakeholders and the public generally to participate in and comment upon preparing plans and strategies; the master plan project was no exception.

Four events were held to achieve these outcomes and best enable stakeholders to inform Council and the production of the master plan and this report. The three stakeholder events were complemented by several sessions with the project steering group (senior officers of Council and the NSW Department of State and Regional Development (DSRD)) and Council staff.

1.4.1 Stakeholder briefing

The briefing was held at the start of the project in November 2008. Hosted by the project sponsors, Wagga Wagga City Council and the DSRD, project aims and objectives were presented and discussed and the context of the study area's potential was set, embodied by a number of proposals and the plans of major land holders.

1.4.2 Stakeholder workshops

Two workshops were held:

- In December 2008, to conduct STEP (society, technology, environment, politics) and SWOT (strengths, weaknesses, opportunities, threats) analyses of the study area. The results of these are presented in Appendix A
- In February 2009, to present three options and their sustainability ranking and to enable participants to provide feedback on the options, which informed the master plan. These options are evaluated in Sections 5 and 6

1.4.3 Draft master plan presentation

Held 13 May 2009, the presentation summarised the process and the master plan's evolution, presented the master plan and the more significant aspects and recommendations of this report. Comments were taken on board and used to fine-tune the plan and recommendations.

2. Vision and objectives

Fundamental to the project was developing a vision and objectives to inform the master plan, planning and other measures to deliver the outcomes desired by stakeholders.

Responding to the brief, various strategic documents that have influenced the project and the consultation held with stakeholders, this vision and objectives have been prepared, acknowledging the fruition of plans for transport and industrial hubs can evolve over a 20 to 30 year period.

2.1 Bomen's future

In 2030, the Southeast Australian Logistics hub (SEAL) is:

1 *The intermodal transport terminal of choice for industries and transport businesses across southeastern Australia*
2 *A well planned place of industry that takes full advantage of its location, accessibility and infrastructure; and an internationally renowned exemplar of ecologically sustainable development through deployment of the principles of industrial ecology*
3 *One of the most resource and energy efficient places of business nationally*
4 *Fully serviced by support businesses, providing services that foster economic development and sustained business and jobs growth*
5 *Supplied with infrastructure for transport, energy, communications and resource and materials sharing that is economically and environmentally effective*

2.2 Master plan objectives

a) Capitalise on and market the site's competitive advantages:
    i) It's **location** central to inland southeastern Australia on the Sydney – Melbourne railway

    ii) It's **infrastructure**, especially access to rail and road networks; energy, water communications and waste management

    iii) Its **land**, a 1,500ha-plus supply of large parcels of near level to gently undulating land that is easily developed

b) Establish preferred:
    i) Land use patterns to ensure access to transport infrastructure, primarily the rail corridor, is optimised, by precluding enterprises (not requiring direct access to the rail) from being located a distance from the rail that may inhibit access to the rail by activities that must be adjacent to the rail corridor

    ii) Road networks that provide a hierarchy of direct and legible routes through and around SEAL

    iii) Infrastructure networks that are economically efficient and environmentally effective

c) Enable SEAL to become a greater strategic asset for Wagga Wagga, the Riverina, NSW and Australia

d) To embrace and base future decisions and development upon principles of ecologically sustainable development

e) To achieve objective d), industrial ecology is used as a strategy; to minimise or eliminate pollution, via enabling the transfer of materials and resources amongst enterprises so as to create a closed cycle; thus conserving natural resources and minimising environmental impact of development

f) Improve the region's capability in attracting business, nationally and internationally

g) Provide for a planning and approvals framework that enables greater predictability of process and certainty of outcomes

h) Be a conduit for Government funding, administrative, marketing and planning support

i) Provide for improved compatibility and relationships of SEAL's businesses with their neighbours

j) Provide for judicious allocation of land for various land uses that best capitalise on SEAL's competitive advantages

k) Promote and help enable vocational training in the trades and professions that are and will be required by SEAL's enterprises

l) Complement Wagga Wagga's existing supplies of industrial land, by differentiating itself as the location of choice for transport related and support enterprises, or as a location for industry requiring large land parcels or direct access to road and rail

m) Enable development of a capital works program and a budget for public works

3. The most important recommendations

This section highlights the top priorities for action, from the detailed recommendations and actions that conclude this report, which complement and support the master plan.

Recommendations are presented accordingly:

- Leadership and governance
- Transport and infrastructure
- Sustainability and environment
- General conditions, support activities and development

Attached is the summary of the workshops of 17 December 2008 (Appendix A), from which the majority of recommendations are derived. That the analysis of the planning framework and issues arising from consulting government agencies and the development of the master plan has also influenced the drafting of recommendations should be noted. Brief comments are provided with recommendations, by way of background or explanation.

A complete set of recommendations concludes the report, at Section 8.

3.1 The top priorities

Leadership and governance

- Coordinated leadership, management and planning are arguably the top priority. A body supported by appropriate administration should be established, charged with delivering the vision and objectives for Bomen.
- Planning controls must be flexible, to be 'future proof', while providing for predictability of process and greater certainty of outcomes.

Transport and infrastructure

- Continue to pursue funding and government support for arterial roads connecting from the Sturt Highway to the northern point of Bomen Business Park and from the Olympic highway to the eastern side of the Sydney/Melbourne railway line, including a bridge over the railway line, as shown in the master plan.

Sustainability and environment

- A strategy to facilitate industrial ecology be developed for the site; with the key aim to create a "closed loop" of energy and materials use, which minimises or eliminates emissions to the environment and the consumption of energy and materials in the estate

Apart from these four recommendations none of those presented below is in any particular order of priority. The table which concludes the report in section 8 indicates the relative importance and priority for implementation.

3.1.1 Leadership and governance

- **Coordinated leadership, management and planning are arguably the top priority. A body supported by appropriate administration should be established, charged with delivering the vision and objectives for Bomen.**

  The significance of the site is almost universally accepted and something must be done to get things moving. No entity or individual can do it by themself, as no single agency or body has the

where-with-all or authority to plan and execute infrastructure delivery, and industrial ecology strategy and a climate change adaptation plan, as recommended. Further, it is important for land development, marketing, promotion and so on, to remain separate from regulatory and assessment roles that stakeholders also have. A strategic and well orchestrated approach at political, administrative, land owner/investor and community levels is essential.

The number of government agencies and approvals required for planning approvals and infrastructure provision is noted. Also there were statements made that owners and government could work together to achieve agreed outcomes for the area. There appears to be general support for a more collaborative approach to planning and delivery, which needs to be harnessed quickly. Major stakeholders, with Council taking the lead, should unite to form a 'leadership partnership' to make Bomen's vision a reality. Without a truly collaborative and co-operative approach, Bomen stands a good chance of not realising its potential. The 'tyranny of the small decision' should not allow great potential to be squandered, or frittered away.

- **Planning controls must be flexible, to be 'future proof', while providing for improved predictability of process and greater certainty of outcomes.**

  As recommended by the planning framework analysis (Section 7), steps should be taken immediately to instigate the process for the Minister for Planning to declare Bomen as a Site of State Significance; as enabled by State Environmental Planning Policy (Major Projects) 2005.

- **Statutory planning for Bomen must recognise the strategic significance and rarity of the amount of readily-developable land with frontage to both sides of the busiest rail freight line (destined for significant growth in freight movement) in Australia and protect the most important advantage Bomen has over its regional competitors.**

  The scarcity and hence the value of land with these amenities must not be underestimated, and would only likely be delivered via an effective planning framework.

3.1.2 Transport and infrastructure

- **Continue to pursue funding and government support for arterial roads connecting from the Sturt highway to the northern point of Bomen Business Park and from the Olympic highway to the eastern side of the Sydney/Melbourne railway line, including a bridge over the railway line, as shown in the master plan.**

  This is probably the most critical infrastructure work needed to facilitate future development and the highest priority should be given to continuing pursuit of funding of these works.

- **Negotiations commence with relevant agencies, for a plan to ensure access by B-triples to Bomen from regions serviced by this type of vehicle.**

  That there are limitations to the passage of larger trucks on the road network across the State and in the region particularly is acknowledged. Planning at a state level is required to improve B-triple access.

- **Rehabilitation of the Eunony Bridge and its approach roads from north and south and Oura Road to B-triple standard be pursued.**

  More direct and higher standard access to the Sturt Highway and the airport, also providing a heavy vehicle alternative to the Olympic Highway, would greatly assist Bomen's development.

3.1.3 Sustainability and environment

- **A strategy to facilitate industrial ecology be developed for the site; with the main aim being to create a 'closed cycle' of energy and materials use, which minimises or eliminates emissions to the environment and the consumption of energy and materials on the estate.**

  There appears to be broad based support for concepts that underpin industrial ecology. Again, its achievement hinges on co-ordination and collaboration of service providers and development planning and implementation. A strategy is needed to address means of resource and energy sharing, resource recovery, recycling and materials transfer between industries and collocation of industries whereby costs of providing same is minimised. Such a scheme must be financially and economically (as well as environmentally and socially) sound to be viable.

- **The amenity of adjoining land use and activities must be preserved to a reasonable standard.**

  This has been a key objective of developing the master plan. Its design of transport networks and future character precincts (preferred land use pattern) seeks to minimise the impacts of development while maintaining an environment in which investment levels can be increased without creating undue environmental externalities.

  That more refined planning and analysis of the best means to manage potential impacts at more appropriate stages of the planning process should be scoped and developed further. This is because the long-term and strategic nature of the master plan is not well equipped to address issues that require greater resourcing and more detailed study to be carried out. To attempt to do so would risk making assumptions that, upon testing via rigorous scientific process, may prove to be wrong.

  In other words, the master plan is designed to set the planning direction for development and management of the area, while recognising and flagging issues that may require further testing and evaluation at later planning stages.

3.1.4 General conditions, support activities and development

- **The master plan be used by agencies of the private and public sectors to promote and market Bomen based on its regional, state and national potential and significance. An inward investment and marketing strategy be prepared accordingly.**

  While the master plan and other regionally focused economic development strategies promote Bomen, a specific, expert-prepared inward investment and marketing plan is required. Wagga and Bomen can be promoted as a leader in sustainable industrial development. While the vision suggests an alternative title, SEAL, this is another topic a marketing and promotions expert could lend their talents to.

- **Improve access to and from the sale yards.**

  It is the collective opinion of some that access could be made more direct for traffic to the sale yards with road access from the north.

- **Establish improved collaborative frameworks with education establishments (TAFE and CSU) to ensure the skills of the workforce match the skills required by industries in the future.**

There were many comments about the need to improve and align workforce skills with industry needs.

- **Business support be facilitated in areas provided for these purposes by the master plan**

  The master plan sets aside two areas as 'hubs', for business support and meeting places for community use and the well-being of businesses, their workers and their families. Future planning should facilitate a mix of activities and establishment of a high quality public domain at these locations.

4. Existing conditions

This section of the report describes Bomen's physical conditions and its current policy and planning framework. For review purposes they have been grouped as follows:

Strategic context

- State and regional plans and policies
- Wagga Wagga citywide strategies
- Wagga Wagga specific issue studies
- Bomen-specific studies and plans

Statutory plans

- Wagga LEPs 1985 and 1991
- Wagga Wagga draft LEP 2008

Physical Conditions

- Site and environment
- Land use
- Transport
- Infrastructure
- Competition and industrial land supply
- Current development proposals

4.1 Location and context

Bomen is located about a 15 minute drive north of the Wagga Wagga CBD. Wagga Wagga is in the Riverina region of NSW located centrally between Sydney and Melbourne, a location which offers good access to the south-eastern part of the country, Australia's focus of population, from Brisbane to Adelaide (Figure 4.1).

Wagga Wagga is a significant regional centre. There are similar sized urban centres located on the rail line, which are also known for their ability to attract industry and investment. These centres are Albury – Wodonga, Shepparton, and Goulburn, as shown in Figure 4.2. Dubbo and Parkes also have attributes which can help attract industrial development.

Zooming in, Bomen straddles either side of the railway between Melbourne and Sydney and has excellent access to the State and National road network (Figure 4.3). It also enjoys proximity to Wagga's airport. At around 24km2, Bomen could probably accommodate Wagga's urban area some 2 times over. However Bomen's scale and the amount of land potentially available for development (some 2,040ha), give Bomen qualities that make it unique, possibly in Australia, for developing as a manufacturing and logistics hub.

Figure 4.4 indicates that the area is largely undeveloped with rural uses, mainly pastoral activities, having dominated in the past. Adjacent the railway station, now disused, is some 40 to 50 hectares of land that comprises the present industrial area. Nearby, a number of rural industries have come and gone over the years.

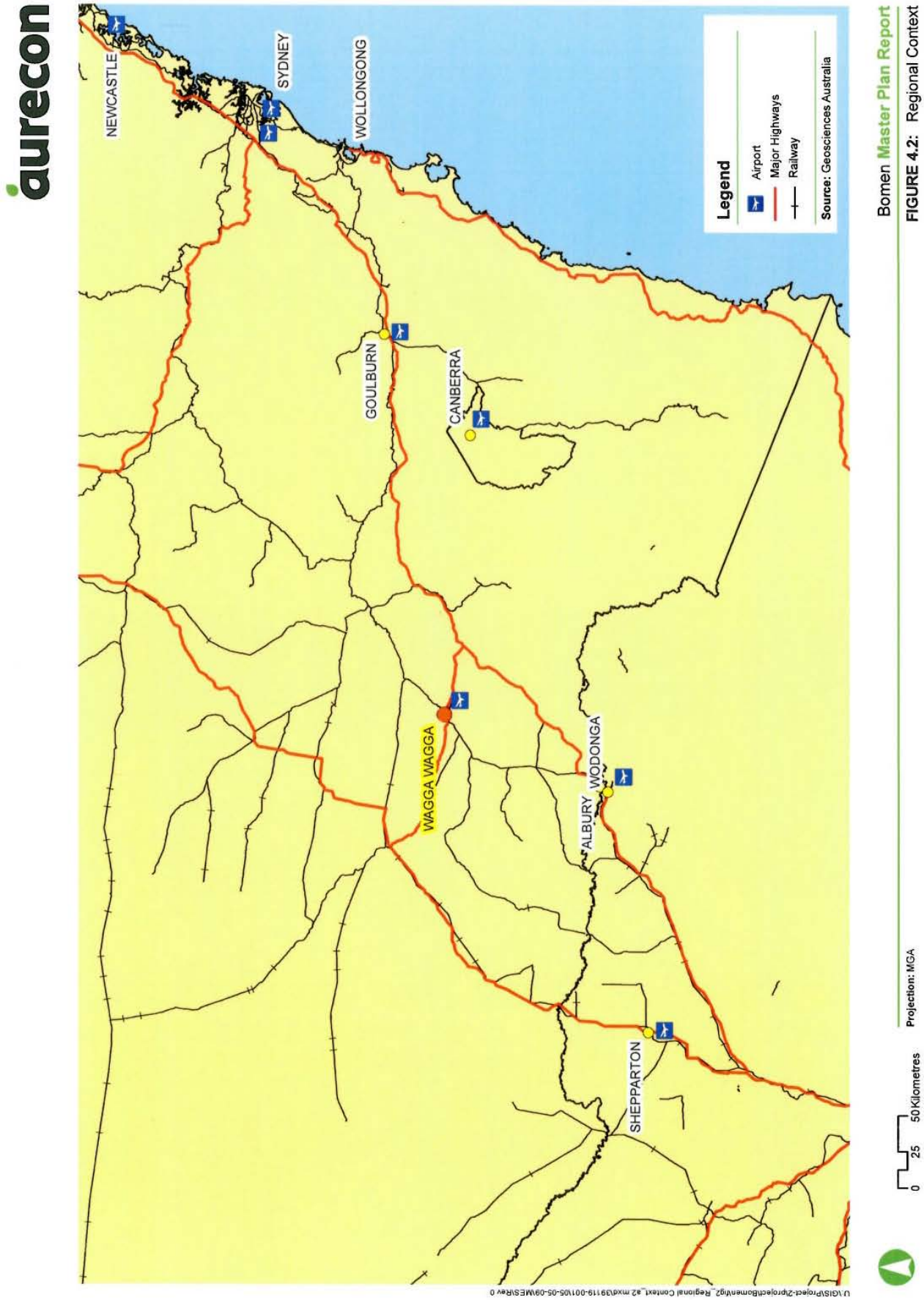
aurecon

0 50 100 Kilometres

Projection: MGA

Bomen **Master Plan Report**

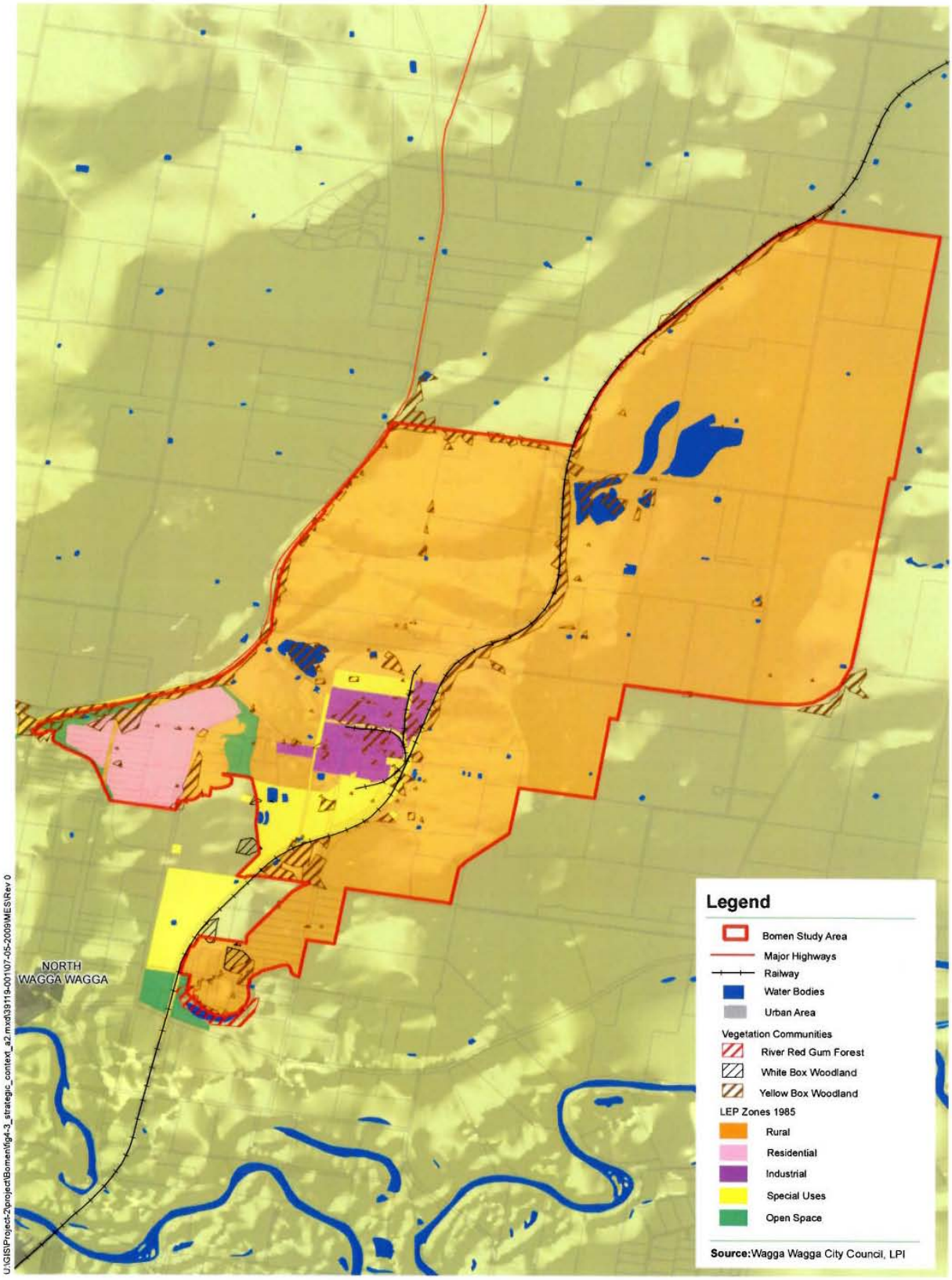
FIGURE 4.1: Interstate Context



Bomen Master Plan Report

FIGURE 4.2: Regional Context

aurecon



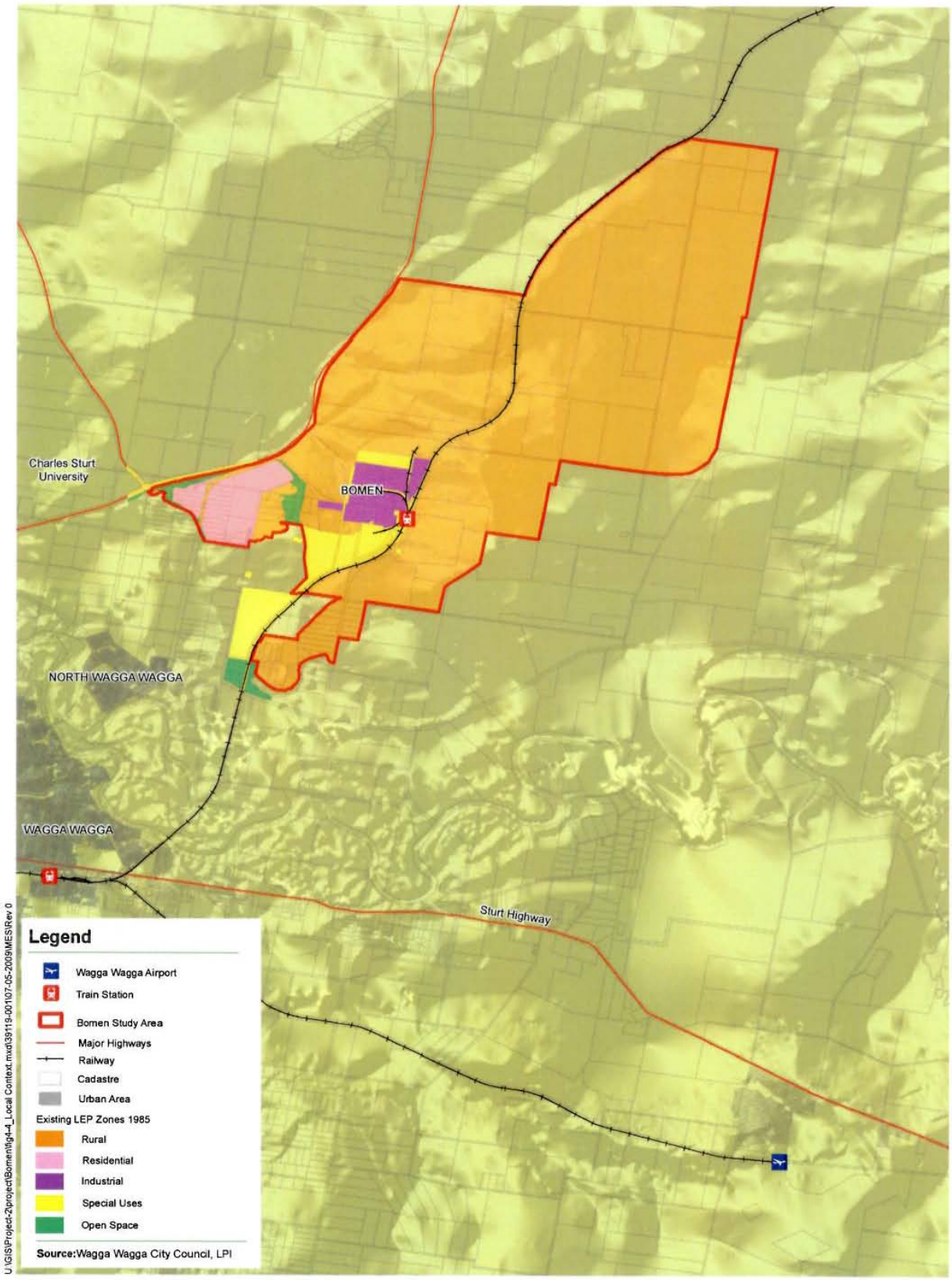
0 0.5 1
Kilometres

Projection: GDA 94

Bomen **Master Plan Report**

FIGURE 4.3: Strategic Context

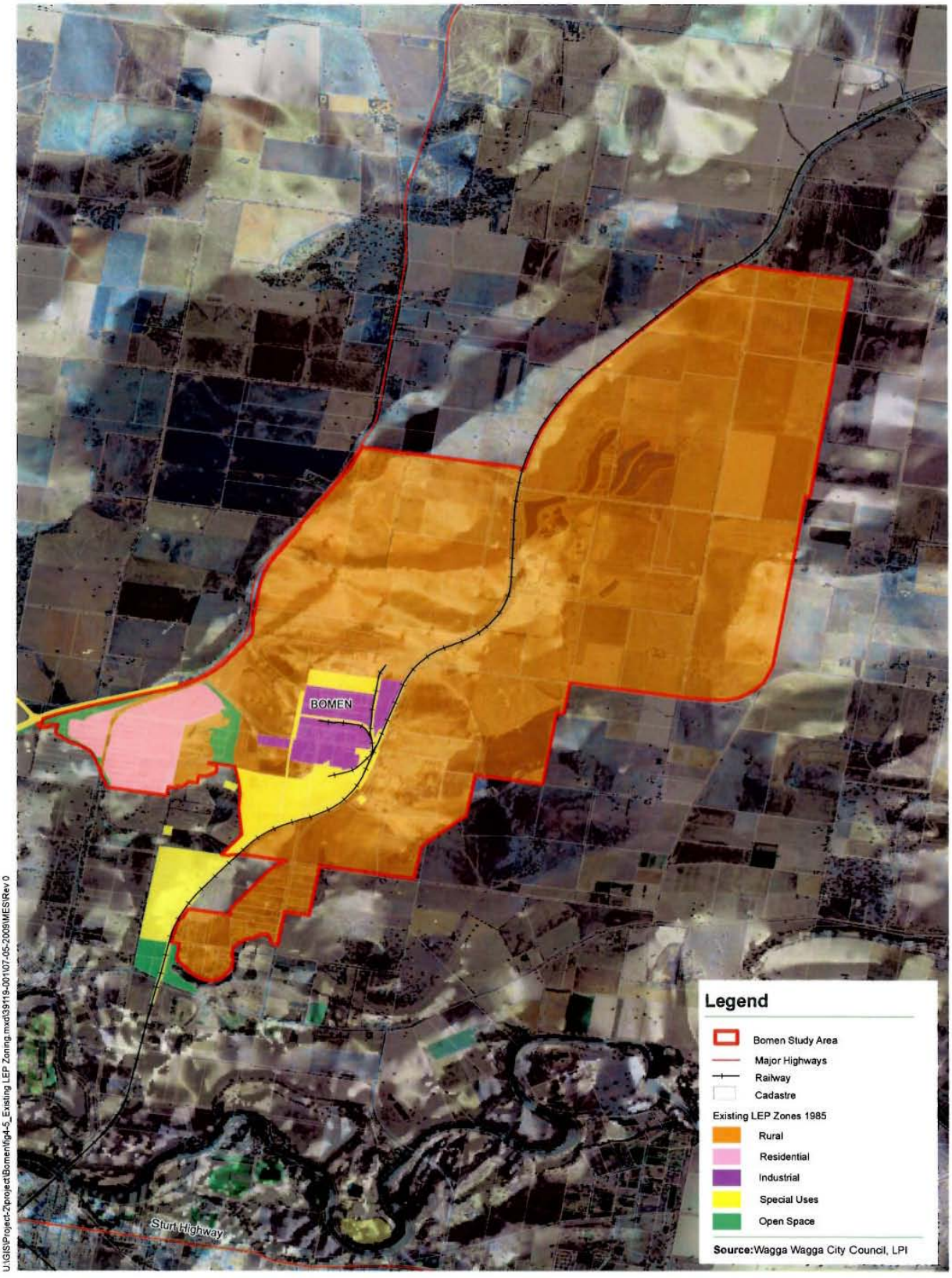
aurecon



Bomen **Master Plan Report**

FIGURE 4.4: Local Context

aurecon



0 1 2
Kilometres

Projection: GDA 94

Bomen **Master Plan Report**

FIGURE 4.5: Exisitng LEP Zoning

aurecon

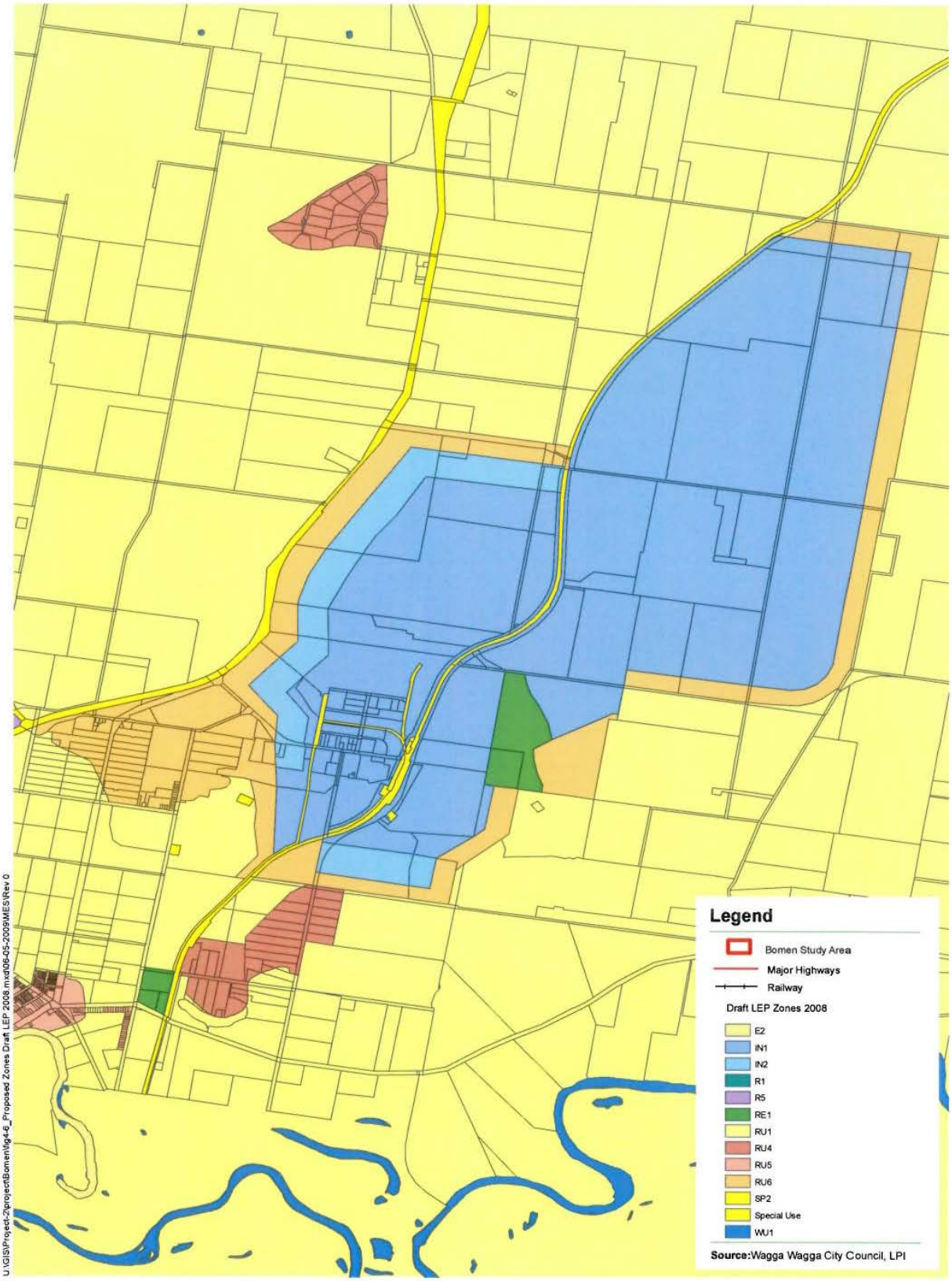
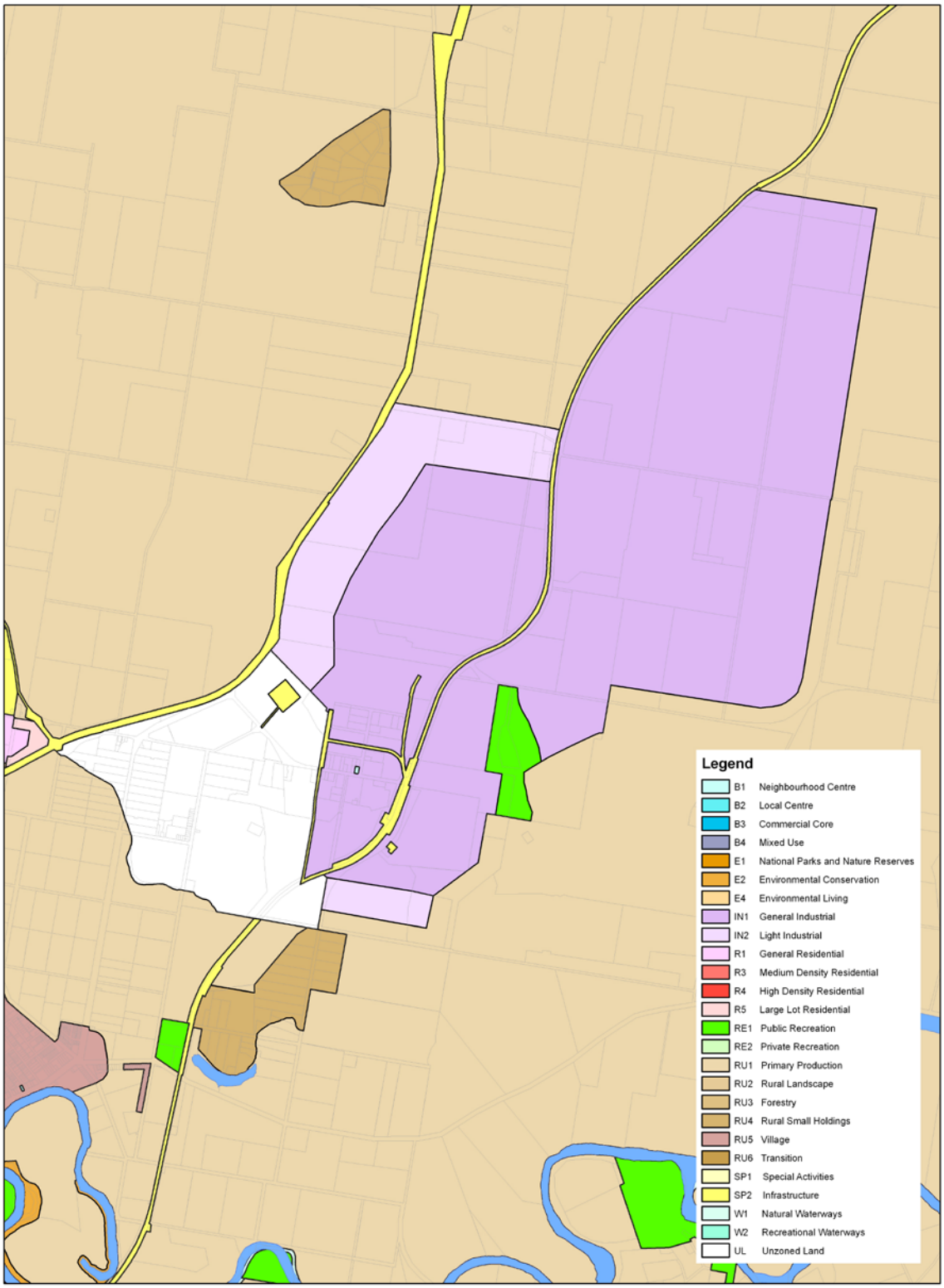


FIGURE 4.6: Proposed LEP Zones 2008



Bomen Master Plan Report

FIGURE 4.6A: LEP Zones 2010

Some of the main activities include Cargill and Heinz Watties, food processors; oil depots, transport and agricultural service businesses located near the Livestock Management Centre, one of the largest saleyards in the country.

The land itself is gently undulating to flat, and drains via two main sub catchments (the rail sits on a ridge that creates an east-west divide of the area) to the Murrumbidgee River. The landscape is dominated by pasture crops and a few remnants of the indigenous ecology remain.

4.2 Policies, strategies and plans

Wagga Wagga City Council has several main strategic and policy guiding documents affecting Bomen. The purpose of this section is to provide a succinct overview of the visionary and policy/direction setting statements, rather than a detailed summary of their performance, or effectiveness. This overview indicates strong commitment at policy levels of Council and the NSW Government to achieving sustained and sustainable growth of the community, an essential component of which is to provide employment in a dynamic environment of global, national and regional contexts.

4.2.1 State and regional plans and policies

The State Plan

The State Plan, published several years ago by the NSW Government, contains a key initiative specific to Bomen, articulated by the Regional Business Growth Plan – Riverina Region (Priority P6 of the State Plan), published by the NSW Department of State and Regional Development in July 2008.

Generally, this plan identified, inter alia, bio-fuels and other alternative energy sources as a growth opportunity. Challenges included balancing the need for paying for infrastructure and the capacity of the private sector to contribute funding with the need to provide affordable employment lands. To this end (given that Bomen's planning was under preparation at the time) a limited supply of serviced vacant land was seen as another challenge. Water and skills shortages were also seen as challenges to future economic growth.

Specifically the plan identifies Bomen's development as an intermodal hub as a "high priority and high impact initiative". The area's considerable potential to accommodate future industrial land demand was also identified.

Strategic Plan 2004 – 2010 Riverina Regional Development Board

The more relevant aspects of this plan for the master plan are promotion of value adding business and sustainable long-term employment, while developing strategies to promote this vision. Those pertinent to Bomen are:

- Being market driven
- Improving business skills
- Encouraging diversification and value adding industries
- Addressing the skills shortage
- Working with Councils to expand local initiatives and investment
- Facilitating discussions between business and authorities to improve communications and promoting strategic alliances
- Improving broadband access across the region

Competitive advantages of the region are acknowledged, including access to water, infrastructure and transport routes, irrigation, and an international reputation for food and fibre production.

Murrumbidgee Catchment Action Plan

This plan, published by the NSW Government in 2008, outlines strategies and actions to improve the health of the Murrumbidgee River and its catchment. Much is largely directed at protecting natural and cultural assets. Some of the more pertinent strategies are:

- Introducing integrated water cycle management to improve water quality
- Monitoring water quality of urban runoff
- Identifying point sources of pollution and establishing programs to address these
- Working with local government in developing these programs

4.2.2 Wagga Wagga citywide strategies

Those most pertinent to developing the master plan are outlined below. Many of the plans acknowledge the existence and contributions of the Wiradjuri people, the traditional, cultural and historical custodians of Wagga Wagga and the region.

Community Strategic Plan Our City…Our tomorrow 2008 - 2018

This is Council's topmost plan in its strategic hierarchy, which sets objectives and informs its management plans with social, economic, environmental and governance objectives.

The management plan (2008-2012) in turn articulates a vision that the council is striving to achieve:

'A centre of regional excellence'

- That encourages its people to be involved in providing a position and a prosperous community-focused lifestyle for everyone
- That provides cohesive, enriched and forward thinking leadership
- That proactively participates in partnerships to enhance (education, employment and development) all aspects of community life
- That engages its community to focus on 'best value' infrastructure and services
- That employs, develops and retains people with a sense of pride, confidence and creativity
- That contributes to the efficient and effective management of the environment, community and economy for both present and future generations

Bomen's future development via the master plan and this report's recommendations will contribute to realising this vision.

Vision 21 Land Use Strategy 2006

The primary purpose of this strategy is to inform and direct land use planning for the City of Wagga Wagga.

It shows moderate growth and an aging population, trends common to many regional centres. Under a medium growth scenario, of 1% -1.5% per annum, the population would grow from 56,720 in 2001 to 85,364 in 2030.

It also outlines service sectors of the economy as the bigger employers. However its manufacturing and primary sectors employ larger proportions of the population than these sectors do in metropolitan areas. The public sector is the largest employer in the City, with many government agencies being located in Wagga Wagga, the largest centre of the Riverina.

An important feature of Wagga's transport networks is it's location at the junction of the Sturt and Olympic Highways, strategically positioned for road freight to Adelaide, Melbourne, Sydney and Brisbane.

In growth management terms, the strategy sets aside land for future urban growth south west of the Olympic Highway, adjacent the Bomen study area. As outlined below, it identifies land supply for service providing industry and bulky goods retailing in locations closer to Wagga's centre (and population) than Bomen.

In this vein, it identified the need to produce this master plan, recognising Bomen's strategic position and access to transport links and availability of large land parcels.

In environmental terms, the strategy notes policy conflict between planting to address salinity and bushfire hazard reduction. It also emphasises the need for wise water management, from enhancing sources to minimising and eliminating pollution of the river systems on which ecology and human life depend.

Wagga Wagga Spatial Plan 2008

This plan may be seen as a further articulation of the Vision 21 strategy, integrating context and spatial allocation of land for future use and infrastructure planning. It addresses specific policy requirements for the (then) planned LEP and DCP framework, to address management, conservation and development of:

- Natural environment
- Cultural and landscape values
- Rural lands
- Residential settlement
- Retail and commercial land use
- Industrial land use

The plan identified the following challenges in meeting demand for well located and competitively valued industrial land:

- How much and what types of land are needed to meet demand and optimise strategic opportunities
- Capitalising on competitive advantages and industry specific relationships
- Uncertain land size and servicing requirements
- Protecting the neighbours of industrial activity from potential impacts and pressure on industry from those neighbours due to perceived or real impacts
- Providing for complementary activities in industrial areas
- Recognising the changing needs of business and providing effective, expeditious, assessment and regulatory systems

The master plan and this report seek to address these challenges and provide opportunity for sustained employment and economic growth, while anticipating and recommending strategies for protection of natural and cultural environments.

Grow Wagga Wagga 2008 – 2018

This strategy sets the direction and paints the 'big picture' for Wagga's long term growth, with this vision:

By 2018 Wagga Wagga will be the preferred regional city in Australia for sustainable business and balanced living.

It promotes outcomes for people and living; and business and industry. For those listed below, Bomen is robustly positioned to play a direct part in attaining these goals:

- Wagga being the preeminent regional transport and distribution hub servicing eastern Australia
  - significant growth has occurred in the last 5 years
- A major alternative fuels centre in eastern Australia – Reducing fossil fuel dependency is a key driver for this emergent industrial sector, which has expressed interest in locating in Bomen
- An agribusiness and research centre – the EH Graham Centre is already a large centre conducting research into these fields
- Stakeholders are strategically focused and well connected – Council's and its partner's visions are boosting confidence in local investment from the region and beyond. Key to growth is Wagga's institutions working together and collective leadership

4.2.3 Wagga Wagga specific issue studies and plans

Council's plans and strategies that set directions for the City relevant to Bomen are summarised below.

Wagga Wagga industrial lands study 2006

Recognising three main limitations to industrial land supply, Council commissioned this study to address them:

- Limited land supply for light industry
- Industrial land in parcels of 2 – 5 hectares being flood prone
- Large sites being constrained by land form

The study identified three areas (in addition to Bomen) with potential to develop land to satisfy demand for smaller enterprises:

- Copland Street – 30ha
- Sturt Highway (Forest Hill) – 200ha
- Elizabeth Avenue (Airport) – 400 ha

The study envisaged these areas supplying land for service related businesses and light manufacturing with airport related industries in the Elizabeth Avenue area. These activities are distinct from the type of business envisaged by the master plan for Bomen, which is discussed later. Of these areas, the land at Copland Street was seen to be the best short-term supply, while other sites (in 2005) required further investigation.

City of Wagga Wagga Economic Development Incentives Policy

Perhaps the key objective relevant to the master plan is to promote business growth to foster employment opportunities, as Bomen and its long term prospects are substantial. Incentives included promoting this and other employment and investment initiatives include:

- Refunds for purchase of Council owned commercial or industrial land
- Rate "holidays" of up to three years when land is privately purchased and development of that land will generate jobs

Wagga Wagga Urban Salinity Management Plan 2008 – 2013

This plan and its latest status report identify actions to address salinity impacts on natural and human environments. Generally they identify the causes of salt rising to the ground surface and means of addressing the impact of this phenomenon.

Bomen specific studies and plans

Some of these are discussed in Section 7 of this report. Essentially the studies and reports, in addition to those outlined above, are those which informed the draft Wagga Wagga Local Environmental Plan 2008, which was exhibited by Council between January and April, 2009.

4.3 Statutory plans

4.3.1 Wagga Wagga Local Environmental Plans 1985 and 1991

Two local environmental plans control land use in the Wagga Wagga local government area. The Wagga Wagga Local Environmental Plan 1985 largely relates to the urban area of the City, while the Wagga Wagga Rural Local Environmental Plan 1991 mostly covers the outlying areas and villages. The Bomen study area falls under the land use control provisions of both of these plans (Figure 4.5).

The plans' provisions relevant to Bomen are discussed in section 7 of this report.

4.3.2 Wagga Wagga draft Local Environmental Plan 2008

The Wagga Wagga draft LEP 2008 is under review following its formal exhibition from January to April 2009. The new LEP was formulated from a local environmental study that principally addressed potential rezoning for a number of areas, including Bomen (Figures 4.5 and 4.6).
Generally, the draft LEP aims to:

- Optimise the management and use of resources and ensure that choices and opportunities remain for future generations
- Promote development that is consistent with the principles of ecologically sustainable development
- Ensure the sustainability of the natural attributes of Wagga Wagga, avoid or minimise impacts on environmental values and protect environmentally sensitive areas
- Give effect to the desired outcomes, strategic principles, policies and actions contained in the Council's adopted strategic planning documents
- Coordinate development with the provision of public infrastructure and services

Under the draft LEP 2008 much of the study area is the IN1 General Industrial, IN2 Light Industrial, SP2 Infrastructure, RE1 Public Recreation, RU4 Rural Small Holdings and RU6 Transition zones.

These zones and their implications for realising the vision and achieving the objectives for the study area are discussed in section 7 of this report. Recommendations are also made, for short and long term amendments to the draft LEP and a preferred development assessment model.

4.3.3 Wagga Wagga Development Control Plan 2005

Wagga Wagga Development Control Plan 2005 is a comprehensive document of various policies and guidelines affecting development proposals within the City. This DCP complements the broader land use provisions of the Wagga Wagga Rural LEP 1991.

The DCP identifies general controls and guidelines for industrial development, which were reviewed in preparation of the master plan and the urban character precincts discussed later by this report.

4.4 Physical conditions

The following commentary is largely referenced from the Council's Local Environmental Study and supporting reports for exhibition of the draft Wagga Wagga LEP 2008.

4.4.1 Site and environmental conditions

- The study area has an area of some 24km2
- It is located north of Wagga Wagga, around 15 minutes drive from the CBD
- The main access is from the Olympic Highway which forms the study area's western boundary, other boundaries are shown in Figure 4.4
- Its slopes generally from north to south, draining to the Murrumbidgee River

4.4.2 Land use

- Except for some 40 – 50 ha of industrial land north of Bomen Road and south of the Livestock Management Centre (LMC), the study area is principally used of agricultural purposes

4.4.3 Infrastructure

In undertaking the review of existing infrastructure the following agencies were contacted for comment:

- Wagga Wagga City Council (Local Roads, Sewage and Stormwater)
- Country Energy (Electricity and Gas)
- TransGrid (Electricity)
- Riverina Water County Council (Water)
- Telstra (Communications)
- RTA (National/State Roads)
- ARTC (Rail Access)
- Australian Pipeline Trust (Gas)

The above agencies were consulted, to determine the extent of the existing infrastructure and gain an understanding of the service providers' requirements for future servicing of and implementing the master plan.

4.4.4 Water Supply

Riverina Water County Council (RWCC) own and operate the water infrastructure in Bomen. Water supply to the site is from the North Wagga Treatment Plant located on East Street north of the Murrumbidgee River. The treatment plant is operating at 10.0ML/day with an available capacity of 13.0ML/day.

Water supply for Bomen is stored in two reservoirs on the study area's edge, the Bomen and East Bomen Reservoirs. Supply to the East Bomen Reservoir is from the East Bomen pump house located on Bomen Road. There are two storage tanks one with a capacity of 4.0ML and the other 2.0ML. The top water level at East Bomen Reservoir is 285.00.The Bomen Reservoir also has two storage tanks, one with a capacity of 9.0ML and the other 1.0ML. The 1.0ML tank is a backup and is not always required. The top water level at Bomen Reservoir is 254.59.

A 300mm diameter main from East Bomen Reservoir, which tapers down to a 250mm diameter main at the rail crossing, supplies Bomen's existing industrial area. A 200mm diameter main runs along Byrnes Road and supplies the wool combing plant. There is no alternate feed to this area to provide back-up supply in case of mains failure.

Most of the water supply mains follow the existing road network. The existing mains which cross through private lands feed the reservoirs and the pump house, which have up to 5m wide easements.

Existing capacity and supply is not seen as a problem at Bomen. An alternate supply from the main Wagga Treatment Plant is currently being constructed. The new 375mm diameter main has the potential to supply an extra 150l/s to Bomen. RWCC has noted issues related to providing and maintaining adequate supply:

- Problems in maintaining adequate pressure supply to levels above the 250m AHD contour
- Supply to high water demand industries in the short term may not be achieved due to the need to maintain pressure for existing users
- Ensuring there is an alternate feed to all development i.e. provision of loop mains

These issues are addressed in Section 6.

4.4.5 Sewerage Disposal

There is a gravity sewerage reticulation network which serves the existing industrial area. Sewerage is reticulated to the Bomen Industrial Sewage Treatment Facility (BISTF) located north of Bomen Road. The BISTF is Council owned infrastructure operated by a third party under a 10yr contract.

The BISTF is a Sequencing Batch Reactor (SBR) Plant that has the processing capacity of 4.0ML/day which is expandable with additional augmentation. The current usage of the BITSF is approximately 3.0ML/day. The SBR can be upgraded in the future to treat water to Class B, which is suitable for reuse on recreation grounds, or to a Membrane Bioreactor for Class A treatment.

The BISTF is designed to pre-treat the sewerage before it is then reticulated for further treatment. The sewerage is gravity fed from the BISTF to a pump station near the Olympic Highway at Cartwrights Hill. A 450mm diameter rising main transports pretreated effluent to the Narrung Street Sewerage Treatment Works located south of the Murrumbidgee River.

The Narrung Street STP has an operating capacity of 8.3ML/day reserved for the Bomen area. Treated effluent is discharged to either the Murrumbidgee River or into the network for effluent reuse on irrigation projects.

Developments in Bomen which are not serviced by the gravity system have their own on-site wastewater treatment and disposal systems.

4.4.6 Communications

Investigations were undertaken to determine the availability of telecommunications in the Bomen region. The current provider of communications infrastructure is Telstra.

Currently there is a network of Telstra local feeder cable that supplies properties. The supply network to the area is fed from the exchange located in Tarcutta Street, Wagga Wagga to the RIM/AM31 cabinet in Lewington Street, Bomen.

Telstra has indicated that their supply network is already at or close to capacity. There are currently only 65 broadband and 26 telephone ports vacant (Jan 2009). Further development within the area will access available ports; and infrastructure needs upgrading to sustain further development. Developments are currently having problems with attaining broadband access. Telstra are reviewing this issue and plan to improve the level of service to Bomen.

An optic fibre cable, owned by Power Tel, also traverses the site along the eastern side of the gas easement within the study area and crosses the rail line about 500m north of Bavin Road (Figure 6.3).

4.4.7 Gas Supply

The Sydney - Moomba high-pressure gas pipeline traverses the Bomen site and is located within a 24m easement. Australian Pipeline Trust (APT) owns the high-pressure gas pipeline, which has a 300mm diameter, from Junee to Bomen. A 450mm diameter pipe runs from Bomen to Culcairn. The high pressure gas mains operate at 7,000-8,000kPa but has the capacity of 12,00kPa.

Bomen is supplied via the Country Energy owned secondary mains. Country Energy purchase gas from APT and supply it to the region via their reticulation network. The intake point off the Moomba to Sydney high pressure main is located on Byrnes Road. The intake point has the capacity of 30,000m³/hr, with current utilisation of only 10,000m³/hr. The only reticulation main which runs through the area is a 75mm diameter gas reticulation main that runs along the east side of Byrnes Road supplying the (former) wool combing plant.

In order to supply the new Riverina Oils and ROBE developments an extension of the existing 75mm diameter steel main from the (former) wool combing Plant will be required. There will be no available capacity in the existing 75mm diameter steel main after stage 1 of the ROBE project begins operation. The existing main is rated at 1,000kPa and the pressure cannot be increased in this main to achieve an increase in supply.

Country Energy advised there are no other plans to upgrade the existing gas infrastructure in the area unless future load and customer requirements are known.

4.4.8 Stormwater

The Bomen study area is divided into twenty one sub catchments. The railway line located on the ridge through the site generally divides catchments east and west. The eastern catchments drain to Dukes Creek and the western catchments drain to an unnamed water course which eventually flows to the Murrumbidgee River.

Bomen is largely undeveloped with the only formal drainage infrastructure in place being a conventional pit and pipe network in the existing industrial area. Undeveloped areas have no formal drainage systems, except for table drains adjoining existing roads and railways. The table drains are graded to a low point and runoff is discharged via overland flow.

4.4.9 Electricity

A number of overhead electrical wires traverse the Bomen study area. The two main lines (132kV and 66kV) run north south through the site. Until recently TransGrid owned the 132kV line; however ownership was transferred to Country Energy who now owns both lines. These high voltage lines are covered by easements up to 45m to provide access for maintenance.

TransGrid are in the process of constructing a new 132kV/66kV substation at the rear of the former Laminex factory. This will help provide more electrical capacity to North Wagga and Bomen. As part of these works, ownership of the Country Energy-owned 132kV line south of the new substation will revert to TransGrid. This line will then be duplicated, into two 132kV lines.

The current electrical supply point for Bomen is from a 66kV/11kV substation located off Bomen Road. 11kV mains are then reticulated to provide electrical supply to existing industrial and residential development. These mains are located overhead with easements up to 20m wide. [2]

4.4.10 Transport

Industries in Bomen are dependent on both road and rail infrastructure. Due to its location, the majority of employees would travel by motor vehicle to work. Industry relies mainly on both rail access and B-double transport routes. Ensuring that the level of transport access is improved is essential to the growth of Bomen. The main features of existing transport networks are:

- Main road access is from the Olympic Highway that connects in Wagga Wagga with the Sturt Highway, providing good access to the region, NSW and south east Australia, from Adelaide, to Melbourne, Canberra, Sydney and Brisbane, serving the majority of the nation's most populated urban and regional centres
- Figure 4.1 shows Bomen and Wagga's central location on the main rail line from Melbourne to Sydney, giving access to Australia's two largest ports
- Local access between Junee and Wagga is provided by Byrnes Road, an important alternative to the Olympic Highway
- The Sturt Highway and the airport can be reached from Bomen via Byrne's Road, Oura Road and Eunony Bridge Road

Road Network

National and State Roads

Bomen is strategically located with a major state highway passing along the western boundary of the study area. The Olympic Highway via other highways runs north south linking Sydney to the north and Melbourne to the south. The road currently carries 4,000-6,000 vehicles per day and has a two-lane, two-way single carriageway at Bomen. The carriageway has 3.5m lanes with 1m-2m shoulders. Bomen's industrial area is accessible from the Olympic Highway at Bomen Road.

Two other major highways provide alternate regional access, the Sturt and Hume Highways. The Sturt Highway runs east-west through Wagga Wagga about 5km south of Bomen. Access to the site is via Eunony Bridge, Oura and Byrnes Roads. The Sturt Highway connects to the Hume Highway about 40km east of Wagga Wagga.

Currently only B-double access is available to Bomen. B-triple access is impossible due to certain constraints such as bridge load limits and overpass/underpass heights on the regional road network.

Local Roads

The main local access roads in Bomen are:

- **Bomen Road** is a two-lane sealed road that intersects the Olympic Highway at a channelised T-junction and is the main access route into Bomen. It is an approved B-double route and carries about 2,500 vpd
- **Trahairs Road** is in two sections. The first on the Western side of the railway connects to the Olympic Highway, a two-lane gravel road which has been closed off at the rail line and provides local access only. The traffic volume was 150 vpd (this count was taken before the recent closure of the rail crossing, it would now be considerably less).

[2] Note: Existing substation programmed for upgrade and replacement 2010/11.

- **Byrnes Road** is a two-lane sealed road that runs along the eastern side of the railway and provides north south access to the area. It is an approved B-double route and carries 3,100 vpd
- **Windmill Road** is a two-lane unsealed road which connects Oura Road to East Bomen Road
- **Dampier Street** runs parallel to and on the western side of the railway from Bomen Road, to a level crossing connecting with Byrnes Road
- **East Bomen Road** is a two lane road which connects Byrnes Road to Windmill Road. It is sealed from Byrnes Road to the Buckman Pharmaceutical Laboratories, while the section between the Buckman labs and Windmill Road is unsealed

Road Name	Lanes (No.)	Easement Width (m)	Pavement Type
Bomen Road	2-4	30-35	Sealed
Trahairs Road	2	20	Unsealed
Byrnes Road	2	20	Sealed
Windmill Road	2	20	Unsealed
East Bomen Road	2	20	Sealed / Unsealed

4.4.11 Public Transport

There are no public bus services to the Bomen area. Bomen railway station is closed.

Rail

The ARTC owned Sydney-Melbourne rail line bisects the Bomen study area. Bomen's location provides rail access to both Sydney and Melbourne. The main track has one rail line and a passing track at Bomen. There is one level crossing at Dampier Street.

In Bomen there are three sidings off the main line which generally head west. These are:

- Stockyards siding (owned by ARTC)
- Caltex siding
- Indygroup siding

About 40 trains per day use the main rail line. ARTC have advised there are no capacity issues in relation to the main line and sidings. Sidings could need to cater for 1200m-1800m trains therefore making the existing three sidings unsuitable for trains of these lengths.

Cycle/footpath Routes

There are no cycleway or footpath routes servicing Bomen.

4.5 Inter-regional competition and local industrial land supply

Research and consultation for preparing this report and the master plan revealed that the main competition comes from intermodal proposals in:

- Albury (Ettamogah)
- Goulburn
- Shepparton

And for large-footprint industries:

- Dubbo

- Parkes

The options available to industries for locating readily in areas that fit varying criteria are quite broad, in terms of the reach into areas of southeastern Australia, to access inland markets in particular. It is worth noting that distribution and transport hubs are more likely to locate close to markets and hence main centres of population along the seaboard, mainly from Melbourne to Brisbane. So centres on the edge of the main metropolitan centres are also in demand, and therefore would likely provide Bomen and other inland centres with competition.

Locally, much of the City's industrial land stock is flood prone and appears underserviced with infrastructure, especially east of the CBD, off the Sturt Highway. The area is characterised by service industries taking advantage of their highway frontage. Bomen is in a strong position to provide an alternative to this area, especially for transport and agribusinesses.

Other businesses (bulky goods retailing for instance) would not be encouraged to Bomen, as Council's retail hierarchy and draft local environmental plan identify more suitable land for these kinds of businesses.

The best way Bomen can respond to these conditions is to promote and preserve its main competitive advantages, discussed later in the report. To complement these attributes, other recommendations are made regarding governance, management and approvals frameworks, which together would combine to lift Bomen's head and shoulders above the pack, one step ahead of its competition.

4.6 Current development proposals

4.6.1 Development proposals

Significant private investment is poised to take Bomen to another level, in a direction that complements and furthers governments' economic development objectives. They hinge around three of Bomen's more crucial elements:

- Reuse of large industrial buildings
- Proximity to the railway
- The supply of large lots, relatively unconstrained and serviceable

Two major land holders are the drivers of these proposals, which include major recycling and edible oil production plants and intermodal facilities including new sidings planned to complement state-of-the-art loading technologies and associated activities.

Current proposals and private sector planning have estimated that these and potential "following" industries could create up to 4,000 jobs.

4.6.2 Transport proposals

Key to these proposals is the infrastructure planned by Council and other stakeholders:

- Relocating Byrnes Road further to the east, to 'free up' access to the eastern side of the railway line and provide improved access to eastern parts of the study area for transport and general industrial development
- Building an east west link from the Olympic Highway to the eastern side of railway line, including a bridge over the railway, allowing closure of the Dampier Street level crossing

Council has spearheaded the development of this transport infrastructure. An application for funding has been made to Infrastructure Australia, the Commonwealth agency established by the Rudd government to assess such applications. Its delivery is considered of critical importance to the attainment of Bomen's vision and objectives, as it will unlock both sides of the rail line for intermodal activities and provide greatly improved access through the area.

A priority north south which directs traffic over Eunony Bridge has significant potential to link Bomen with a more direct route to the Sturt Highway and the airport. This southern link also bypasses Wagga's urban areas and is relatively unconstrained by slope.

5. Analysis tools

5.1 Master plan scenarios and design options

Three options were presented to stakeholders at the February 2009 workshop that were based on three scenarios developed from a review of the STEP and SWOT analysis (undertaken at the first stakeholder workshop, in December 2008), for the principal purpose of testing via the sustainability criteria and the 'acid test' of stakeholder scrutiny. They were never intended to provide a comprehensive approach to addressing key opportunities and constraints, nor to produce a 'preferred option' or draft master plan. Rather, the purpose of developing them was twofold, above all else:

- To explore, develop and test various design ideas
- To promote discussion and debate for further analysis

The three options are illustrated in Figures 5.1, 5.2 and 5.3.

Option 1 Business park focus

The first scenario explores the potential for business park development as a land use typology that would provide a transition between heavier industries to the east of the railway and planned and existing residential development to the west. The scenario assumed a strong presence being facilitated, based on the "business park" model, which would closely align business and research with the capabilities of enterprise and nearby academic institutions.

The option relied on access to the east via either a bridge or the existing level crossing. Its service centre, for support activities such as convenience retailing, food and drink outlets and office supplies for example, was to be centred on the heritage listed Bomen railway station.

From a transport operations and demand perspective, this option was not favoured by stakeholders. Concern was also expressed regarding the size and scope of a retail centre, which may, it was perceived, undermine the prime retail and commercial roles of Wagga's CBD.

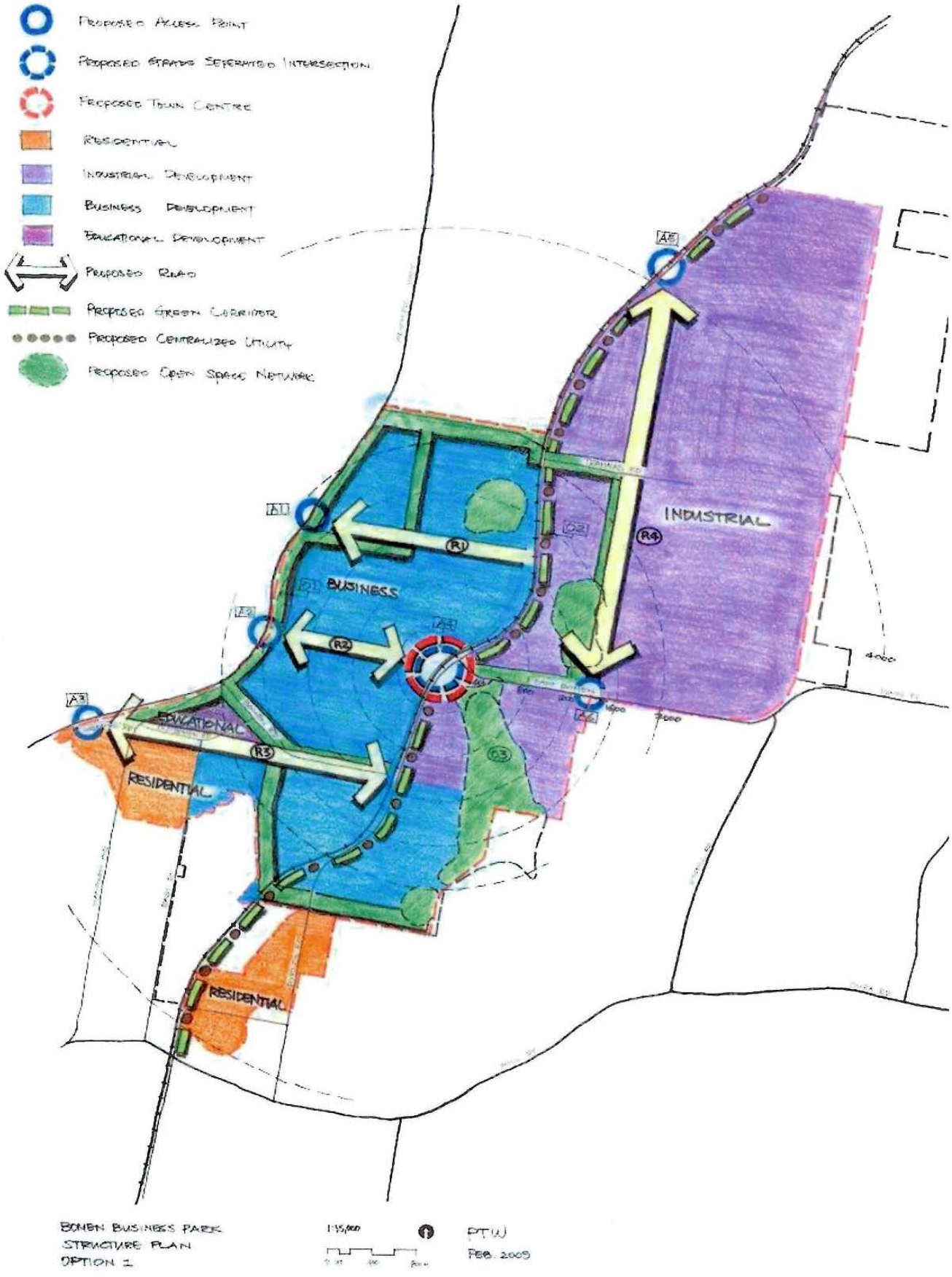
Neither was it favoured for reason that it was not seen to realise the potential of Bomen's most competitive attributes. Additionally, it was thought that retailing to support industry may be more effectively located elsewhere.

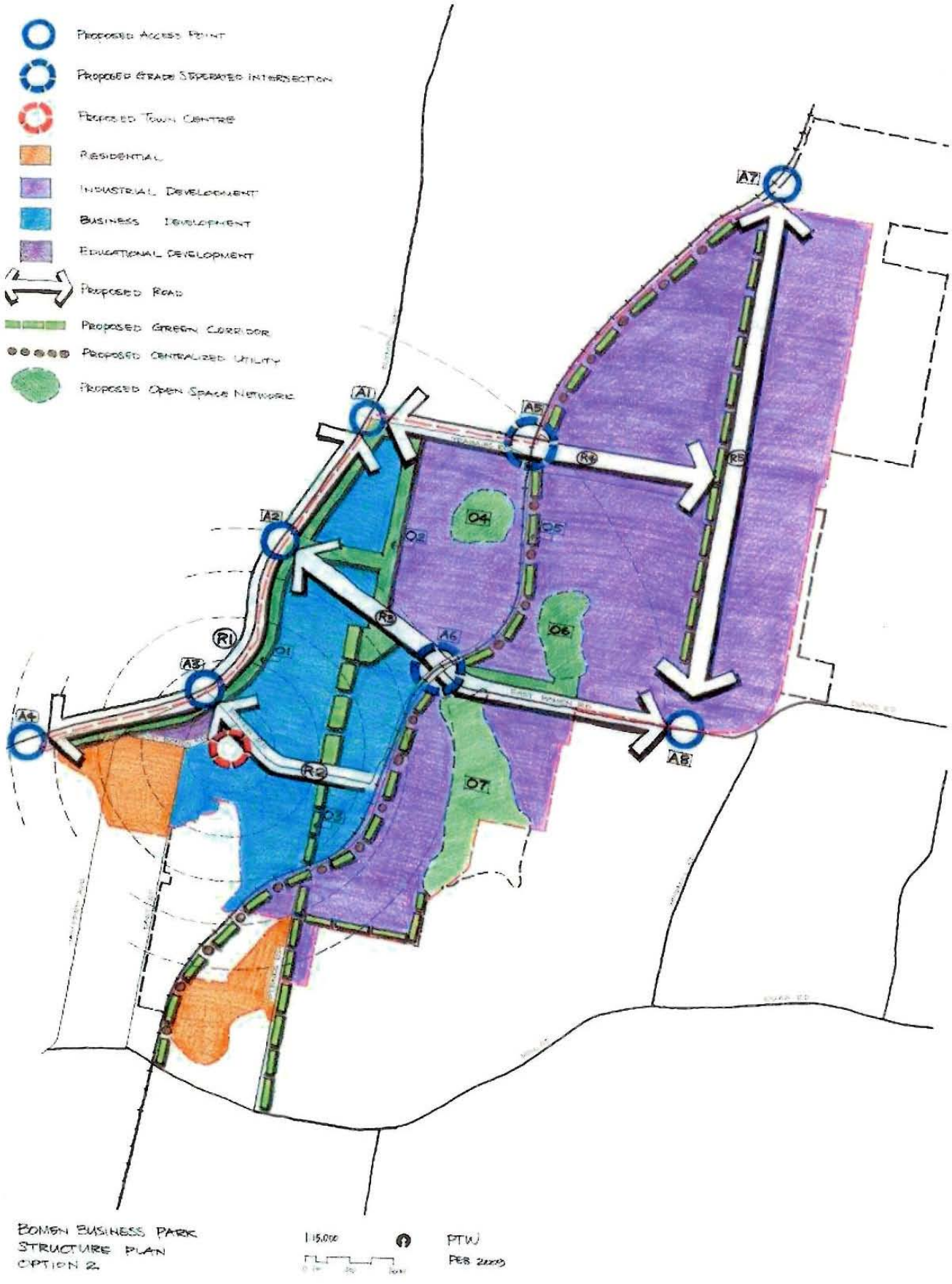
Option 2 Highway focus

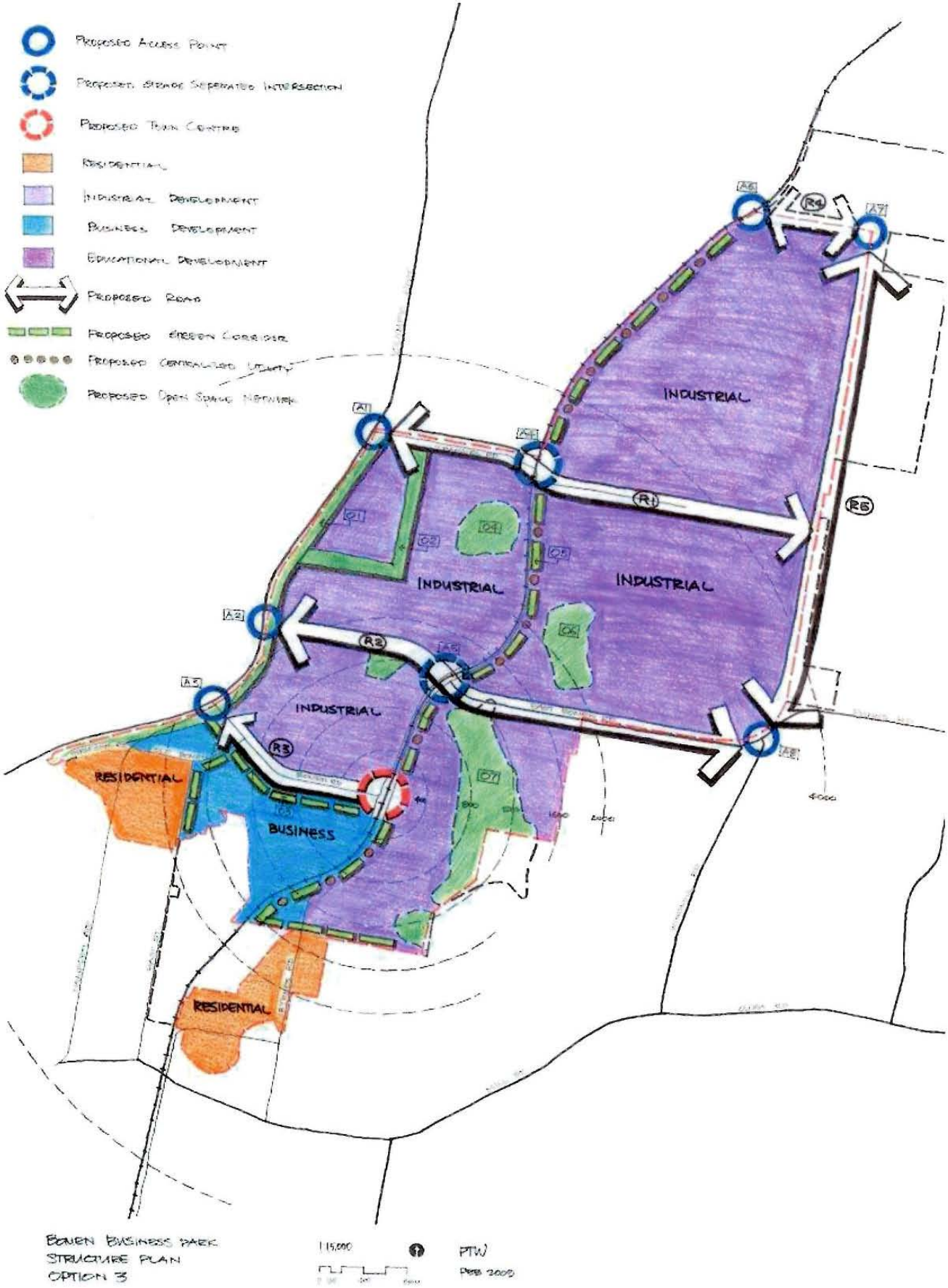
The second scenario and the resultant design option gives emphasis to road transport and locates two east west links from the Olympic Highway to a realigned Byrnes Road, on an alignment further east (than Option 1) to open up more land for industrial use east of the railway. Two bridges of the rail line are envisaged in this option. Industrial development is given more land whereas mixed use and commercial

development are favoured to buffer or transition from west to east, recognising that Cartwrights Hill is partly mixed use in character, although at a low (rural small holding) density. Small business and home industry or home based transport businesses would be well positioned to capitalise on the amenities of the area.

This scenario was not favoured as the two-bridge-option was considered too expensive and past study had shown that a single, centrally oriented bridge, to replace the existing level crossing, would suffice. The location of Byrnes Road was favoured as it creates the potential to open up the area while offering an alternative route to the Olympic Highway for heavy vehicles for north south movement. A link to the Sturt Highway was not in the option; and the workshop identified the need for one.


PROPOSED ACCESS POINT
PROPOSED GRADE SEPERATED INTERSECTION
PROPOSED TOWN CENTRE
RESIDENTIAL
INDUSTRIAL DEVELOPMENT
BUSINESS DEVELOPMENT
EDUCATIONAL DEVELOPMENT
PROPOSED ROAD
PROPOSED GREEN CORRIDOR
PROPOSED CENTRALIZED UTILITY
PROPOSED OPEN SPACE NETWORK
INDUSTRIAL
BUSINESS
EDUCATIONAL
RESIDENTIAL
RESIDENTIAL
R1
R2
R3
R4
A1
A2
A3
A4
A5
A6
O1
O2
O3
BOMEN BUSINESS PARK
STRUCTURE PLAN
OPTION 1
1:15,000
PTW
FEB. 2009


PROPOSED ACCESS POINT
PROPOSED GRADE SEPERATED INTERSECTION
PROPOSED TOWN CENTRE
RESIDENTIAL
INDUSTRIAL DEVELOPMENT
BUSINESS DEVELOPMENT
EDUCATIONAL DEVELOPMENT
PROPOSED ROAD
PROPOSED GREEN CORRIDOR
PROPOSED CENTRALISED UTILITY
PROPOSED OPEN SPACE NETWORK
A1
A2
A3
A4
A5
A6
A7
A8
R1
R2
R3
R4
R5
O1
O2
O3
O4
O5
O6
O7
BOMEN BUSINESS PARK
STRUCTURE PLAN
OPTION 2
1:15,000
PTW
FEB 2009


PROPOSED ACCESS POINT
PROPOSED GRADE SEPERATED INTERSECTION
PROPOSED TOWN CENTRE
RESIDENTIAL
INDUSTRIAL DEVELOPMENT
BUSINESS DEVELOPMENT
EDUCATIONAL DEVELOPMENT
PROPOSED ROAD
PROPOSED EMERGENCY CORRIDOR
PROPOSED CENTRALISED UTILITY
PROPOSED OPEN SPACE NETWORK
INDUSTRIAL
INDUSTRIAL
INDUSTRIAL
INDUSTRIAL
RESIDENTIAL
BUSINESS
RESIDENTIAL
A1
A2
A3
A4
A5
A6
A7
A8
R1
R2
R3
R4
R5
O1
O2
O3
O4
O5
O6
O7
BOMEN BUSINESS PARK
STRUCTURE PLAN
OPTION 3
1:5,000
PTW
FEB 2005

Option 3 Rail and industrial focus

This scenario assumed a land use pattern that would maximise the land available for industrial development, although still with two rail bridges and pushing the Byrnes Road realignment to the eastern boundary of the study area. Mixed or business uses would be limited to the area south of Bomen Road toward Cartwrights Hill.

From a land development perspective this scenario was most favoured by stakeholders, as it was seen to optimise use of land with direct access to the railway and highway networks. However locating Byrnes Road more centrally to the study area east of the railway, as in option 2, was favoured.

5.2 Sustainability assessment

The three options above are assessed according to the sustainability criteria developed for the project in section 6 of this report. This allows these options' sustainability performance, or value, to be compared with the draft master plan's, which is also assessed in section 6.

The objectives listed in Appendix B are integral to sustainability assessment framework. The options were assessed against each objective, also accounting for information supporting the options. A summary of the assessment results are provided in Table 6.1. Details of the assessment process and results are in Appendix B.

5.3 Benchmarking against master plan objectives

A project's objectives are useful qualitative tools to use, to strategically evaluate whether or not a plan will add value to implementing project recommendations or achieving desired outcomes.

Summarised below are the project objectives and a brief assessment of the options' ability to help achieve them and hence their contribution to realising the vision.

a) Capitalise on and market the site's competitive advantages:
   i. It's **location** central to inland southeastern Australia on the Sydney – Melbourne railway
   ii. Its **infrastructure**, especially access to rail and road networks; energy, water communications and waste management
   iii. It's **land**, a 2,300ha¬plus supply of large parcels of near level to gently undulating land that is easily developed

Option 3 is best equipped to meet this objective; however this assessment indicates the option does not go far enough in preserving land closest to the railway for:

- *Rail activities including intermodal transfer operations*
- *Industries, that due to the nature of their operations, scale of materials delivery or product shipping, require adjacency or proximity to the rail corridor*

b) Establish preferred:
   i. Land use patterns to ensure access to transport infrastructure, primarily the rail corridor, is optimised, by precluding enterprises not requiring direct access to the rail from being located a distance from the rail that may inhibit access to the rail by activities that must be adjacent to the rail corridor

      As stated, with modifications included in the master plan, this objective is best achieved by Option 3, to address the matters discussed above

   ii. Road networks that provide a hierarchy of direct and legible routes through and around the area

The master plan's road network is highly interconnected and greatly enhances access through and within Bomen. It relies on main north south and east west axes which would carry vehicles of all sizes safely to the precincts designated by the master plan. It also provides alternatives to the current road network for accessing places such as Junee, the airport and Wagga's CBD.

iii. Infrastructure networks that are economically efficient and environmentally effective

Infrastructure trunk supplies are available and can be extended to fully service Bomen with high quality utility services. Utility networks will be established principally in road reserves.

c) Enable SEAL to become a greater strategic asset for Wagga Wagga, Riverina, NSW and Australia

Together, the master plan and the recommendations made concerning leadership, governance and planning to facilitate ESD outcomes and other matters will help achieve this objective. Should declaration as a site of state significance eventuate, this would be a boon to promotion to investors and garnering funds from State and Commonwealth now and in the future.

d) To embrace and base future decisions and development upon principles of ecologically sustainable development

This has been a key consideration throughout the project, and each stage has seen an improvement, thus increasing the master plan's potential to achieve sustainable outcomes.

e) To achieve objective d), industrial ecology is used as a strategy; to minimise or eliminate pollution, via enabling the transfer of materials and resources amongst enterprises so as to create a closed cycle; thus providing for conservation of natural resources and minimising the environmental impacts of development

This is a key recommendation, and should be pursued with a degree of urgency.

f) Facilitate its ability to attract business nationally and internationally

This is often a task in the economic development community where lack of consistency and dilution of effort and resources can decrease overall effectiveness. A leadership body for Bomen, based on place management principles, would have the potential for member organisations to pool resources and create synergies and economies of scale.

g) Provide for a planning and approvals framework that enables greater predictability of process and certainty of outcomes

As discussed in Section 7, declaration of Bomen as a site of state significance under Part 3A of the Environmental Planning and Assessment Act, has the best chance to achieve this objective.

h) Be a conduit for Government funding, administrative, marketing and planning support

A body or agency based on place management principles, designed to foster collaboration and create synergy amongst stakeholders by working toward common goals is a proven means of obtaining political, administrative and financial support.

i) Provide for improved compatibility and relationships of SEAL's businesses with their neighbours

The master plan's preparation has been cognisant of the need to achieve this objective and the planning recommendations, including the arrangement of land use as presented in the master plan's character precincts. These are designed to improve potential relationships with surrounding areas and residents, while minimising the likelihood of increasing resident sensitivity and placing pressure

on existing and future employment generating enterprises. A balance of amenities must continually be pursued to realise the potential of Bomen, while reasonably respecting the rights of land owners, residents and businesses.

j) Provide for judicious allocation of land for various uses that best capitalise on SEAL's competitive advantages

The key to achieving this objective is the principle of making the most of SEAL's various attributes, which the master plan seeks to do, by:

- *Providing for businesses that need direct access or proximity to the railway, by reserving land for them accordingly*
- *Providing a transition of light industry, educational and business support activities between heavier industry, transport activities and nearby rural and rural small holding areas*
- *Establishing processes for considering and enhancing the landscape, cultural and ecological qualities of Bomen*
- *Providing high quality access to and through Bomen for all types of vehicles*

k) Promote and help enable vocational training in the trades and professions that are and will be required by SEAL's enterprises

There is further scope to align training with the needs of business. Partnerships with institutions by business, facilitated by a body to achieve the vision and these objectives, would be encouraged to develop land set aside by the master plan for research and training facilities.

l) Complement Wagga Wagga's existing supplies of industrial land, by differentiating itself as the location of choice for transport related and support enterprises, or as a location for industry requiring large land parcels or direct access to road and rail

The master plan has been designed to achieve this objective and provide a location of choice for industries that reuse and recycle resources and need high quality transport access.

m) Enable development of a capital works program and a budget for public works

Recommendations to this end have been made.

6. The master plan

6.1 General description

The master plan is illustrated by two plans:

- Character precinct plan
- Proposed road network

The character precinct map shows how the preferred pattern of land use would generally be distributed across Bomen, a pattern which is considered to best achieve the master plan's vision and objectives; and optimise the area's locational and physical attributes. Figure 6.1

The road network has been developed to provide the level of access required by the land uses intended, as shown in figure 6.2. It improves access in and around Wagga Wagga's urban fringes and access from Bomen to the highway network and the airport. Improved commuter access is also achieved, in balance with respecting and reasonably accommodating adjoining land users' amenity and access.

6.2 Character precincts

PTW urban designers have prepared character precincts to depict the areas the master plan divides Bomen into. They illustrate and describe land use and design of the public domain, addressing issues such as:

- road reserves
- cycle and foot paths
- open space, building siting and dimensions,
- landscaping
- preservation of remnant ecology

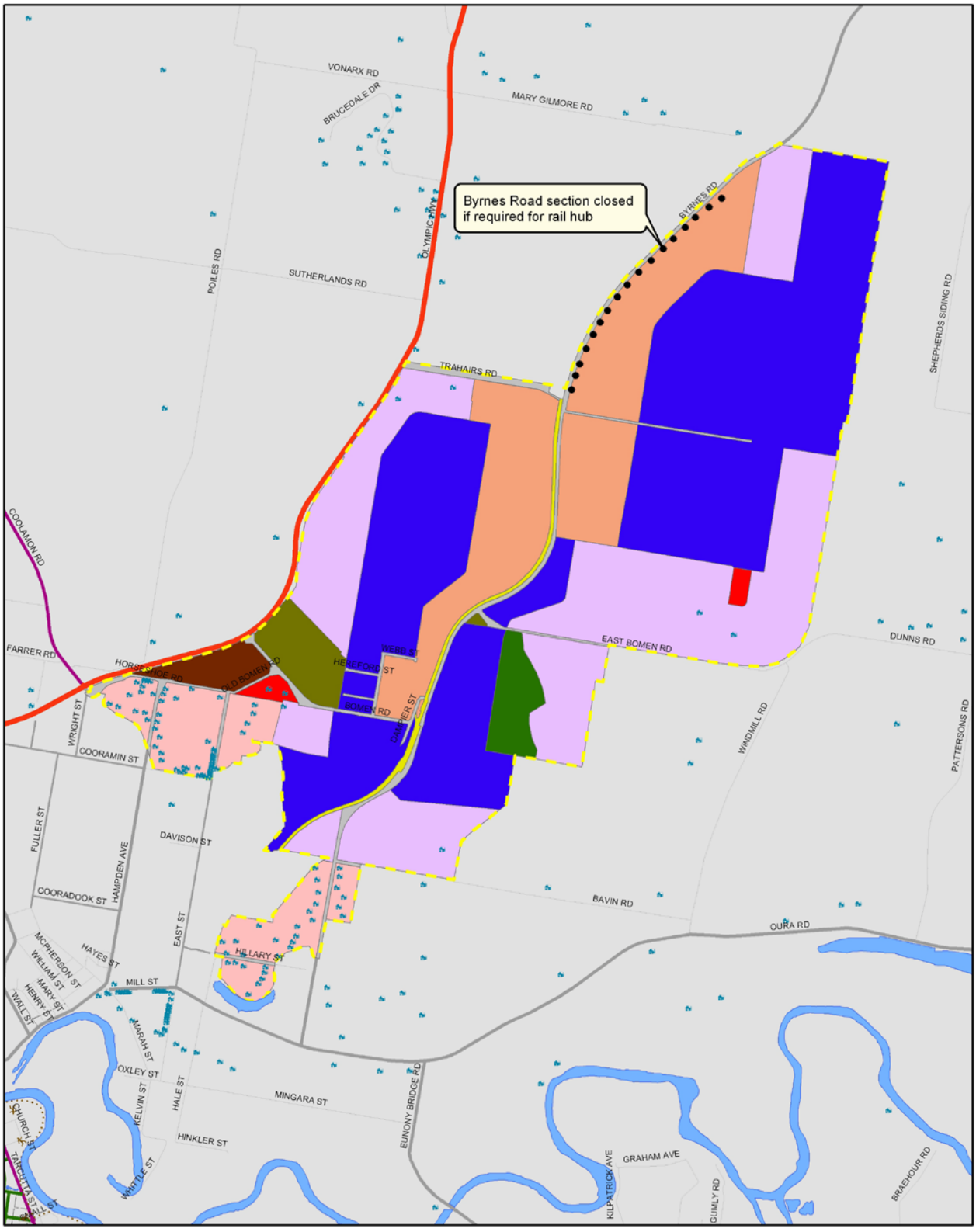
A full description of the character precincts are in Appendix C.

6.3 Transport

The provision of adequate transport facilities is seen as essential to Bomen's evolution as a premier industrial and logistics centre. Through undertaking studies and investigations with the relevant authorities the road network and land use precinct layout optimise access, this being the key to Bomen's sustainable future.

6.3.1 Road network

The strategic location of Bomen in relation to the existing road network is significant. Provision of road infrastructure is an important component in increasing investor confidence. Discussions were held with a variety of stakeholders, including local government, prospective developers and infrastructure service providers to determine the preferred location for major roads that provides a link with the external road network as well as within the Bomen area. The final master plan shows the outcomes of these discussions.



N

BOMEN BUSINESS PARK Source : Wagga Wagga City Council

CHARACTER PRECINCT MAP

1:45,000 @ A4

0 0.25 0.5 1 1.5 2 Kilometres

Legend

- Future rail hub
- Site Boundary
- House
- Water Features

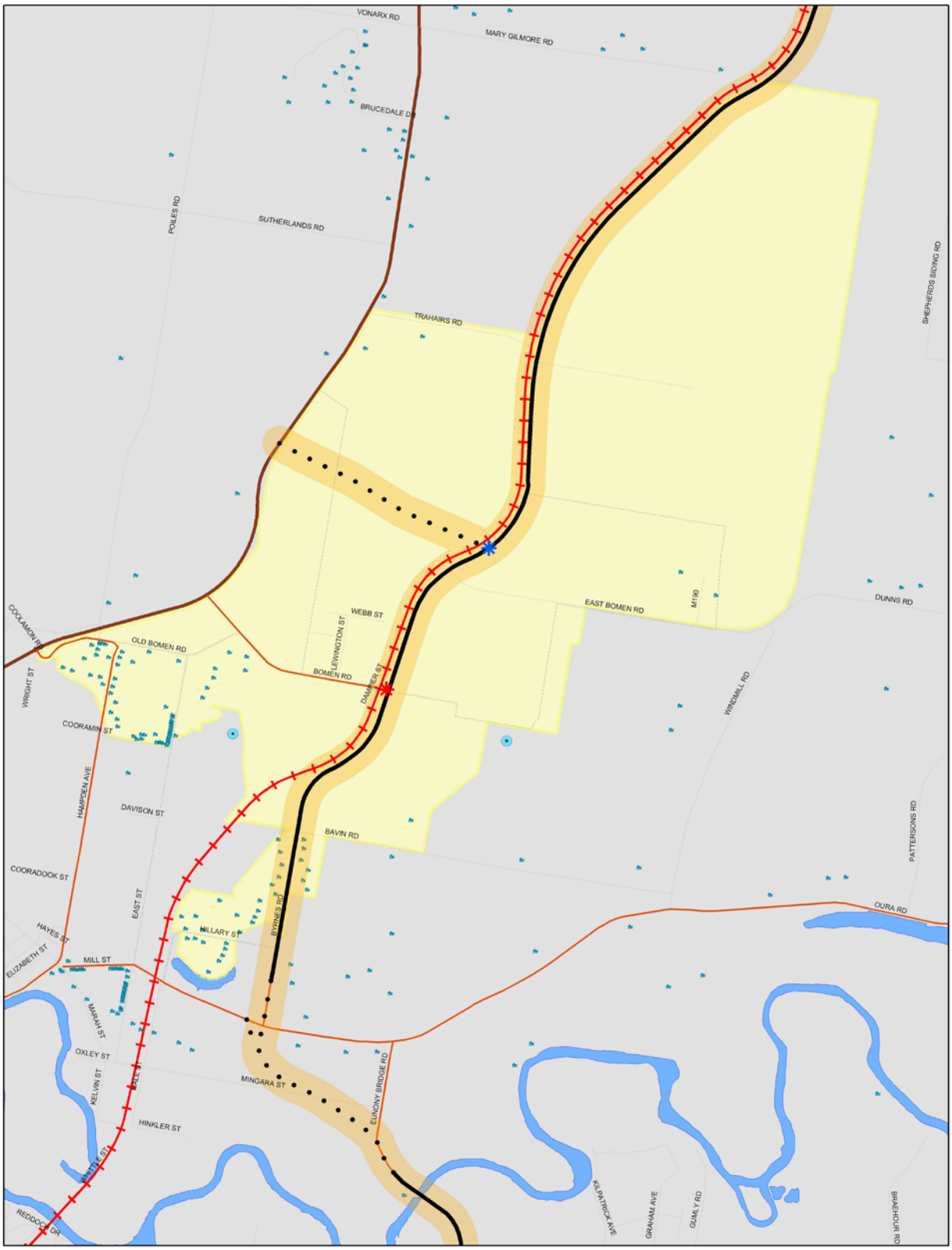
EXISTING ROADS

- Highway
- Local Roads

CHARACTER PRECINCTS

- Education
- Existing Road
- Industrial
- Light Industrial
- Open Space
- Rail
- Rail Dependent Industries
- Residential
- Road
- Stock Reserve
- Support Services Centre

Figure 6.1



N

BOMEN BUSINESS PARK Source : Wagga Wagga City Council

ROAD NETWORK MAP

1:30,000 @ A3

0 0.5 1 2 Kilometres

Legend

Arterial Road
- Existing Road
- Proposed Roads
- Bomen Business Park

Existing Roads
- Highway
- Arterial
- Local
- Railway

- Footpath Overpass
- Road Overpass
- Water Tank
- Murrumbidgee River
- Bicycle Way
- Dwellings

Figure 6.2

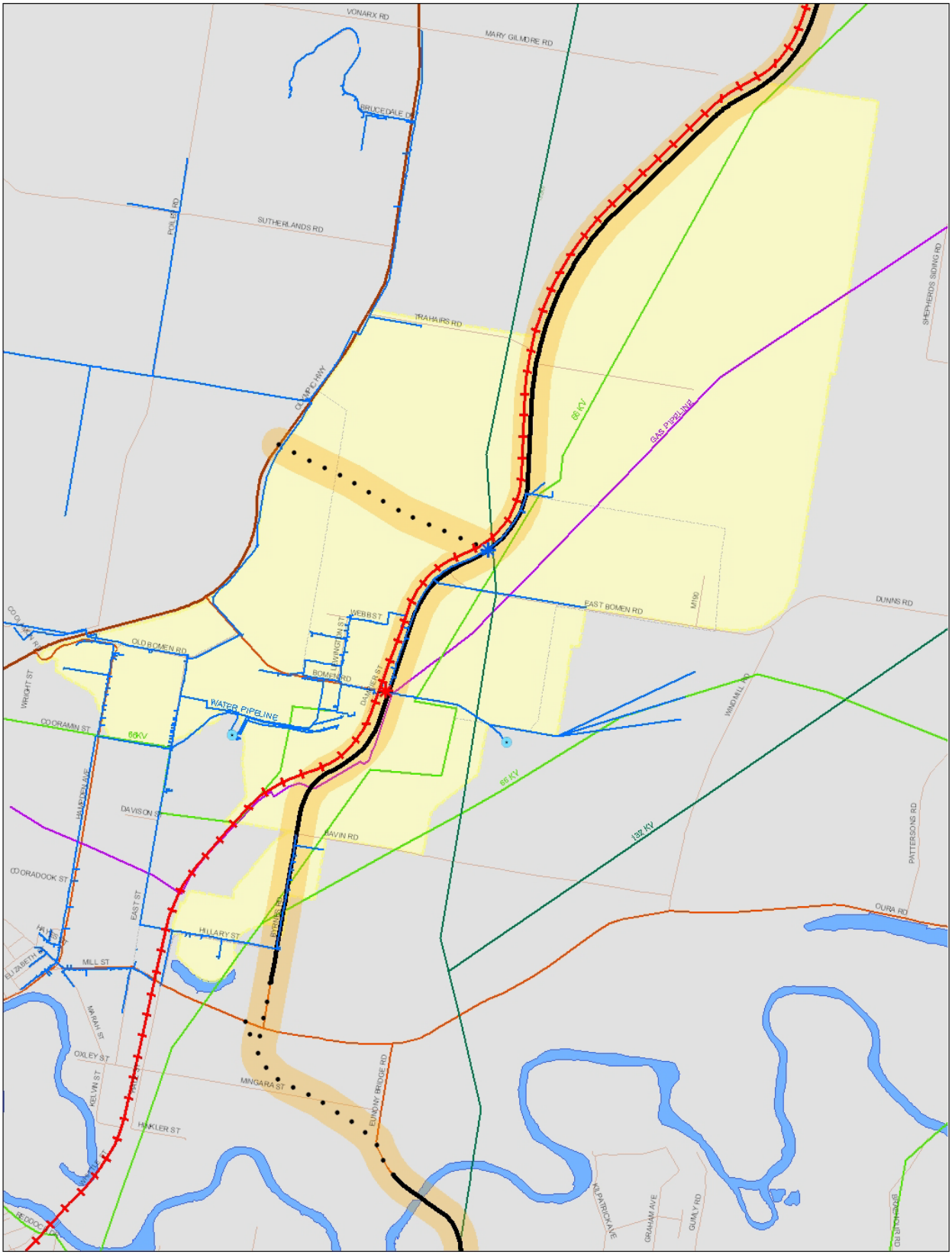

VONARX RD
MARY GILMORE RD
BRUCEDALE DR
SUTHERLANDS RD
POLLARD RD
TRAHAIRS RD
OLYMPIC HWY
66 KV
GAS PIPELINE
SHEPHERDS SIDING RD
EAST BOMEN RD
MR90
DUNNS RD
WEBB ST
OLD BOMEN RD
BOMEN RD
WATER PIPELINE
COORAMIN ST
WRIGHT ST
WINDMILL RD
DAVISON ST
BAVIN RD
132 KV
PATTERSONS RD
COORADOOK ST
EAST ST
HILLARY ST
OURA RD
MILL ST
OXLEY ST
MINGARA ST
EUNONY BRIDGE RD
HANKLER ST
KELVIN ST
KILPATRICK AVE
GRAHAM AVE
GUMLY RD
N
BOMEN BUSINESS PARK Source : Wagga Wagga City Council
INFRASTRUCTURE SERVICES MAP
1:30,000 @ A3
0 0.5 1 2
Kilometres
Legend
Arterial Road
Existing Road
Proposed Roads
Bomen Business Park
Existing Roads
Highway
Arterial
Local
Railway
Footpath Overpass
Road Overpass
Water Tank
Murrumbidgee River
66KV
132KV
Gas Pipeline
Water Pipeline

Figure 6.3

RTA requirements

The RTA requested the following be incorporated into the master plan's development:

- A maximum of two additional access points from the Olympic Highway into Bomen between Bomen Road and Trahairs Road. Should Trahairs Road be one of these access points only one additional access is to be provided
- No business is to have active frontage with direct access onto the Olympic Highway. All frontages should be on internal roads
- An internal north south road link to avoid traffic using the Olympic Highway as a link between different parts of Bomen
- Bicycle and bus access from Wagga Wagga

Pedestrian and cyclist movement

Potential pedestrian and cyclist links have been considered in road concept planning. Footways are envisaged on all roadways. A new pedestrian bridge over the rail line is recommended to improve pedestrian access (Figure 6.3).

Cycleways should be built as part of the development. Most employees in Bomen would probably come from nearby urban areas and could be encouraged to cycle to work, instead of driving. Cycleways 2.5m wide should be incorporated into the verge along all new and existing roads in Bomen. The new cycle network links into Council's existing network.

Bus services

Public transport access will be essential to service Bomen, with number of employees expected to be over 4,000 in the long term. Services must be convenient and cost effective to encourage private transport patronage. Bus services should be provided early to promote their use.

A private/public shuttle bus partnership could be established as large developers take up tenancies. It would encourage employees to use the shuttle bus, reducing travel costs and traffic congestion. Council could encourage developers to provide such a service via financial or other mechanisms.

6.3.2 Rail

Rail access is integral to attracting developers and new industry to Bomen. Development of the master plan has focused on provision of a rail access corridor adjacent the main rail line. Discussions were held with ARTC to determine requirements for rail access to Bomen. Land either side of the railway is suitable for providing new sidings subject to approval by ARTC.

Land is set aside for intermodal facilities and large-scale industries on both sides of the railway, mainly north of existing sidings. Location of the rail access corridor has been based on ARTC requirements and site constraints. Advantages of the proposed corridor are:

- It provides turn out points off the main line for trains to enter the sidings at the required 50km/hr turn out speed
- It allows trains to enter the main line from the siding without shunting
- The gradient of the land is the lowest in the study area

There is a proposal for a new rail siding on the western side of the track and detailed design has been undertaken. The rail siding is to be constructed parallel to the main line and has entry and exit points that meet ARTC requirements.

Rail access requirements

With rail access being critically important to Bomen it is essential that rail access is not compromised. Sufficient depth of land (generally 450m – 750m) adjacent the railway is identified for transport facilities and industries requiring access or proximity to the railway.

In addition to this provision, siting and design of intermodal facilities would need to consider:

- **Slope**
  The site should be flat with a maximum design slope of 0.5%
- **Land fragmentation**
  The site should comprise the minimum number of land parcels to reduce land acquisition and amalgamation
- **Natural constraints**
  The site should be reasonably unconstrained by natural hazards

6.4 Infrastructure

Many of the main regional infrastructure supply lines run through Bomen, including:

- 132kV and 66kV electrical transmission lines (Country Energy)
- 450mm dia Sydney-Moomba high pressure gas pipeline (APT)

Various options were discussed with service providers regarding their infrastructure fitting into the master plan. The opportunity to realign services and provide a central infrastructure corridor was investigated. High costs and the long lead-in times led to this concept being abandoned. Consultation with Country Energy and APT resolved it would be best to keep existing locations of the high voltage electrical and high pressure gas mains. Developers would need to maintain easements for these services in their proposals. This approach has not been considered problematic to date.

All service provision would follow standard design principles wherever possible. Most new services would follow the proposed road network, while sewage and stormwater services would drain to low points. Outlined below are the main infrastructure requirements for Bomen.

6.4.1 Water Supply

To enable the Riverina Water County Council's (RWCC) long term planning, potential customers should discuss water usage with RWCC at an early stage of project planning. RWCC indicated supplies to high-water demand industries in the short term could be problematic. As transport development (low water users, typically) will likely be at the forefront of Bomen's evolution, this short term problem may be alleviated. Higher demand water users may well follow, taking advantage of greater transport capacity, at a time when water provision can be amplified.

The water supply network would follow the proposed road network. With loop mains to provide an alternate supply is sufficiently catered for, as requested by RWCC.

RWCC also advised that water supply to areas above the 250m AHD contour is restricted due to problems maintaining adequate water pressure to these locations. These areas could be nominated for dry industries or used as open space.

6.4.2 Sewerage Disposal

A detailed sewer investigation of the Bomen area was carried out by Michael Cuthbert, Engineering Consultant as part of the local environmental study, which informed the draft Wagga Wagga Local Environmental Plan 2008. A sewerage servicing strategy was prepared, which recommended:

- The central and western catchments offer cost effective servicing solutions for dry industries
- Staging of development should commence in the central catchment followed by the western catchment

These recommendations are generally consistent with the master plan. Light industry and rail related industries, mainly dry industries, are mostly located west of the railway.

To provide adequate services to Bomen gravity reticulation mains would feed three new sewer pumping stations at low points in the site. Sewage would be pumped through rising mains to be treated at the BISTF before final treatment at the Narrung Street STP.

The BISTF should be upgraded from a Sequencing Batch Reactor (SBR) to a Membrane Bioreactor (MBR) Plant. Doing this enables the sewage to be treated to Class A standard, for use as grey (non-potable) water or for irrigation purposes. Once development progresses and the type of industry and volume of effluent are known a cost benefit analysis should be undertaken to determine the suitability of upgrading the BISTF to a MBR pant and the implementation of a grey water system.

6.4.3 Communications

Telstra have indicated that the provision of telephone and ADSL services would be available to all developments in Bomen. Under the current ‘Universal Service Obligation’ (USO) Telstra must provide telephone services to all new developments. According to current Telstra policy all development should have access to ADSL, including ADSL2. The USO however does not cover broadband services and investigations revealed that no ADSL2 service is presently available in Bomen.

Supply to future developments would be by an optic fibre cable to a centralised above ground cabinet. This would provide the high-speed telecommunications infrastructure. Based on the current technology, the optic fibre cable can supply areas up to 800 metres from its final point of extension. From this point copper cable would provide access to new users.

Costs for providing communications infrastructure will be shared between Telstra and the developer. Developers would pay for provision of trenches and all reinstatements and Telstra would pay for the ducts, cable and external infrastructure upgrades.

6.4.4 Gas Supply

Gas supply depends on the type of industry that establishes in Bomen. Developers would need to discuss their requirements with Country Energy.

6.4.5 Stormwater

New development will likely substantially increase impervious areas, which could result in increased stormwater runoff. Stormwater infrastructure may be needed to avoid erosion of watercourses and possible downstream flooding. As part of a Bomen-wide strategy, stormwater retention facilities would be required to capture rain water or surface run-off to help restrict post development flows to pre-

development levels. Integrated water cycle management and water sensitive urban design principles should be adopted for all development. The main recommendations for stormwater management are:

Stormwater detention
The provision of detention facilities for stormwater to provide an effective means of limiting increased runoff.

Rainwater harvesting and other measures should be adopted to suit individual developments and reduce runoff to predevelopment levels.

Road and inter-allotment drainage
There is little road drainage infrastructure in place. All new and existing roads will be required to have collector pits and an underground pipe system to carry water to the discharge point for each lot. Interallotment drainage will also be required to collect drainage from higher lots and avoid uncontrolled discharge onto lower lying properties.

Works associated with drainage channels
Major watercourses have been identified in the "Bomen Area Local Environmental Study – Stormwater" and may require earthworks to modify their profile and make them more suitable for the increased flows that could be generated by development.

Water sensitive urban design opportunities

All new development should allow for the opportunity of utilising water sensitive urban design principles. Some of the opportunities include:

Grassed vegetation swales
Implementing grassed vegetated swales for the conveyance of stormwater runoff from impervious areas. They provide a number of functions including removing sediments via filtration from the surface, reducing runoff volumes and delaying runoff peaks by reducing velocities.

Sand filters
Introducing a sand filter beneath the surface through which the stormwater is passed to treat it prior to entering the downstream stormwater system. Sand filters provide a number of functions including absorbing nutrients and delaying runoff peaks.

Permeable pavements
Pavements which allow water to percolate through hard surfaces to an underlying granular sub base for temporary storage until the water either infiltrates the ground or discharges into a stormwater system. Permeable pavements can provide a number of functions including removing sediments and pollutants by infiltration and reducing runoff volumes.

Constructed wetlands
These involve the installation of an inlet zone consisting of a sediment basin which will remove coarse sediment and reduce pollutants in the stormwater. To remove fine particles and improve the uptake of soluble pollutants, a shallow, heavily vegetated area would be introduced.

Such measures can improve the quality of water that leaves the site. Council should ensure that all developments meet government set targets for the reduction of total suspended solids, nitrogen and phosphorus in water that leaves the site. Any one of the above factors or a combination of water quality control measures may be required to meet water quality standards.

Rainwater Harvesting and Re-use

A Bomen-wide strategy for water management is recommended and should incorporate rainwater harvesting and reuse schemes. There are significant benefits in providing such facilities:

- Reduces the demand for potable water and protects existing water supplies
- Decreases the volume of stormwater generated from new developments which in turn reduces the damage caused by stormwater runoff into natural watercourses
- Benefits of using natural rainwater compared to chemically enhanced reticulated potable water
- Reduces the cost of external water infrastructure by minimising the need for reticulated water.

Implementing rainwater harvesting and reuse systems should ideally be mandatory for all new development. Planning powers should be used to ensure developers explore every opportunity to include such measures where possible, in line with a Bomen-wide strategy.

6.4.6 Electricity

Ascertaining the level of service for development is difficult without knowing load requirements. To determine specific electrical requirements Country Energy requires load applications from developers. Once this process begins Country Energy will be able to complete a network analysis to determine required upgrades.

There are a number of electrical mains that traverse the site which have easements associated with them. Developers will also need to be aware of restrictions associated with development in or near a high voltage easement. Country Energy's policy states - 'Activities are still permitted within the easement area provided that they do not interfere with the maintenance, replacement, repair or safe operation of the line.' The type of activities allowed are assessed on a case by case basis and dependant on the activity, its cause and effect on safety, access, operation and maintenance required for the line and other legal requirements. It is important that developers notify Country Energy at an early development planning stage to ensure services can be provided.

New electrical services are to be located underground to align with recommended urban design principles. Any developments which have existing overhead 11kV electrical mains should discuss with Country Energy the opportunity for these lines to be buried within road reserves. This would not only improve the visual amenity of the area, it would remove the need for on-site easements and increase areas available for development.

Construction of new roads within electrical easements is allowed depending on the vertical clearance of powerlines and security of electrical equipment. The height of the existing powerlines varies dependent on the distance between poles and atmospheric conditions. The maximum allowable height for all vehicles as specified by the RTA is 4.6m. Developers are recommended to liaise with Country Energy to ascertain the height of the existing powerlines and determine if any undergrounding or relocation is required. All new roads should also be designed to cross easements at 90 degrees.

A street lighting network will also need to be constructed on all roads. As there would likely be many industries operating 24hours per day, lighting would help improve vehicular and pedestrian safety.

6.5 Funding options

The Australian Government is investing $26.4 billion in road and rail infrastructure through the Nation Building Program over a six year period from 2008-09 to 2013-14.The Department of Infrastructure, Transport, Regional Development and Local Government is delivering this investment through a range of road and rail programs and projects across the National Land Transport Network.

The National Land Transport Network is a single integrated network of land transport linkages of strategic national importance, which is funded by Federal, State and Territory Governments. The network is based on national and inter-regional transport corridors including connections through urban areas, links to ports

and airports, rail, road and intermodal connections that together are of critical importance to national and regional economic growth.

Wagga Wagga City Council should continue to vigorously pursue funding and government support through the Nation Building Program for the relocation of Byrnes Road and construction of a link from the Olympic Highway to connect to the road network on the eastern side of the railway line, including a bridge over the railway line, as shown in the master plan. Bomen meets the objectives and key features of being able to apply for funding due to it being strategically important and heavily reliant on efficient road and rail networks.

Tools available from the EPA Act provide a range of models for funding local infrastructure; from traditional contribution plans to planning agreements under section 93F. Council should develop a funding and cost recovery strategy for Bomen to recover costs from developers for the provision of Council road network and stormwater facilities, based on the model which best suits local conditions and stakeholders, as well as optimise costs recovered. A Developer Servicing Plan (DSP) should be developed to fund the provision of sewerage infrastructure to Bomen.

6.6 Sustainability assessment

6.6.1 Assessment results

The draft master plan was assessed using the sustainability assessment framework, details of which can be found in Appendix B. The results of this assessment and the assessment of the options are summarised in Table 6.1 below. Details of the results are also in Appendix B.

Table 6.1 Results of the sustainability assessment of the options including the overall priority ranking

Element	Option 1	Option 2	Option 3
Social	1	2	2
Economic	2	2	2
Environmental	1	2	2
Governance	1	2	1
TOTAL	5	8	7
Overall Priority Ranking	D	C	C

The draft master plan received a B Grade (A being the highest) indicating ***"significant sustainable outcomes expected for this option"*** (Appendix B). The social and economic performance scored highly which is consistent with the business objectives for Bomen. In particular, business and industry growth opportunities for the region would be greatly enhanced by the project, in addition to improvement of national and regional distribution and logistics efficiency. Areas for improvement in the draft master plan include:

Social

- There is a need to provide public transport, which is presently extremely limited

Economic

- There is a need to identify opportunities for implementing advanced telecommunication facilities
- The master plan should be more discerning on the types of light and heavy industrial development applicable to certain areas to ensure activities are complementary to each other and the surrounding agricultural areas and compliant with industrial ecology principles

Environment

- Addressing the issue of climate change vulnerability
- There is a need for the plan to highlight potential water reuse networks on the estate
- Identifying opportunities for renewable energy networks on the estate

There is potential for improved sustainability performance as a result of the effective implementation of a number of the environmental, social and economic objectives in later development stages. Objectives requiring implementation are known as 'prospective' objectives, indicating the role they play in delivering future sustainability outcomes. Table 6.2 lists these prospective objectives. There are a number of prospective objectives within the environmental element, which indicate the importance of later development stages, including the development approvals process, in addressing environmental impact issues. Section 6.6.3 discusses activities and strategies for achieving certain objectives.

Table 6.2 The prospective objectives for Bomen that require activities and strategies for implementation.

Element	Prospective Objectives
Social	Improve lifestyle of local community Ensure safety and well-being of local community
Economic	Foster innovation in technology development Provision of advanced telecommunication facilities
Environmental	Minimise air pollution from odour and dust Maximise re-use and recycling of waste Minimise energy consumption (carbon footprint) Maximise on-site power generation (renewable and gas recovery) Minimise vulnerability to bushfires from climate change Minimise vulnerability to extreme heat from climate change Minimise vulnerability to drought periods from climate change (implementation of integrated water cycle management) Minimise on-site contamination risk
Governance	Promotes business park as a leader in sustainable industrial development

6.6.2 Assumptions and limitations

Subjectivity in a qualitative analysis

Judgments on sustainability performance for each objective were based on available information for the site and on broader research. There is an element of unavoidable subjectivity which may have yielded biased results. However, through the implementation of sustainability objectives at later development stages, real data can be used to measure sustainability performance, providing transparent and accountable results. In the absence of real data to assess the objectives at the master planning stage, professional judgment remained one of the few options available for achieving some level of sustainability assessment.

Weighting and tradeoffs

For the sake of uniformity, the objectives were not weighted and assumed to be of equal importance. This reflects the view that each element is of equal value and this equality is intrinsic to the concept of sustainable development. Tradeoffs may occur when a decision needs to be reached on certain sustainability issues in later development stages. When considering trade-off options, enhanced economic performance should not outweigh the risk to the environment and local communities.[3] Tradeoffs should be transparent, accountable and include a process for stakeholder participation.

6.6.3 Sustainability implementation

Although all sustainability objectives were used to assess the three options and draft master plan for Bomen, the prospective objectives in Table 6.2 require implementation at later development stages to deliver ongoing sustainability outcomes. This section sets out preliminary strategies and activities for fulfilling these prospective objectives, which are separated into a proposed Bomen climate change adaptation strategy, a Bomen eco-industrial strategy and a sustainability indicator framework. These three proposed strategies are also captured within the sustainability recommendations outlined in Section 8.2.

Climate change adaptation

Climate change has begun to have measurable impacts on many communities, particularly in developing nations around the globe (WWF, 2008) affecting a large number of people and ecosystems globally. Worldwide, policy makers are being forced to consider present and future climate change when making plans for the future. Australia faces a variety of climate change impacts and is particularly vulnerable to drought and increased frequency of extreme weather events (CSIRO 2006).

Table 6.3 provides a summary of climate change predictions that are indicative for Bomen, based on data for the Canberra region under the International Panel for Climate Change's A1B scenario for 2030 (CSIRO 2007). This scenario describes a future world of very rapid economic growth, a global population that peaks in the mid-century and declines thereafter, and the rapid introduction of new and more efficient technologies.

For the region, future climatic changes predict an overall increase in temperature, particularly an annual doubling in days over 35°C under most scenarios, and increases in summer temperatures. This will produce a generally warmer climate with more hot days and fewer cold nights increasing the peak summer energy demand for cooling with reduced energy demand in winter for heating. An overall decrease in the amount of rainfall and slight increases in the potential evaporation will mean droughts

[3] For a good discussion on trade-offs see A Morrision-Saunders and T Fischer 'What is Wrong with EIA and SEA Anyway? – A Skeptic's Persepective on Sustainability Assessment' (2006) *Journal of Environmental Assessment, Planning and Management 8(*1), 1-21.

become more frequent and place further stresses on water resources, already under pressure from increased demand from population growth and consequent demand from irrigators, cities and industry.

Run-off into ecosystems such as rivers and catchments will also be decreased and more water needed to maintain environmental flows. Variability in wind speeds will increase with some scenarios predicting up to a 28% loss in wind speed and others showing a predicted increase of 34%. High variability in wind speeds, coupled with days of increased temperature, decreased rainfall and decreased average humidity will lead to an increase in the number of dangerous fire days.

Other extreme weather events are also likely to increase in number and result in flash flooding, wind damage, strains on sewerage and drainage systems, and possible blackouts. This will have social and economic effects such as increasing challenges for emergency services and greater insurance costs. Growth of crops and forests may be stimulated by elevated CO2 levels however these benefits may be offset by decreased rainfall, increased bushfires and changes in pest species (CSIRO 2007).

Table 6.3 Projected climate change for the Canberra region (CSIRO, 2007)

Variable	Season	2030 A1B 10p	2030 A1B 50p	2030 A1B 90p
Temperature (°C)	Annual	0.6	0.9	1.3
	Summer	0.6	1	1.5
	Autumn	0.6	0.9	1.3
	Winter	0.5	0.8	1.1
	Spring	0.7	1.0	1.5
No. days over 35°C (current 5.4)	Annual	6.9	7.9	9.9
Rainfall (%)	Annual	-9	-3	+2
	Summer	-8	0	+8
	Autumn	-10	-2	+6
	Winter	-14	-5	+3
	Spring	-17	-6	+3
Potential Evaporation (%)	Annual	+1	+3	+5
	Summer	+1	+2	+4
	Autumn	+2	+4	+7
	Winter	+1	+6	+13
	Spring	0	+2	+4
Wind-speed (%)	Annual	-6	-1	+4
	Summer	-9	+1	+11
	Autumn	-10	-2	+4
	Winter	-7	-0	+6
	Spring	-10	-1	+6
Relative humidity (%)	Annual	-1.4	-0.5	+0.3
Solar radiation (%)	Annual	-0.7	+0.5	+1.9

To respond to potential climate change impacts in Bomen, a climate change adaptation strategy should be developed. The main purpose of the strategy would be to identify potential climate change impacts including bushfires and associated risks to local communities from extreme weather events (CSIRO, 2006). Key activities to develop the Strategy would include:

- Review of relevant climate change (adaptation) literature
- Use of relevant exposure maps and climate change scenarios developed by the CSIRO
- The adoption of a risk based approach in response to uncertainty surrounding the magnitude and scope of climate change (CSIRO, 2006; AGO, 2006)

Prospective social objectives would be addressed in part by the climate change adaptation strategy as it would reveal the sensitivity of community centres to climate change risk, thereby informing potential adaptation activities.

Industrial ecology

Industrial ecology can be defined as 'an interdisciplinary framework for designing and operating industrial systems as living systems interdependent with natural systems' (Indigo Development, 2005). Cleaner production, energy efficiency and value adding to waste management are all principles of industrial ecology (Roberts, 2004). An EIP (eco-industrial park) is a community of manufacturing and service businesses located together on a common property where member businesses implement an industrial ecology approach through collaboration and leadership (Lowe, 2001). They encourage sustainable design, planning and construction; cooperation and innovation; novel technologies and knowledge sharing among businesses (Roberts, 2004).

To achieve status as an EIP, a number of activities need to be undertaken. The activities listed here are indicative and would require further refinement and consideration:

Literature review and consultation
- A literature review would need to be undertaken of innovative approaches to industrial ecology and EIPs at an international to domestic scale including of peer reviewed articles (in journals such as the Journal of Cleaner Production and the Journal of Industrial Ecology)
- Consulting and collaborating with existing business operating in Bomen that already adopt industrial ecology principles, in addition to prospective developers and community interest groups

Developing the Bomen EIP strategy
- Setting objectives, targets and timeframes for the strategy
- Mapping energy, waste and water resource flows/network throughout Bomen to ensure that a closed resource loop is achievable Identifying a range of industries which might be attracted to the EIP and consider mechanisms for attracting business enterprises which can add value (WISDOM, City of Wagga Wagga and NSW State and Regional Development, 1995)
- Identifying constraints and opportunities; then developing guidelines for industries to develop in the EIP
- Identifying 'missing' industries needed to close resource loops (City of Kitakyushu, 2001)
- Developing an approach for storing local industrial information accessible to relevant stakeholders where appropriate
- Ensuring the strategy includes a process for facilitating innovation in the development and deployment of technology

Strategy integration
- Ensuring integration and consistency with the sustainability indicator framework ¬ this framework should underpin the strategy by setting appropriate thresholds for implementing industrial ecology principles (e.g. minimising energy consumption)
- Ensuring consistency with the proposed climate change adaptation strategy

Implementing the Strategy
- Developing conditions of consent for development proposals once the strategy, the climate change adaptation strategy and the indicator framework have been finalised
- Establishment of the sustainability and EIP advisory group to oversee the development and implementation of the Strategy

Knowledge sharing and education

- Formalising a process for knowledge sharing and capacity building within Bomen and beyond (Chiu and Yong, 2004)
- Developing education programs for stakeholders on industrial ecology processes and systems (Chiu and Yong, 2004)

Prospective environmental and governance objectives would likely be fulfilled should an effective EIP strategy and Bomen reach the status of an EIP. The two prospective economic objectives relate specifically to technological development. The development of innovative technology is integral to the concept of industrial ecology and EIPs, and advancing technology is therefore an important objective for Bomen. The preferred option provides for education and training facilities and links with Charles Sturt University. Capitalising on these facilities and links will be imperative to the establishment of Bomen as an EIP.

6.6.4 Ongoing sustainability performance assessment

Sustainability indicators

In order to assess progress towards fulfilling the prospective (and other) sustainability objectives for Bomen, an ongoing sustainability assessment approach needs to be developed. The development of project specific sustainability indicators against which sustainability performance can be measured would be a transparent, accountable and simple method.

As recommended by the International Institute for Sustainable Development there are two basic requirements for indicators:

- They have to provide vital information illustrating the current state and corresponding viability of a system
- They have to provide sufficient information about a system's contribution to the performance of other systems that depend on them, and the overall objective of sustainability

Adapted from the 'SMART' objectives for indicator design Table 6.4 provides an overview of key criteria for good indicator design that will assist in describing the sustainability performance throughout the development of Bomen.

Table 6.4 Criteria for developing an effective indicator framework (Centre for Public Agency Sustainability Reporting, 2007)

Element	Prospective Objectives
Specific / Defined	Indicators should be specific and clearly defined to adequately report on changing conditions and be understood by stakeholders
Measurable	Indicators should be measurable to provide specific quantitative and/or qualitative data on performance and changing conditions
Achievable and cost-effective	Data for the indicators should be obtainable at a reasonable cost in relations to its value
Relevant and targeted at stakeholders	Indicators should be designed around the primary concerns and interests of stakeholders and major sustainability impacts
Appropriate time and spatial scale	Indicators should use appropriate time and spatial scales to provide meaningful information
Reliable and comparative	Indicators should be reliable over time and be able to be compared

To ensure indicators are relevant and targeted to stakeholders, sustainability indicators for Bomen should be developed using a stakeholder consultation approach, whereby the needs and interests of stakeholders can be duly considered. This is important given that adequate engagement of stakeholders is imperative to achieving sustainability outcomes (Jacobs, 1999; Pope and Grace, 2006).

The existing sustainability assessment framework described in Appendix A should be modified into a sustainability indicator framework for the development of Bomen. Project specific indicator selection should use the Global Reporting Initiative (GRI) which is an indicator framework used by organisations internationally to communicate clearly on sustainability issues. [4] Table 6.5 outlines some prospective sustainability indicators for Bomen against the relevant environmental objectives and GRI indicators.

[4] See Global Reporting Initiative (GRI) (2006) Sustainability Reporting Guidelines Version 3, available at www.globalreporting.org/ReportingFramework/G3Online/ accessed 28/4/09.

Table 6.5 Example of possible project-specific indicators against the environmental objectives from the sustainability assessment framework and the relevant GRI indicators.

Objectives	Prospective Project-specific Indicator
Environmental	
Maximise re-use and recycling of waste	% waste and materials re-used and recycles (adapted from GRI EN2)
Minimise energy consumption (carbon footprint)	Direct energy consumption by primary energy source (GRI EN3) Energy saved due to conservation and efficiency improvements (GRI EN5) Total direct and indirect greenhouse gas emissions by weight (GRI EN16) Initiatives to reduce greenhouse gas emissions by weight (GRI EN8)

For each sustainability indicator, a threshold range would need to be developed below which sustainability outcomes would likely be unachievable. Using environmental indicator % waste and materials reused and recycled as an example, a threshold range of 80¬100% could be set during the construction and operation of a project. Threshold ranges should be based on more than legislative and regulatory requirements, but rather on minimum requirements to operate an EIP, in addition to the needs and interests of stakeholders. Inputs for assessing the indicators would consist of both qualitative and quantitative data.

This indicator framework could be adapted to act as guidelines for prospective industry investors and developers. These guidelines could set out the issues that need to be considered when preparing a development proposal. These guidelines could form part of the assessment process and inform standard conditions of consent. This approach is consistent with the ‘check sheet’ approach adopted in WISDOM and could assist in streamlining the development approval process for Bomen (City of Wagga Wagga and NSW State and Regional Development, 1995).

The development of the Bomen EIP strategy and the climate change adaptation strategy would both inform and be informed by the sustainability indicator framework and they should be developed inter-dependently. Industrial ecology objectives identified in the strategy would likely translate into sustainability indicators to guide project planning, development assessment and the construction and operation of projects.

Sustainability and EIP advisory group

The sustainability indicator framework could be complemented by a sustainability and EIP advisory group. This group would comprise representatives of stakeholder groups already present in the STEP and SWOT workshops (and additional stakeholders where appropriate). Council could select and invite representatives. An academic advisor could also be included, to bring expertise and independence to the advisory group and act as peer reviewer (in addition to potentially marketing Bomen through presentations, publications and other academic undertakings). Having an academic advisor on the advisory group would also strengthen University ties to foster education, innovation and technological development in Bomen. Local community group representatives should also form part of the advisory group to ensure that the interests and needs of local communities are considered.

The group's tasks would include reviewing progress toward the fulfillment of indicator thresholds and the realisation of the EIP strategy; updating and reviewing indicator structure, appropriateness and thresholds; acting as an advisory board to Council on future planning for Bomen; consolidating 'lessons learned' for knowledge sharing and capacity building within Bomen and beyond; and marketing the scheme to external stakeholders. The Advisory Group would ideally exist for the length of operation of Bomen, although the first ten years of development activity may require frequent input from advisory group members.

7. Planning and approval frameworks

This section has been prepared to outline and compare the alternative planning and assessment models available under the Environmental Planning and Assessment Act, 1979 (EPA Act). The options analysed are:

- Part 3A of the EPA Act and the Major Project and Infrastructure SEPPs
- Part 4 and the draft Wagga Wagga LEP 2008, including long term and short term LEP amendments
- Part 5 of the EPA Act
- The 'do-nothing' option, the Wagga Wagga Rural LEP 1991

Before presenting these analyses, the most significant findings and recommendations are first outlined.

7.1 Purpose of this section

The fundamental reason for this section is to identify and analyse the various planning, assessment and approval frameworks available under the Environmental Planning & Assessment Act, 1979 (EPA Act) and recommend one that provides the best vehicle for working towards the vision and achieving master plan objectives.

In setting out this purpose; the following factors must first be recognised:

It is impossible to achieve complete certainty of outcomes and there is a higher probability of success when the "rules" and process of the planning and approvals framework are founded on:

- "user friendliness", plain English documentation and "can do" attitudes of Council staff (already an asset)
- Clearly articulated, unambiguous procedures
- A straightforward path for preparing and lodging applications, then assessing, issuing and implementing approvals

These principles and the project Vision and objectives are the 'drivers' of this analysis.

7.2 Conclusions

This section presents the more strategic and significant advantages and disadvantages of adopting each of the options available under the EP & A Act. It does not address matters (to be) addressed elsewhere in the master plan report, such as industrial ecology and infrastructure planning. It focuses on the planning system and concludes that there is an option available that is superior to the others available. The reasoning behind and the rationale for these conclusions and the recommendations of section 3 below, are described later.

Part 3A

Advantages

1 It is a vehicle that would specifically recognise Bomen's strategic importance to the Riverina, NSW and Australia, attracting private and public sector support and investment

2 Bomen can have its own specific set of planning controls and assessment and approvals system established, tailored to ensure judicious use of its most strategic assets and improve upon it's already considerable competitive advantages

3 The system, once in place, has the best chance of creating a process of greater predictability and more certain outcomes, which in turn would attract national and quite probably international interest

Disadvantages

1 A report must be prepared for the Director General's submission to the Minister for Planning's approval, a possibly lengthy and costly exercise
2 Considerable political and administrative support is required before this process could be commenced. Intensive lobbying of many government departments would be a prerequisite
3 Competition from other sites would need to be addressed, a regional approach could be compromised

Part 4

Advantages

1 Does not require additional planning, apart from implementing recommended amendments as part of Council's review of the draft Wagga Wagga Local Environmental Plan 2008
2 Does not require a regional approach
3 Council remains in control of most of this process, although would be subject to approval by the independent planning panel or the Minister for Planning for State Significant Projects under Part 3A of the EPA ACT

Disadvantages

1 Less predictable due to other SEPPs over-riding the LEP (removing Council's consent authority powers) and still being the subject of the uncertainties integral to the Part 4 development assessment process
2 Current LEP has not resolved all planning issues, although a DCP is being prepared to become operational upon the LEP being published
3 The LEP does not fully recognise, protect or capitalise on Bomen's strategic locational advantages and hence it's appeal to investors

Part 5

Advantages

1 Could remove the need for planning approval for infrastructure and public works
2 Would require little in the way of further strategic planning, apart from amending zoning in the draft Wagga Wagga Local Environmental Plan 2008

Disadvantages

1 Entails a probable loss of planning powers and control for Council
2 Unlikely to improve process and outcome predictability
3 Would create two approvals regimes which would likely be unattractive to potential investors

"Do nothing" (keeping the 1991 Rural LEP) Advantages

1 Allows a broad range of uses
2 Does not require further strategic planning and expense

3 Maintains the status quo. Could be considered an advantage, as it avoids the uncertainties inherent in any change process

Disadvantages

1 Does nothing to articulate, and nor would it achieve, the vision and objectives for Bomen
2 Existing uncertainties of process for approvals would remain
3 It would not likely attract new investment or government support, financial and administrative

Conclusion

The foregoing are the most significant factors to consider in achieving the vision and planning objectives for Bomen. The list is not intended to be exhaustive.

Rather, the 'pros' and 'cons' presented are a 'strategic snapshot', to focus future actions for implementing the master plan and to give the greatest chance of success. They are considered the most strategic issues raised by the commentary and analysis presented.

Further, the recommendations are founded on the use of Part 3A in other parts of the State for various purposes. All examples cited have application to Bomen, so there is a body of work Council may rely on in garnering support from the NSW Government to taking the recommended approach.

Council should embark upon a path to have the site declared of state significance by the Minister for Planning, in SEPP Major Projects 2005; and have an approvals regime introduced under Part 3A of the EPA Act. This should be commenced posthaste; including private stakeholder and as broad support as possible from the region. In short, a 'whole-of-governments' (all three) approach is necessary, to streamline decision making and optimise the environment for future investment and sustained growth. This should not be difficult to achieve, as the stakeholder consultation for this project has made abundantly clear the broad-based, regional support the site's has, as a site of significance to the Riverina, NSW and Australia.

7.3 Recommendations

1 Council write to and then meet with the Minister for Planning and State and Commonwealth Members of Parliament to commence the process of declaring Bomen a project of state significance.

2 Council treat the Bomen study area as a deferred matter in its finalisation of the draft Wagga Wagga Local Environmental Plan 2008, using the master plan (once it has been exhibited and adopted by Council) and existing zones as interim planning controls, until provisions are included in SEPP Major Projects to make Bomen and site of State significance.

3 A brief be prepared for the planning study required by clause 8 of SEPP Major Projects 2005, in consultation with the Department of Planning.

7.4 Part 3A of the EPA Act, Major Project and Infrastructure SEPPs

7.4.1 Part 3A Major Infrastructure and other projects

Part 3A, as it is known, works in concert with two state environmental planning policies (SEPPs):

- SEPP (Major Projects) 2005
- SEPP (Infrastructure) 2007

The two SEPPs specify certain sites and types of development to which Part 3A would apply. Part 3A then establishes an approval regime that allows environmental assessment and approval according to this part and relevant provisions of either SEPP.

Background to Part 3A

Introduced in 2005, Part 3A and the Major Project SEPP, according to the Department of Planning:

- Provide improved consultation and transparency
- Allow significant issues to be identified early in the planning process
- Provide a tailor made assessment system for projects of regional or state importance
- Focus on outcomes rather than red tape

Other highlights of Part 3A

The Minister for Planning is the approver of specific projects or development on sites declared effected by the SEPP. In granting approval the Minister (or other consent authority) is not bound to observe requirements of a planning instrument such as a local environmental plan (LEP).

Three months are allowed for appeals by an applicant and 28 days by an objector. The Minister's decision is not appealable when:

- A project is a critical infrastructure project
- A master plan has been prepared (a factor that could be given considerable weight in Bomen's case)
- Projects are for or by a public authority
- Projects have been reviewed by the Planning Assessment Commission

Additionally, if Part 4 was to apply, should a project not have been made the subject of Part 3A, then appeal rights are available for applicants for all development and for third parties (objectors), only if the development would have been designated (requiring an EIS) by Part 4.

Under section 75M of the EPA Act, an LEP's requirement for preparing a development control plan (DCP) may be dispensed with when the Minister has approved a concept plan for a project, only when the Minister requires a concept plan to be prepared. An applicant may also appeal decisions regarding concept plans.

Other provisions of the EPA Act do not apply when a site or project is declared by a SEPP to be the subject of Part 3A:

- Parts 4 and 5, requiring separate approvals, respectively for private and public development, in the main
- Part 3, except when a SEPP declares Part 3A to apply to a project
- Conditions under section 94 are only to be applied if a consent under Part 4 could have done likewise (i.e. a contributions plan would have to already have been in place, at the time approval was granted)

Process for declaring and assessing projects under Part 3A

According to the Department, again, sites are declared of State significance in accordance with the Major Projects SEPP to:

…facilitate major investment in significant economic and employment generating development in NSW…

With the numbers of jobs and levels of investment expected to be generated at Bomen in the next 20 to 30 years, the site is clearly of significance to NSW. When the Minister for Planning decides to declare a site to be of state significance, one or more of the following criteria (amongst others) must be met:

- The site's location being strategic (Bomen's location is certainly strategic in the context of state and national transport networks)
- It's importance to one or more industry sectors (Bomen is well positioned to capitalise on growth in transport demand generated by markets across southeastern Australia, particularly inland industries and those requiring access to Australia's two most eminent sea ports, Melbourne and Sydney)
- Alternative planning or consent arrangements are required. Bomen needs a streamlined and transparent approvals process due to the scale and nature of anticipated transport and industrial developments, given that domestic and overseas investment has a substantially increased likelihood of being attracted when more certain outcomes and greater predictability of approval timeframes can be delivered

The following are the main steps in having a site declared and planned as a state significant site:

a. A proponent requests the Minister consider nomination of a site
b. This request being supported by a report regarding compliance with "core planning controls", meeting the above criteria, future land use proposals and views of the local Council
c. The Minster may require a preliminary site investigation and consultation with the local Council (to remove this step and to provide a 'united front' an application from a consortium or alliance, comprising Council, a Bomen land owner organisation and perhaps other regional stakeholders is recommended)
d. The criteria below, listed by clause 8 of the Major Projects SEPP, are considered in this assessment
e. The study prepared for the Minister is exhibited and public comments invited for at least 30 days
f. The Director-General of Planning assesses the study any submissions made and makes recommendations to the Minister (noting the Minister may set up an independent panel and take it's recommendations into account as well)
g. Once the Minister has consulted with their fellow (relevant) Ministers, the site may be then declared as having state significance
h. The Major Projects SEPP (Schedule 3) is amended to list the site; and may include planning provisions as required (examples of such provisions relevant to Bomen are discussed below)
i. The SEPP and it's site listings are reviewed every 5 years, to ascertain whether state planning objectives have been achieved

7.4.2 Major projects SEPP

The major projects SEPP (clause 8) enables the Director General of Planning to prepare a report for the Minister to declare a site to be subject to Part 3A of the Act. Such a report must address, amongst other things:

- Whether the site or its development is of regional or state planning significance
- ESD principles
- Whether special planning or design controls should be applied to the site
- Whether certain development can be made exempt from the need for development consent
- The provision of infrastructure and services
- Impact on natural resource planning

Clause 12 of the SEPP refers to development formerly controlled by the Walsh Bay Development (Special Provisions) Act 1999; and delegates certain consent powers to the City of Sydney Council. A similar provision could be made if Bomen were to be made a site of state significance, with the thresholds to be specified for either the Minister or Council to be the consent authority. Where justified by a report to the Minister by the Director General under clause 8, these thresholds could differ from the Act, or use criteria different to those specified by the SEPP. Site size, certain environmental conditions or standards for instance, could be used instead of or in addition to a project's capital value and employment created.

Parallels may be drawn with Newcastle's Steel River project, which according to a strategic impact assessment study, established environmental thresholds that if observed, designated development could in effect be "de-designated" and thus excused from preparing an EIS and no longer being subject to third party appeal rights. Steel River effectively pre-dated Part 3A by almost a decade, noting the need to prepare an EIS does not apply to Part 3A projects, as they are no longer designated development. Throughout the process, the consent authority remained with Newcastle City Council. This vastly improved predictability of process for applicants and actually added monetary value to development sites in the Steel River estate.

Under Schedule 1, Part 3A project types are specified. Related to Bomen, manufacturing and industrial activities worth over $30millions or create more than 100 jobs automatically become Part 3A projects. For rail and related transport projects, such as an intermodal freight facility, the threshold for becoming a Part 3A project is $30millions capital investment.

Many projects of the nature likely to be attracted by Bomen's near level land with access to the national rail and state highway networks will probably exceed these limits. This makes it important to ensure that the land is protected from development that may not be able to fully optimise use of what is, after all, a scarce resource. No other site that may compete with Bomen on the Sydney to Melbourne railway has so much serviceable land available for intermodal facilities, which is able to cater for immediate and longer-term demand. If not protected, sites adjacent the rail may be used for development that is better sited away from the rail. Planning and approval measures should be introduced so that future use of a finite resource, the land up to 750m either side of the rail line, is as judicious as possible.

A similar approach could be taken in a report prepared under clause 8 of the major projects SEPP, with the benefit of:

- Specifying standards to be complied with by development, in a similar fashion to the Steel River project
- Nominating the consent authority, based on compliance or noncompliance with site-specific development standards and economic development related thresholds
- As discussed below, specific zones with objectives recognising and protecting the special qualities and significance of the site could be developed and applied

Schedule 3 of the SEPP nominates sites and specifies provisions presumably included as a result of their need being identified by a report of the Director General of Planning to the Minister for Planning.

Already listed in the schedule are sites and their planning provisions that have relevance to Bomen, which are discussed below.

Illawarra Regional Business Park

An environmental protection zone and the E2 Employment zone are deployed for this site, as an LEP would. This is an example of a Part 3A site that uses zones to meet local and regional planning objectives. A similar approach could be taken at Bomen noting that its significance is regional, if not state and national, in terms of its sustainability, economic development and employment generation potential.

Wyong Employment Zone

Of relevance to Bomen at this Wyong site is that it allows childcare, for the children of workers in the zone, and the limit on retail floor space is 280m2 gross floor area per outlet, noting the area is in proximity to a planned regional town centre at Warnervale, a few kilometers away. Childcare at Bomen has been a point of debate and it has already been allowed as part of a Part 3A approved development. In the Wyong case, the aim of maintaining retail hierarchies has parallels with issues regarding Bomen's relationship with the Wagga CBD, even though in the Wyong Employment Zone a shop can be almost 3 times larger than what the Wagga Wagga Draft Local Environmental Plan 2008 (WWDLEP 2008) would permit.

Redfern-Waterloo Authority sites

The schedule of uses identified for the SP 2 zone protect rail infrastructure and land for associated activities, according to these objectives:

15 Special Purpose Zone—Infrastructure

(1) The objectives of the Special Purpose Zone—Infrastructure are as follows:
- *(a) to provide for railway infrastructure and related facilities,*
- *(b) to prevent development in the Zone that is not compatible with or may detract from the provision of railway infrastructure and related facilities,*
- *(c) to ensure the vitality and safety of the community and public domain,*
- *(d) to ensure that buildings achieve design excellence,*
- *(e) to promote landscaped areas with strong visual and aesthetic values to enhance the amenity of the area.*

(2) Development for any of the following purposes may be carried out on land within the Special Purpose Zone—Infrastructure only with consent:
- *(a) the alteration of or addition to a railway station; the construction of a new railway station; retail or business activities ancillary to a railway station,*
- *(b) telecommunications facilities,*
- *(c) access facilities (such as tunnels or bridges) that traverse the railway corridor.*

(3) Except as otherwise provided by this Policy, development is prohibited on land within the Special Purpose Zone—Infrastructure unless it may be carried out under subclause (2).

Such provisions are apt to be used at Bomen, drafted to suit local circumstances. For instance, the SEPP makes certain public utilities permissible without consent and other forms of development may be exempt from requiring consent. In these cases the possible need for environmental assessment under part 5 is noted.

Schedule 5 of the SEPP lists projects the Minister has identified as critical infrastructure projects. Examples include the Queensland Hunter Gas Pipeline and Tillegra Dam, both deemed vital to the long term interests of NSW. With support from all levels of government, a case could be mounted for Bomen's infrastructure, especially that the main rail line, its rail sidings and arterial (through) roads, are of critical importance to NSW.

7.4.3 Infrastructure SEPP

Firstly, that the major project SEPP overrides the infrastructure SEPP is noted, in the event of inconsistency between them. This generally makes the former SEPP more powerful and is certainly more flexible than the latter.

Provisions most relevant to Bomen are those that deal with approval provisions for:

- Rail freight terminals
- Sidings
- Intermodal facilities

The SEPP allows development for specified infrastructure to proceed without planning consent. This is the fundamental purpose of the SEPP. While a case could be mounted for Bomen's rail and rail related logistics operations to be brought under the infrastructure SEPP, the SEPP's framework does not as readily allow for this, when compared to the major projects SEPP.

When proposed by or on behalf of a public authority (such as the ARTC) the works do not need development consent. However, were the ARTC, for the sake of this discussion, to deem a proposed activity to warrant a full environmental impact assessment, the matter would be considered under Part 3A of the EPA Act, by virtue of a declaration by the Minister for Planning on 29 July 2005, under section 75B (1) of this Act. Predictability of the planning framework and its ability to respond to certain opportunities or conditions would unlikely be improved.

Where one of these activities (or a combination) was worth more then $30millions (same as schedule 1, Major Projects SEPP), and the development is for or by a private interest, then development consent would be required under the Major Projects SEPP and Part 3A.

The infrastructure SEPP is not designed and could not cope with transport related or support development and industries in the manner a LEP or the major projects SEPP could, so it is not considered as effective an option as including Bomen under schedule 3 of the Major Projects SEPP or a LEP, finely tuned to Bomen's needs. It is worth noting that a Part 3 instrument (inclusion of Schedule 3 provisions for a site or project) can effectively be 'custom-made'; whereas a LEP is unable to do this, because the LEP's zones and provisions must typically apply to other land that may not have the same, specific needs of the Part 3A site or project.

7.5 Part 4 and the draft Wagga Wagga LEP 2008

7.5.1 Part 4 of the EPA Act – development assessment

Part 4 of the EPA Act enables assessment of development applications, for which, since 1998, there have been several classes, somewhat simplified for the sake of this discussion:

- Exempt development
- Complying development
- Local development
- State development

It may be said that each of these categories from the top to the bottom of the list, require a 'lower' to a 'higher' level of assessment, potentially having greater environmental impacts. Exempt and complying development provisions were intended for 'minor' development, having been deemed to have 'minor' environmental impacts. This is by-and-large specified in planning instruments, wherein standards or pre-conditions that when met mean that development consent need not be applied for or the consent may be issued by a private certifier, rather than the consent authority, which is the local council in most cases. Local and state developments have other processes that must be complied with.

Principles of exempt and complying development

When the aforementioned Steel River project begun in the mid-1990s, use of provisions similar to today's complying development provisions was envisaged. This was not favoured at the time, due to the 1998

reforms to the EPA Act being imminent. These reforms included the exempt and complying provisions in today's planning instruments, such as the draft WWLEP 2008.

However the principle of predetermining standards or conditions and compliance therewith, thus enabling a simpler and more predictable approval path remains valid today. Otherwise the recent introduction of the NSW Housing Code and its complementary SEPP (Exempt and Complying Development Codes) 2008 would have been impossible to introduce.

As discussed, it is considered feasible to extend these principles to Bomen in preparing a report to the Minister (under clause 8 of SEPP Major Projects 2005) making Bomen a site of state significance. This report could extend the concepts of exempt and complying development to industrial and transport development, as originally envisaged and partly achieved in the planning provisions for the Steel River project; and later adopted in principle by provisions for some of the projects already identified by major project and infrastructure SEPPs. The key aims of this exercise would be to:

- Simplify and make the approvals process more certain and predictable
- Ensure negative environmental impacts are minimised or eliminated
- Optimise positive environmental impacts
- Protect and optimise the qualities of the Bomen area, it's location, access to transport infrastructure and relatively unconstrained large areas available for logistics and supporting industrial development
- Facilitate development that promotes and capitalises on it's importance to the nation, state and region

Amendments to the draft LEP

The master plan project steering committee decided during the course of the project it would be worthwhile considering two temporal paths for amendments to the draft LEP, exhibited January through April 2009.

In the context of the recommendation to pursue Part 3A declaration of the site as state significant; the following analysis and in particular the conclusions and recommendations could be considered a 'fall-back' position. Set out below is analysis of each zone in two sections:

- 7.5.2 Long term amendments recommended, which may be carried out as part of the first review of the LEP, up to five years after publication in the NSW Gazette
- 7.5.3 Short term amendments, which could be addressed in the current review of the draft LEP, depending on issues raised by the public and how Council and the Independent Planning Panel deal with them

7.5.2 Draft Wagga Wagga Local Environmental Plan 2008: long term amendments

The draft Wagga Wagga Local Environmental Plan 2008 (WWLEP 2008) was exhibited and public submissions invited between January and April, 2009. It was drafted after comprehensive planning investigations and preparation of various background reports and a local environmental study (LES). The LES and reports pertaining to Bomen are discussed below.

At the time of this report's publication, Council is reviewing submissions from the public, land owners, government agencies and other organisations regarding the draft LEP. Should Council deem it necessary as a result of issues raised by any submission, the LEP may be amended for endorsement by the local planning panel and approval by the Minster for Planning. Ministerial approval is anticipated in early 2010.

In the event that an amendment is unable to be supported in this manner (by responding to a public submission), then such amendments could be made either via a review of the plan, up to 5 or more years after its publication; or via re-exhibition of the plan before submission to the Minister for Planning for

approval and publication. The first of these two courses of action could delay application of changes recommended below. Such a delay could well compromise the Bomen vision and objectives; and still leave a degree of uncertainty lingering. The second course of action, likely to involve re-exhibition of the plan for at least 4 weeks, would cause some short-term delay, although it would remove the potential for uncertainty about zoning and related planning controls.

In this context, this analysis aims to:

- Summarise the features of the proposed zones as they relate to the master plan
- Assess the contributions of the WWLEP 2008 to achieving the master plan vision and objectives,
- Examine the effects of proposed new zones, by comparison with existing zones, associated development standards and other provisions of the draft WWLEP 2008
- Recommend long term changes to the planning provisions of the WWLEP 2008, to improve prospects of achieving the vision and objectives for Bomen, in the first review of the LEP. This will allow thorough investigation and environmental remodeling as discussed below in some instances; and exhibition of changes that are considered to warrant further public airing and comment

RU6 Transition zone

Zone description
This zone (Figure 4.6) is applied to most of the perimeter of the study area, in a strip some 200m wide, noting that it also covers all of Cartwright's Hill. The minimum lot size for subdivision in this zone is 200ha. Effectively, this is a prohibition on subdivision, as no lots in the study are of a size that would allow division to comply with this standard, even though one lot of an area less than the standard can be provided, albeit without a right to have a dwelling on that lot. This alone could be sufficient to sterilise the land and some may view it as a "reservation without compensation".

From a review of the LES and supporting odour and noise assessments, it appears this zone and the adjoining proposed IN2 Light Industrial zone are designed to create a buffer between future uses in the IN1 General Industrial zone and nearby uses that may be sensitive to noise and odour. A review of the noise and odour reports that informed the LES, prepared by Atkins Acoustics and Holmes Air Sciences, have been used by Council to affect this buffer. From discussions during workshops to inform the master plan's preparation, another objective of Bomen's zoning around its edges is to provide for a landscape buffer, especially on the Olympic Highway as a main entry corridor in to Wagga Wagga.

Landscape, noise and odour management for Bomen are examined later.

Comparison with existing zones
When compared to the existing 1 Rural and 2 Residential zones, the RU6 zone could be considered 'back-zoning', a term usually used to describe when a proposed zone is more restrictive than the existing zone; and could therefore be considered to negatively effect the land's utility and amenity; and hence its monetary value.

In the 1 Rural zone under the current Wagga Wagga Rural LEP 1991, only residential flats and shops are expressly prohibited. All other land use and development is permitted with consent except agriculture (not intensive agriculture, such as cattle feed lots) and forestry, which are permitted without approval. A minimum 200ha lot size for subdivision also applies, the same as for the RU6 zone.

Even so, the more restrictive land uses could be considered a 'back zoning' and land values may decrease as a result, especially on lots affected by more than one zone. Noting that there are several of these, especially along the Olympic Way, these parcels would appear constrained in their future development potential. The net effect is perhaps an unintentional sterilisation of these parcels, making their orderly development, especially access and infrastructure provision, extremely difficult. This zoning

pattern may even jeopardise provision of access or utilities to other parcels less constrained by proposed zoning.

The drafters of the LEP may consider this justified in the need to create a buffer between industrial zones and surrounding zones. The need for, and the effectiveness of, using the RU6 and IN2 zones as a noise and visual buffer are discussed below.

Cartwright's Hill is zoned 2 Residential by the 1991 LEP. While the range of permitted uses is more restrictive than the RU6 zone, it is the subdivision potential to create residential-sized lots that potentially makes the land quite valuable in comparison. With this area proposed to be rezoned RU6, with the 200ha minimum lot size and the limited range of permissible uses in this zone, this is unquestionably a "back zoning". The rationale for this is unclear in the LES, although the noise and odour reports make several mentions of the need to address residents' complaints. It appears the draft LEP attempts to do this by placing restrictions on development, only allowing a limited range of nonresidential development and eliminating in practical terms the current potential to subdivide the land.

Planning issues
It is noted that there is potential to erect a dwelling on each lot at Cartwrights Hill under the RU6 zone, under clause 4.2B, subclause 2 (c). Were such a development pattern to evolve in coming years, then the strategy of limiting incompatibility between industrial development in Bomen and existing (and future potential) residential development of Cartwrights Hill, may not be as effective as envisaged.

Another way to address these matters is to accept the issues affecting Cartwrights Hill, whilst taking on board comments from some land owners (as advised by Council officers) that they see Cartwrights Hill as an area that could service (and possibly has done so in the past) Bomen's industrial growth.

That the 2 Residential zone is considered unsatisfactory in the context of planned industrial growth must also be acknowledged. The perceived and real effect of development that services Bomen would likely lessen the net impacts of industrial externalities. Zoning the area for mixed use (say the RU5 Village or RU4 Small Holdings zone) and allowing a limited range of commercial development may be a more effective response than that of the draft LEP. Such an approach also recognises the need to provide a transition to more sensitive residential release planned for Barooma, west of the Olympic Highway.

Further, what is difficult to understand is that the RU6 zone permits uses such as dwelling houses and home based childcare which could be sensitive to the externalities of industrial development, although it does permit certain uses that may be considered by some as undesirable on a highway frontage, namely function centres, timber and building supplies, vehicle sale and hire premises, funeral chapels and veterinary hospitals. It also allows depots, although no other forms of storage facilities.

When these proposals are taken into consideration and regard had to master plan objectives, some of these activities could be said to compromise future industrial development, as they may be sensitive to noise in particular.

That said, source point control of most industrial and transport activities applied via the development assessment process could be more effective than a potentially compromised distance based buffer, without the possible impact of sterilising land from appropriate forms of development. Master planning here and elsewhere has shown that urban design (lot and road layout, building siting and design) in addition to design and engineering solutions for noise or odour abatement could eliminate the need for a buffer.

To achieve these outcomes specific controls should be included in Bomen's planning framework to minimise the effects of externalities from industrial and transport activities upon nearby populations.

Amendments to the draft LEP 2008
Whether the RU6 Transition zone will achieve the outcomes that appear intended by the draft WWLEP 2008 is somewhat doubtful; and it is not considered to fully support the intent and objectives of the master

plan. As suggested above there are other means to create effective visual and acoustic protection for rural and semirural activities surrounding Bomen; without unreasonably affecting the utility of the land and the potential economic gain it could otherwise offer, particularly where located adjacent the Olympic Highway. Council could consider the following amendments in a review of the LEP.

- Removing the RU6 Transition zone and replacing it with:
  - The IN 2 zone as generally shown in the master plan, in the Bomen industrial area
- Preparing a DCP that includes provisions for:
  - Mandating point source control of noise via design and engineering measures in all plant and equipment, including vehicles, noting that such measures can also be required by OH&S legislation
  - Requiring rail siding design to minimise noise using suitable noise reducing materials and construction techniques
  - Road and subdivision patterns; building siting and related building envelope controls that minimise the conduct of sound along streets to more sensitive areas near transport and industrial activities
  - Landscape and site layout guidelines that require effective visual screening to complement the architecture of buildings and other activities (such as motor vehicle display areas) on land adjacent arterial/main roads throughout Bomen and on its edges
  - Allowing subdivision to a minimum lot size of say 1,000m2 – 4,000m2 at Cartwrights Hill

RU4 Rural Small Holdings zone

Zone description
This proposed zoning largely reflects existing land use and subdivision patterns in the vicinity of Bavin Road, Byrnes Road and Hillary Street. The zone provides for further rural residential development in the locality.

Land uses and the minimum lot sizes permitted by the draft LEP will be unlikely to significantly affect the amenity of this area, although land values may increase as a result of subdivision capability being introduced by a minimum lot size reduction. The cost of providing infrastructure to the area would need to be cost-effective for subdivision to be viable.

Comparison with existing zones
The land is presently zoned 1 Rural by the Rural LEP 1991 and the minimum permissible lot size is 200ha. Land uses permitted by the proposed zone when compared to the current zone are more restrictive. This is considered necessary, due to the more intensive land use and subdivision patterns allowed by the proposed small holdings zone. The effect of more restrictive land use control is probably more than offset by the development capability offered by the proposed minimum lot size of 2ha.

Amendments to the draft LEP 2008
No amendment required; this zone should remain as proposed in the draft WWLEP 2008.

IN1 General Industrial zone

Zone description
This zone is applied to most of the Bomen study area, as shown in the zoning map (Figure 4.6).
No minimum lot size is prescribed and this would presumably be controlled by a DCP, one being required by Part 6 of the WWLEP 2008 before development consent could be granted by Council for subdivision of land for industrial development.

Uses permitted include all types of industry, convenience retailing and freight transport facilities.

While this land use regime is very flexible and provides for the types of development existing and recently attracted to Bomen, including certain intermodal and freight management proposals, when a finite

resource such as good quality (developable at relatively low cost) land with direct adjacency and hence access to the rail line is considered, the range of uses may indeed prove too flexible.

Comparison with existing zones
As with most other land in Bomen, the proposed zone is more restrictive than the current 1 Rural zone. In broad terms, and strategically, this is considered reasonable in the context of Council's general aim to set aside this land for transport and industrial development. It is also likely that a reduced number and range of permissible land uses will be offset by the extension of infrastructure to service logistics and industrial activities that the industrial zoning will instigate and encourage.

Planning issues
They key competitive advantage that Bomen has over its intermodal hub competitors is the amount of near level to gently undulating, serviceable land with frontage to the Sydney – Melbourne railway line. There may indeed prove to be more land available than defined by the current study area boundaries; more than foreseeable demand may require. However this is not considered sufficient reason to allow use of land with frontage to the railway for purposes that do not need this frontage, when there is equally suitable land elsewhere in the study area and the City of Wagga Wagga.

The infrastructure investigations during development of the master plan have revealed that the ideal parcel of land for rail access reliant transport activities and industries requiring access or proximity to the railway is around 450m to 750m deep, measured from the railway line and around 2,000m long measured parallel to the railway line. These areas are required for activities such as:

- Loading and unloading of freight and containers
- Storage and repair of containers
- Servicing of and repairs to locomotives and rolling stock
- Warehousing
- Heavy vehicle servicing and parking
- Allied and associated activities
- Transport and rail dependent industries

By way of illustration, the significance of this resource to the region, the State and possibly national economic fortunes is analogous to the scarcity of land on the shore of water bodies (harbours) of sufficient depth to accommodate international bulk cargo and container carrying vessels, that is serviced or serviceable with the required infrastructure. Such lands should be preserved exclusively for the unloading and loading of ships, or industries reliant on shipping, given the supply of such sites in NSW can be counted on one hand.

In short, there is currently no other area in NSW with all of Bomen's attributes and to the same proportions, some 24km2 of land. There are other sites in south-eastern Australia with some of Bomen's features; and not all of them, especially the sheer amount of land available. When considered in conjunction with Bomen's locational advantages it means land use controls should be adjusted to ensure that land in the corridor of the dimensions described should only be used for the purposes listed above.

During closing stages of consultation for this project, concern was raised by some stakeholders regarding the size of the rail access corridor, as described above, on grounds that it may unnecessarily 'tie up' too much land for these purposes. Calculation of the precincts' areas, as described in Section 6 and Appendix C, reveal that the corridor only accounts for some 16% (just over 400 ha) of the total Bomen area. There are still some 1,440 hectares (over 60%) in the industrial and light industrial precincts. These figures certainly indicate there will be no shortage of land for general or industrial development over the anticipated development period of 30 years.

Amendments to the draft LEP 2008
Bomen's planning framework should ensure that land fronting the railway, as shown in the master plan (Figure 6.1), is only used for rail transport and related purposes or industries that require access or proximity to the railway. In other words, due to their nature, these activities are ideally located on land

with direct access to, or within 450m to 750m of the railway. Development, infrastructure and other activities that do not need this proximity should be excluded from this area by zoning.

IN2 Light Industrial zone

Zone description
The RU6 and IN2 zones are combined by the draft LEP to implement a planned buffer between the IN1 zone and rural and rural residential development in the vicinity of the study area. In early stakeholder consultation, the principle of providing a transitional zone (in preference to a buffer, which usually exclude most if not all forms of development) was considered a sound alternative to managing the anticipated acoustic and landscape impacts of industrial development.

Comparison with existing zones
The commentary relating to the IN1 zone is also relevant to this zone.

Planning issues
Like the IN1 zone, there are no minimum lot sizes, and the only land use control difference between the two industrial zones is that the IN2 zone prohibits freight transport facilities, whereas they are permitted in the IN1 zone. Logic would therefore suggest that particularly noisy land uses should be excluded from this area as recommended by the noise report, which are in fact permissible in the areas zoned IN2 – possibly within 300 metres of rural and rural small holdings zoned land. This may undermine the intent of the "buffer" as intended by proposed application of the RU6 and IN2 zones. In any event such draconian restrictions on land use are considered economically pernicious and environmentally unnecessary, provided other means of noise control and landscape design are applied to maintain acoustic and landscape amenities.

These issues indicate a need to revisit the zoning and to address the road layout, subdivision and building siting and design in a DCP (or DCP-type provisions in another form of planning document), in addition to point source controls to ensure maintenance of reasonable ambient noise levels in the environment.

Amendments to the draft LEP 2008
This zone should be extended over land presently shown zoned RU6 by the draft LEP (except Cartwright's Hill), as indicated above.

SP2 Infrastructure zone

Zone description
The main intent of this zone is to provide for rail, road and other access corridors as well as other utilities such as waste water treatment facilities and water storage reservoirs. In Bomen's context the zone's proposed application is to the main railway and railway sidings, the Olympic Highway and a number of other facilities.

Comparison with existing zones
A comparison is not strictly relevant in the circumstances, as the draft WWLEP 2008 introduces a new strategic regime, implementing Council's intent to change the nature of land use in Bomen, from mainly agricultural, with a concentration of agricultural industries, to that of an area focused on industry, transport and related activities.

Planning issues
The zone works in the same way as the special uses zone under the existing LEP, permitting anything with or without consent, for purposes specified by notations on the zone map or as permissible by the LEP itself. The draft WWLEP2008 permits roads without consent; and with consent:

The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose.

This zone could be used to define the area to be only used for intermodal freight movement, associated activities and certain industries as discussed. It would ensure that this key locational advantage it used to best achieve Bomen's vision and objectives.

Amendments to the draft LEP 2008

The SP2 Infrastructure zone should be applied to the area shown on the master plan for the use of intermodal facilities and industries requiring access or proximity to the railway, with the Land Zoning Map marked 'Intermodal terminal and rail reliant industries'. To ensure this land is put to it's highest and best use a clause could be inserted into Part 7 Local Provisions of the LEP, that says only the following uses are permitted with (or without) consent in an area (designated on a map by hatching or additional colouring) at Bomen:

- Loading and unloading of freight and containers
- Storage and repair of containers
- Servicing of and repairs to locomotives and rolling stock
- Warehousing
- Heavy vehicle servicing and parking
- Allied and associated activities
- Industries that require or would benefit from frontage and access, or proximity, to the railway

RE1 Public Recreation zone

Zone description

This zone is proposed for land in public ownership (or to be placed in public ownership) that has known archaeological, Aboriginal heritage value and scenic qualities worthy of preservation.

Comparison with existing zones

There is no existing open space zoning in Bomen.

Planning issues

The zoning is generally supported.

Amendments to the draft LEP 2008

None required, except there could be some fine-tuning of the boundary of the zone with proposed areas of light industrial use as shown in the master plan.

Development standards and other LEP provisions

As with all LEPs prepared using the 2006 Standard Instrument, a range of clauses address development standards and other requirements, such as heritage, bush fire hazard, permitting other uses and so on. Those pertinent to Bomen are discussed below.

Exempt and complying development

Exempt development for industrial uses includes changes of use from one type of industry to another and one type of light industry to another; without planning approval.

No industrial development is complying development under the draft LEP. As discussed earlier, there is scope to allow certain types of industrial development to proceed as complying or exempt development. Should Council proceed with the site being declared state significant under Part 3A of the EPA Act certain types of development could made exempt or complying provided certain design standards and environmental performance criteria are complied with.

This was the principle supported in Newcastle's Steel River project, wherein Council would fast track development applications (to 'guarantee approval on 30 days or less, a mean figure of 17 days was in fact achieved) when the application demonstrated compliance with standards specifically formulated for the project. A similar concept was indeed envisaged by the WISDOM model.

Subdivision
Clause 4.2 sets out minimum lot sizes in a range of zones. In the RU6 and RU4 zones these minima are respectively 200ha and 2ha. Lots equal to or less than these minima are permitted, provided the subdivision is for primary production and there being no house on the lot or no dwelling being erected on the lot so created.

Height of buildings and floor space ratio controls
No standards for maximum building height or floor space ratio are set for Bomen.

Development near zone boundaries
A permissible use is allowed to extend from one zone into another, where the latter zone prohibits the proposed use, to a distance of up to 30m, under clause 5.3. This is advantageous in Greenfields or release areas such as Bomen, allowing a degree of flexibility at DA stage, should site conditions and planning constraints make strict compliance with zone boundaries impractical.

This provision could to a small extent limit the adverse impacts of multiple zones (on properties such as those fronting the Olympic Highway affected by up to three zones) as discussed earlier. Whether this is in the 'spirit' of the provision is debatable.

Miscellaneous permissible uses
Clause 5.4 sets out standards that limit certain types of development. Those relevant to Bomen include:

- Home businesses and industries are limited to 100m2 floor space. While this is considered reasonable in certain circumstances, there may be scope to increase this threshold in rural and rural residential or mixed use areas, where there should be an equal emphasis given to employment generating activities in balance with maintaining or creating reasonable residential amenity. However, the usual floor space limit in urban areas is around 30m2, so allowances appear to have been made for the rural/peri-urban nature of the study area. Perhaps a limit of up to 200m2 would be a more reasonable limit in the circumstances, to support appropriate home based enterprises in an area of transition between an Bomen and nearby residential areas, at Cartwrights Hill
- The larger of 10% of floor space or 400m2 of floor area, for sales of goods produced on industrial premises
- Kiosks are limited to a 20m2 area
- Shops are limited to 100m2,although it is noted from another large employment generating area in the Wyong Shire, that this has been increased to 280m2, in circumstances similar to Bomen
- Roadside stalls are to be no larger than 50m2

Infrastructure and Crown development
Under clause 5.12, use of Crown buildings and works is not restricted by the LEP and infrastructure is permitted without consent under SEPP Infrastructure 2007.

Urban release areas
The WWLEP 2008 (Part 6) identifies Bomen as an urban release area meaning that, amongst other things, a development control plan (DCP) must first be prepared before consent is granted to applications for a majority of industrial developments, as envisaged by the LES and indeed the master plan.
In this regard, a DCP prepared to enable development of an urban release area must address:

- Staging
- Transport hierarchy
- Landscape strategies to protect remnant vegetation and riparian areas

- Networks of active and passive open space, including visually prominent areas
- Stormwater and water quality management
- Amelioration of hazards, such as contamination, bush fire and flooding
- Urban design controls for significant sites
- Measures to accommodate local retailing and commercial uses
- Public facilities including traffic management and parking
- Restriction of "premature" subdivision, being development that may hinder orderly and economic development of the area

The master plan and a DCP for Bomen
Council anticipates this master plan being able to inform a DCP for Bomen. The master plan and this report provide material that is adaptable for use in a DCP.
As discussed in relation to Part 3A, these requirements could be removed from the LEP, as this master plan could be adopted as, or adapted to be a "master plan" or a "concept plan" for the purposes of the Act.

Biodiversity protection
A number of these areas are shown in Figure 4.3, which is effected by clause 7.3. This clause seeks to protect the biodiversity of remnant vegetation. When such native vegetation is identified by this map, the consent authority must consider a report that addresses potential impacts of proposed development on that vegetation.

Amendments to the draft LEP 2008
As an interim measure, Council could dispense with Part 6 of the LEP for Bomen and use the master plan as a guiding document, while Part 3 provisions are formulated; or a DCP is prepared. If say, there is inadequate provision for infrastructure or services, there is scope under Part 4 of the Act to condition an approval to ensure timely supply of services for a development, without having such an explicit requirement in the LEP.

Removing the provision requiring a DCP to be in place before approving development applications would have the effect of minimising delays to critical projects should determination of a development application be delayed due to a DCP not being produced in a timeframe to allow an application's determination.

7.5.3 Draft Wagga Wagga Local Environmental Plan 2008: short term amendments

This scenario concludes that it is worth considering short-term amendments to the draft Wagga Wagga LEP 2008, that could be accommodated due to being 'minor' in nature. As stated above, this is a contingency prepared assuming that the part 3A option may not be supported.

Making such amendments to an LEP relies upon the amendments Council wishes being consistent with or required as a result of matters raised in submissions during the plan's exhibition period. Otherwise, re-exhibition of the plan may be necessary, as the changes have not had any public scrutiny; this may also be the conclusion when the change is considered more than 'minor' even when a matter is raised by the public.

For these reasons, the shorter term amendments suggested below do not involve changes to zones or other provisions of the LEP. Only additions and amendments to permissible and prohibited uses of the proposed and exhibited zones are suggested. These amendments are considered consistent with the zone objectives; and go some way to realising Bomen's vision and objectives. However due to the need to meet the public participation provisions of the EP&A Act, a number of the amendments suggested in

Section 7.5.2 above could require further public viewing and comment.

Each zone in the LEP has the following headings and the suggested alterations are made under them:

- Objectives of zone – no changes suggested
- Permitted without consent
- Permitted with consent
- Prohibited

Where a land use has been added to one of these headings that already appear under another heading for that zone, inclusion under the 'Add' heading means it is also removed from the heading it is already listed under.

RU4 Rural Small Holdings zone

No changes are considered necessary to this zone.

RU6 Transition zone

To summarise, the objectives of this zone are twofold:
- Provide a transition between rural land and other land of differing use intensity
- Minimise conflict between rural and other (urban) uses

It is the second of these objectives most relevant to Bomen. As discussed, the zone is applied in an attempt to 'buffer' rural areas surrounding the industrial zones from the impacts of industrial activities, principally noise, odour and visual effects.

Whether or not these objectives are achieved is debatable and there are other means of more effectively achieving the outcomes sought, without sterilising the land proposed to be zoned RU6, from its potential industrial use.

With urban design and point source control of noise and odour, the outcomes in terms of visual impacts, and perceived unwanted noise and odour affecting surrounding residents of rural lands, other zones can be used, as recommended.

Should changes to land use permissibility provisions be made, to achieve these outcomes and still meet the zone's objectives, the following amendments are suggested:

Objectives of zone
No changes

Permitted without consent
Add:
Home occupation
Home business
Sewerage systems

Permitted with consent
Add
Intensive plant agriculture
Farm buildings
Motel accommodation
Farm stay accommodation
Movable dwelling
Home based childcare Vehicle sales or hire premises
Landscape and garden supplies
Timber and building supplies
Rural supplies
Service stations

Veterinary hospitals
Self storage units
Vehicle repair stations
Vehicle body repair workshops
Highway service centres

Prohibited
No changes, except where uses are listed above.

IN1 General Industrial zone

Objectives of zone
No changes

Permitted without consent
Sewerage systems
Waste or resource management facilities
Water supply systems
Environmental protection works

Permitted with consent
Remove:
All uses listed

Leave in:
Any other development not specified in item 2 or 4

Prohibited
No change, except where uses are listed above

IN2 Light Industrial zone

Objectives of zone
No changes

Permitted without consent
Sewerage systems
Water supply systems
Environmental protection works

Permitted with consent
Add:
Educational establishments
Places of public worship
Function centres
Waste or resource management facilities

Prohibited
No change, except where uses are listed above

SP2 Infrastructure zone

No changes are considered necessary to this zone.

RE1 Public Recreation zone

No changes are considered necessary to this zone.

Implications of this approach
When considering the best means of achieving the vision and objectives for Bomen, the most significant implications of this approach are considered to be:

- Some of the amendments suggested above may be inappropriate in other parts of the City of Wagga Wagga where these zones are proposed, however this can be overcome as described below.
- The amendments do not address two fundamental issues associated with the zones proposed for Bomen:
  - Even though the changes suggested 'free up' the RU6 zone considerably, without generally compromising the zone's objectives, it does not completely address the sterilisation issue
  - The amendments do not go far enough in protecting land with high quality access and adjacency to the rail corridor, a special use zoning such as the SP 2 zone would achieve this; with appropriate notations on the zone map and amendments to the zone boundaries. This should be considered, although such an amendment may be deemed more than 'minor', thus warranting re-exhibition
- Under this scenario, there is still scope to approve industries near the railway that could be equally and effectively located outside the rail corridor adjacent land

To implement the changes to zone provisions without affecting the application of those zones in other parts of the City, it is possible to apply those changes to the zones only in Bomen. This is achieved by defining the Bomen area where the zones are to apply and including additional uses as only applicable to land as defined by such a map; via a reference to this map and the additional permissible uses being listed in Schedule 1 – Additional permitted uses, of the LEP.

7.6 Part 5 – Environmental Planning and Assessment Act, 1979

Generally, this part of the act is used to assess the environmental impact of activities undertaken for or by public agencies. It can also apply when there is no approval, or development consent required by other parts of the EPA Act. An example is where land is unzoned by an LEP and development consent is therefore not required.

For the purpose of this comparison, it is assumed that land at Bomen most critical to its future, namely the land generally between 450m and 750m west and east of the railway as identified in Figure 6.1, could be zoned special use, or left unzoned, also assuming the land is subject to other approval regimes, such as those issued by the Australian Rail Track Corporation (ARTC) for access to the main rail. The remainder of the industrial area would be zoned and approvals considered under Part 4 of the EPA Act.

The special use zone, or leaving the land unzoned, would mean that the determining authority, in this case the ARTC, would need to decide if any works proposed were of significant environmental impact. If not, the approval could be granted to undertake works relating to rail and transport operations, also assuming ancillary activities could also be approved under their legislation. If a proposal was considered likely to have significant environmental impacts, an environmental impact statement (EIS) would be prepared to help make the decision whether to grant approval.

While one layer of approvals could be substituted for another, uncertainty would likely remain, mainly to do with the question of requirements for an EIS being prepared. Uncertainty could be reduced somewhat, by conducting a study in a similar fashion to a Part 3A study, to determine what thresholds of impact, or

types of proposals would warrant preparation of an EIS before a decision to approve was made. Other approvals by agencies (DECC for example) would still be required, it is assumed.

Should such a study be prepared, then a relatively (to Part 4) more straightforward approval regime could be established. The ARTC would become the land use authority as well as the approver of access to the rail line and Council would not play a part as a decision maker, in much the same way as if the Minister was the consent authority.

Part 5 is not the preferred model, due to Council only being partly in control of the development assessment process for the area, and it may prove difficult to improve predictability of the planning process and the certainty of outcomes.

7.7 The "do-nothing" option – leaving the 1985 and 1991 LEPs in place

In Bomen's case this scenario involves maintaining existing zones, under the Wagga Wagga LEPs, in force since 1985 and 1991. Together these plans zone land in Bomen 1a Rural, and the 50 ha (approx.) area used mainly for industrial purposes off Bomen Road is zoned 4 Industrial.

The Cartwright's Hill area is zoned 2 Residential and the rural small holdings on Bavin and Byrnes Roads and Hillary Streets are zoned 1 Rural. Some larger parcels west of the railway are zoned 5 Special Use, although the purpose of the zone is not shown on the map.

Implications of this approach

Some of the main implications of the "do nothing" scenario are considered to be:

- A clear direction for Bomen as a strategically important logistics and industrial hub would not be reinforced by zoning and related land use planning
- Many industrial and transport related developments would however still be permissible
- Infrastructure delivery would likely remain unplanned and uncertain
- Approvals of various industries, that could equally and successfully be sited elsewhere in Bomen, on land with prime frontage and access to the railway may fritter away Bomen's most valuable assets
- The level of inward investment Council seeks may not eventuate
- Incompatibility of future uses and an aggregate increase in industrial activities may increase complaints regarding industrial development
- Development at Cartwright's Hill according to its current residential zoning may increase complaint-potential as well
- Perceptions of neighbour relations-related problems may compromise further investment potential and ultimately Bomen's viability as a logistics and industry hub
- No clear direction would be set to plan for and achieve greater ecological sustainability
- The ability to compete for and attract government investment would likely be compromised

The only clear positive outcome from maintaining the status quo of Bomen's planning controls is the broad range of uses allowed under the current zone. This is outweighed considerably by the benefits of developing a master plan and implementing its recommendations via the planning framework and other mechanisms.

8. Recommendations

8.1 Leadership and governance

8.1.A

A leadership and governance body supported by appropriate administration be established, charged with delivering the vision and objectives for Bomen.

The significance of the site is almost universally accepted and something must be done to get things moving. No entity or individual can do it by themself, as no single agency or body has the authority to plan and execute infrastructure delivery, and industrial ecology strategy and a climate change adaptation plan, as recommended. Further, it is important for land development, marketing, promotion and so on, to remain separate from regulatory and assessment roles that some stakeholders also have. A strategic and well orchestrated approach at political, administrative, land owner/investor and community levels is considered essential.

The number of government agencies and approvals required for planning approvals and infrastructure provision is noted. Also there were statements made during workshops that owners and government could work together to achieve agreed outcomes for the area. There appears to be general support for a more collaborative approach to planning and delivery, which needs to be harnessed quickly. Major stakeholders, with Council taking the lead, should unite to form a 'governance partnership' to make Bomen's vision a reality. Without a truly collaborative and cooperative approach, Bomen stands a good chance of not realising its potential. The 'tyranny of the small decision' should not allow great potential to be squandered, or frittered away.

8.1.B

Establish improved collaborative frameworks with education establishments (TAFE and CSU) to ensure the skills of the workforce match the skills required by industries in the future.

There were many comments about the need to improve and align workforce skills with industry needs.

8.2 Sustainability

8.2.A

A strategy to facilitate climate change adaptation be developed for the site; with the main aim being to identify the key climate change impacts on the area, assessing the risk of these impacts on the community, and prioritising a suite of effective and efficient adaptation strategic actions to manage climate change vulnerability and uncertainty.

Projected climate change impacts will affect a large number of communities throughout Australia, as such local government policy makers need to show leadership on these issues and consider climate change when making plans for the future. A strategy is needed, taking a risk based approach to climate change adaptation, to enable the site and its community to be resilient enough to meet the challenges posed by the extreme events forecast.

8.2.B

A strategy to facilitate industrial ecology be developed for the site; with the main aim being to create a 'closed cycle' of energy, water and materials use, which minimises or eliminates emissions to the environment and the consumption of energy, water and materials.

There appears to be broad based support for concepts that underpin industrial ecology. Again, its achievement hinges on coordination and collaboration of service providers and development planning and implementation. A strategy is needed to address means of resource and energy sharing, water cycle management, resource recovery, recycling and materials transfer between industries and co-location of industries whereby the cost of providing same is minimised. Such a scheme must be financially and economically (as well as environmentally and socially) sound to be viable.

8.2.C
A sustainability indicator framework be developed to assess the progress towards fulfilling the sustainability objectives for the area.

Project specific sustainability indicators against which the sustainable performance of the site can be measured would complement a sustainability assessment of the master plan that has already been undertaken. This simple, transparent and accountable process could be managed by a sustainability and eco-industrial park advisory group and ensures the delivery of ongoing sustainable outcomes for the estate in line with established sustainability objectives.

8.3 Urban design

8.3.A
The master plan and the character precinct descriptions are readily adapted for inclusion into appropriate planning controls and guidelines. This is recommended, following review of the stakeholder feedback; and by Council for consistency in approach.

8.3.B
To support the priority recommendations, the instrument required to complement Bomen's declaration as a state significant site by the Major Projects SEPP, will need to include such development standards and be complemented by guidelines for preparation and assessment of project proposals.

8.3.C
Bomen be designed and constructed as a family friendly place, providing family support and health services, supporting retail and other services, including walking and cycling paths and public spaces.

The master plan is designed to enable development of a people friendly environment.

8.4 Land use planning

8.4.A
Planning controls must be flexible, to be 'future proof', while providing for improved predictability of process and greater certainty of outcomes.

- Council write to and then meet with the Minister for Planning and State and Commonwealth Members of Parliament to commence the process of declaring Bomen a project of state significance under State Environmental Planning Policy (Major Projects) 2005

- Council review the draft Wagga Wagga Local Environmental Plan 2008 concurrently with preparation of documentation to have Bomen declared a site of state significance
- A brief be prepared for the planning study required by clause 8 of SEPP (Major Projects) 2005, in consultation with the Department of Planning

As recommended by the planning framework analysis (Section 7), steps should be taken immediately to instigate the process for the Minister for Planning to declare Bomen as a Site of State Significance; as enabled by State Environmental Planning Policy (Major Projects) 2005.

8.4.B

Statutory planning for Bomen must recognise the strategic significance and rarity of the amount of readily developable land with frontage to both sides of the busiest rail freight line (destined for significant growth in freight movement) in Australia and protect the most important advantage Bomen has over its regional competitors.

The scarcity and hence the value of land with these amenities must be recognised and protected with an effective planning framework.

8.4.C

The amenity of adjoining land use and activities must be preserved to a reasonable standard.

This has been a key objective of developing the master plan. Its design of future character precincts (preferred land use pattern) seeks to minimise the impacts of development while maintaining an environment in which investment levels can be increased without creating undue environmental externalities.

That more refined planning and analysis of the best means to manage potential impacts at more appropriate stages of the planning process should be scoped and developed further. This is because the long-term and strategic nature of the master plan is not well-equipped to address issues that require greater resourcing and more detailed study to be carried out. To attempt to do so would risk making assumptions that, upon testing via rigorous scientific process, may prove to be wrong.

In other words, the master plan has been developed to set the planning direction for development and management of the areas, whereby recognising and flagging issues that may require further testing and evaluation at later planning stages.

8.4.D

Business support development be facilitated in areas provided for these purposes by the master plan.

The master plan sets aside two areas as 'hubs', for business support and meeting places for community use and the well-being of businesses, their workers and their families. Future planning should facilitate a mix of activities and a high quality public domain at these locations.

8.5 Transport

8.5.A

Continue to pursue funding and government support for arterial roads connecting from the Sturt highway to the northern point of Bomen Business Park and from the Olympic highway to the

eastern side of the Sydney/Melbourne railway line, including a bridge over the railway line, as shown in the master plan.

This is probably the most critical infrastructure work needed to facilitate future development and the highest priority should be given to continuing pursuit of funding of these works.

8.5.B
Negotiations commence with relevant agencies, for a plan to ensure access by B-triples to Bomen from regions serviced by this type of vehicle.

That there are limitations to the passage of larger trucks on the road network across the State and in the region particularly is acknowledged. Planning at a state level is required to address B-triple access.

8.5.C
Rehabilitation of the Eunony Bridge and its approach roads from north and south and Oura Road to B-triple standard be pursued.

More direct and higher standard access to the Sturt Highway and the airport, also providing a heavy vehicle alternative to the Olympic Highway, would greatly assist Bomen's development.

8.5.D
A total of two additional access points to Bomen from the Olympic Highway be planned and constructed.

The master plan observes RTA requirements to ensure safety and amenity of the state road network, while optimising access for future development.

8.5.E
The main accesses to Bomen from the Olympic Highway are to be designed and landscaped to make an entry statement.

The developers with Council will need to ensure that approved designs for the entries are welcoming, attractive and appealing.

8.5.F
An additional siding on each side of the main railway is allowed for by the master plan. Any new siding will need to be approved by and constructed in accordance with the ARTC's design standards.

The master plan has allowed for the provision of rail access on both sides of the main line.

8.5.G
Rail access is central to the development of Bomen. Therefore the rail access corridor should be generally between 450m and 750m wide to allow not only rail access but the associated storage, shipping and other related activities; and industries that require direct access or proximity to the railway.

The intermodal zone has been sized for the inclusion of all associated rail works and industries.

8.5.H
Any new siding would be owned and maintained by the developer or their nominated subsidiary, with only the turn out points being maintained by ARTC. The siding owner would be required to enter into a connection agreement with ARTC and also a safety interface agreement (SIA).

8.5.I
Improve access to and from the sale yards.

It is the collective opinion of some that access could be made more direct for traffic to the sale yards from the north.

8.5.L
That a traffic study be prepared to address the medium and long term traffic impacts for the Bomen Business Park taking in to consideration incremental growth from development, employment generation and/or freight entering and leaving the site via road.

Olympic Highway link will be provided to provide the main east west access through the site and have a 28m wide reserve. A new intersection at the Olympic Highway would need to be constructed to RTA standards. As with Byrnes Road it is expected that the new link road to the west of the rail line will act as a feature entrance to the site and incorporate some tree planting or drainage swale within the road reserve.

8.5.M
A new rail bridge will provide road access between east and west Bomen.

8.5.P
Dampier Street level crossing is to be closed when the new link is opened, from the Olympic Highway providing access to east of the rail line.

8.6 Infrastructure

8.6.A
Integrated water cycle management is needed and a plan should be developed to maximise water retention, use and reuse on the estate. Systematic planning of private and public water management infrastructure would be facilitated by this plan.

There is broad support for coordinated water management for the estate, which will require co-ordination and careful planning by relevant agencies, property owners and developers.

8.6.B
Existing trunk infrastructure (transmission and high voltage electrical mains, high pressure gas pipeline) is to remain in its existing location.

The relevant service providers have indicated that the preference is for the trunk supply mains to remain in their current locations. Lead in works and cost makes it an unviable alternative to relocate these services.

8.6.C

All services to serve future developments are to follow standard design principles wherever possible. New services are encouraged follow the proposed road network wherever possible, while sewage and stormwater services would drain to low points. Existing services should not be closed or removed before alternative services are provided to development.

This recommendation will need to be addressed in detail when developers submit their proposals.

8.6.D

Three new sewer pumping stations will need to be constructed to service Bomen.

This recommendation is consistent with the earlier report by Michael Cuthbert, Consulting Engineer.

8.6.E

Developers are to discuss their water usage requirements with Riverina Water County Council at the earliest possible stages of project planning.

Supply to high water demand industries in the short term cannot be achieved due to existing pressures on maintaining water supply to existing area. It is envisaged that the rail-associated industries (light water users) will drive development in the area.

8.6.F

Developers are to notify Telstra of their requirements at the earliest possible stages of project planning to ensure the timely provision of telecommunication services to their development.

Telstra have indicated that the provision of telephone and ADSL services would be available to all new developments at Bomen. Under the current 'Universal Service Obligation' Telstra must provide telephone services to all new developments. While under the current Telstra Policy all new developments, industrial or residential will have access to ADSL.

8.6.G

There are restrictions associated with working in or near a high voltage easement. Country Energy's policy reads "Activities are still permitted within the easement area provided that they do not interfere with the maintenance, replacement, repair or safe operation of the line."

The type of activities which will be allowed are assessed on a case by case basis and dependent on the activity, its cause and effect on safety, access, operation and maintenance required for the line and other legal requirements.

8.7 Phasing

8.7.A

Based on a logical progression of development and extension to existing infrastructure, further development should commence in central Bomen, as an extension of the existing industrial area. A utilities plan should also be prepared to service projected or planned large-scale industries on land to the east of the railway.

It is recognised that some landowners on the extremities of the development area will want to exercise the development rights available to them under the land use zoning controls outside this development sequence. It is usually uneconomical to provide infrastructure to areas that 'leap-frog' the development front and Wagga Wagga City Council will need to ensure that developers will be responsible for any additional infrastructure costs.

It is also important the main link roads through Bomen are constructed early, by doing so will allow for much improved access that should attract further investment. Building the main road links will 'open up' the entire study area and enable its servicing.

8.8 Promotion and marketing

8.8.A The master plan be used by agencies of the private and public sectors to promote and market Bomen based on its regional, state and national potential and significance. An inward investment and marketing strategy be prepared accordingly.

While the master plan and other regionally focused economic development strategies promote Bomen, a specific, expert prepared inward investment and marketing plan is required. Wagga and Bomen can be promoted as a leader in sustainable industrial development. While the vision suggests an alternative title, this is another topic a marketing and promotions expert could lend their talents to.

8.9 Implementation plan

Set out below in the table are the recommendations and agencies responsible for initiating, implementing or taking action on particular recommendations, prioritised within nominated timeframes.

The priority ascribed to each recommendation has the following meaning:

- Very high: 1 month (i.e. action is to be taken to initiate the recommendation, within one month of the master plan's and report's adoption by Council)
- High: 2-3 months
- Medium: 4-6 months
- Low: 7-12 months

Note: actions should take place in these periods

Table 8.1 Bomen implementation plan		
Recommendation	**Lead agency or group**	**Priority**
Leadership and governance		
8.1.A A leadership and governance body supported by appropriate administration be established, charged with delivering the vision and objectives for Bomen.	Council and Department of State and Regional Development	Very high
8.1.B Establish improved collaborative frameworks with education establishments (TAFE and CSU) to ensure the skills of the workforce match the skills required by industries in the future.	Council, Charles Sturt University and Riverina TAFE	Very high
Sustainability		
8.2.A A strategy to facilitate climate change adaptation be developed for the site; with the main aim being to identify the key climate change impacts on the area, assessing the risk of these impacts on the community, and prioritising a suite of effective and efficient adaptation strategic actions to manage climate change vulnerability and uncertainty.	Council, the Department of Environment and Climate Change and land owners	High
8.2.B A strategy to facilitate industrial ecology be developed for the site; with the main aim being to create a 'closed cycle' of energy, water and materials use, which minimises or eliminates emissions to the environment and the consumption of energy, water and materials.	Council, the Department of Environment and Climate Change and land owners	Very high
8.2.C A sustainability indicator framework be developed to assess the progress towards fulfilling the sustainability objectives for the area.	Council, the Department of Environment and Climate Change and land owners	Low
Urban design		
8.3.A The master plan and the character precinct descriptions are readily adapted for inclusion into appropriate planning controls and guidelines. This is recommended, following review of stakeholder feedback; and by Council for consistency in approach.	Council	High
8.3.B To support the priority recommendations, the instrument required to complement Bomen's declaration as a state significant site by the Major Projects SEPP, will need to include such development standards and be complemented by guidelines for preparation and assessment of project proposals.	Council	High
8.3.C Bomen be designed and constructed as a family-friendly place, providing family support and health services, supporting retail and other services, including walking and cycling paths and public spaces.	Council and land owners	Medium
Land use planning		
8.4.A Planning controls must be flexible, to be 'future-proof', while providing for improved predictability of process and greater certainty of outcomes. • Council write to and then meet with the Minister for Planning and State and Commonwealth Members of Parliament to commence the process of declaring Bomen a project of state significance under State Environmental Planning Policy (Major Projects) 2005 • Council review the draft Wagga Wagga Local Environmental Plan 2008 concurrently with preparation of documentation to have Bomen declared a site of state significance • A brief be prepared for the planning study required by clause 8 of SEPP (Major Projects) 2005, in consultation with the Department of Planning	Council and the Department of Planning	Very high
8.4.B Statutory planning for Bomen must recognise the strategic significance and rarity of	Council	Very high

the amount of readily-developable land with frontage to both sides of the busiest rail-freight line (destined for significant growth in freight movement) in Australia and protect the most important advantage Bomen has over its regional competitors.		
8.4.C The amenity of adjoining land use and activities must be preserved to a reasonable standard.	Council	Very high
8.4.D Business support development (convenience retailing and the like) be facilitated in the two precincts allocated for this purpose by the master plan (Figure 6.2).	Council	High
Transport		
8.5.A Continue to pursue funding and government support for arterial roads connecting from the Sturt highway to the northern point of Bomen Business Park and from the Olympic highway to the eastern side of the Sydney/Melbourne railway line, including a bridge over the railway line, as shown in the master plan.	Council	Very high
8.5.B Negotiations commence with relevant agencies, for a plan to ensure access by B-triples to Bomen from regions serviced by this type of vehicle.	Council and the Roads and Traffic Authority	Very high
8.5.C Rehabilitation of the Eunony Bridge and its approach roads from north and south and Oura Road to B-triple standard by pursued.	Council	Medium
8.5.D A total of two additional access points to Bomen from the Olympic Highway.	Council	High
8.5.E The main accesses to Bomen from the Olympic Highway are to be designed and landscaped to make an entry statement.	Council	Medium
8.5.F An additional siding on each side of the main railway is allowed for by the master plan. Any new siding will need to be approved by and constructed in accordance with the ARTC's design standards.	Council and the Australian Rail Track Corporation	High
8.5.G Rail access is central to the development of Bomen. Therefore the rail access corridor should be generally between 450m and 750m wide to allow not only rail access by the associated storage, shipping and other related activities; and industries that require direct access or proximity to the railway.	Council and the Department of State and Regional Development	High
8.5.H Any new siding would be owned and maintained by the developer or their nominated subsidiary, with only the turn out pints being maintained by ARTC. The siding owner would be required to enter into a connection agreement with ARTC and also a safety interface agreement (SIA).	Council and the Australia Rail Track Corporation	Medium
8.5.I Improve access to and from the sale yards (Livestock Management Centre).	Council and land owners to the north of the saleyards	Very high
8.5.L Olympic Highway link will be provided to provide the main east-west access through the site and have a 28m wide reserve. A new intersection at the Olympic Highway would need to be constructed to RTA standards. As with Byrnes Road it is expected that the new link road to the west of the rail line will act as a feature entrance to the site and incorporate some tree planting or drainage swale within the road reserve. This will make an entry statement to the precinct from the Olympic Highway.	Council	Medium
8.5.M A new rail bridge will provide road access between east and west Bomen.	Council	Medium
8.5.P Dampier Street level crossing is to be closed when the new link is opened, from the Olympic Highway providing access to east of the rail line.	Council	Low
Infrastructure		
8.6.A Integrated water cycle management is needed and a plan should be developed to	Council	Medium

maximize water retention, use and reuse on the estate. Systematic planning of private and public water management infrastructure would be facilitated by this plan.		
8.6.B Existing trunk infrastructure (transmission and high voltage electrical mains, high pressure gas pipeline) is to remain in its existing location.	Utility agencies	Low
8.6.C All services to future developments are to follow standard design principles wherever possible. New services are encouraged follow the proposed road network wherever possible, while sewage and stormwater services would drain to low points. Existing services should not be closed or removed before alternative services are provided to development.	Council and utility agencies	High
8.6.D Three new sewer pumping stations will need to be constructed to service Bomen.	Council	Low
8.6.E Developers are to discuss their water usage requirements with Riverina Water County Council at the earliest possible stages of project planning.	Land owners	High
8.6.F Developers are to notify Telstra of their requirements at the earliest possible stages of project planning to ensure the timely provision of telecommunication services to their development.	Land owners	High
8.6.G There are restrictions associated with working in or near a high voltage easement. Country Energy's policy reads "Activities are still permitted within the easement area provided that they do not interfere with the maintenance, replacement, repair or safe operation of the line".	Land owners	High
Phasing		
8.7.A Based on a logical progression of development and extension to existing infrastructure, further development should commence in central Bomen, as an extension of the existing industrial area. A utilities plan should also be prepared to service projected or planned large-scale industries on land to the east of the railway.	Council, Utility agencies and land owners	Medium
Promotion and marketing		
8.8.A The master plan be used by agencies of the private and public sectors to promote and market Bomen based on its regional, state and national potential and significance. An inward investment and marketing strategy be prepared accordingly.	Council, the Department of State and Regional Development and land owners	Very high

References

Atkins Acoustics (2008) Noise Planning Assessment Industrial Land Study Bomen, Wagga Wagga

Australian Greenhouse Office (2006) Climate Change Impacts and Risk Management – A Guide for Business and Government, Department of the Environment and Heritage

Australian Rail Track Corporation Ltd (undated) Code of Practice for Environmental Impact Assessment of Development Proposals in New South Wales

Centre for Public Agency Sustainability Reporting (2007) Australian & New Zealand Alliance 2007 Resource Materials – Guide 7 Designing Good Indicators Centre for Public Agency Sustainability Reporting, Melbourne

Chiu, Anthony S.F and Yong, Geng b (2004) 'On the Industrial Ecology Potential in Asian Developing Countries' Journal of Cleaner Production 12 1037-1045

City of Kitakyushu (2001) Kitakyushu Eco-Town Project

City of Wagga Wagga (2008) Community Social Plan 2009¬2013 – Volume 1: Executive Summary and Social Issues Paper

City of Wagga Wagga (2008) Community Strategic Plan Our City…Our Tomorrow 2008/2018

City of Wagga Wagga (2004) Economic Development Incentives Policy (POL 065)

City of Wagga Wagga (2009) Fact Sheet – Exhibition of Wagga Wagga's Draft Local Environmental Plan 2008

City of Wagga Wagga (2007) GROW_ Wagga Wagga - A blueprint for continued economic growth of the city 2008 through to 2018

City of Wagga Wagga (2005) Sustainability and Our Local Government Area

City of Wagga Wagga (2008) Urban Salinity Management Plan 2008 – 2013

City of Wagga Wagga (2006) Vision 21 Land Use Strategy Framework for Developing a New City Development Plan and Local Environmental Plan

City of Wagga Wagga (2006) Wagga Wagga Development Control Plan

City of Wagga Wagga (1985) Wagga Wagga Local Environmental Plan 1985

City of Wagga Wagga (1991) Wagga Wagga Rural Local Environmental Plan 1991

City of Wagga Wagga (2008) Wagga Wagga Spatial Plan 2008

City of Wagga Wagga (2006) Wagga Wagga Urban Salinity Status Report July 2006 – June 2007

City of Wagga Wagga and NSW State and Regional Development (1995) Wisdom Study Model: Wagga Wagga Industrial Sustainable Development Opportunities Model

City of Wagga Wagga – The Odour Unit (2002) Odour Study Bomen Industrial Area

CSIRO and the Australian Bureau of Meteorology (2007) Climate Change in Australia: Technical Report 2007

CSIRO (2006) Climate Change Scenarios for Initial Assessment of Risk in Accordance with Risk Management Guidance for the Department of the Environment and Heritage, Australian Greenhouse Office

Department of Planning NSW (2007) Fact Sheet 3 Steps in the Major Project Assessment Process -Major projects assessment system

Department of Planning NSW (2007) Fact Sheet 4 State Significant Sites - Major projects assessment system

Department of Planning NSW (2005) Guideline for State Significant Sites under the Major Project SEPP

Eco logical Australia (2008) Wagga Wagga Planning Study Environmental/Biodiversity Report for Bomen

GHD (2008) Report for Wagga Planning Studies Traffic Management - Bomen

Gibson, Robert B (2001) 'Specification of Sustainability-Based Environmental Assessment Decision Criteria and Implications for Determining "Significance" in Environmental for the Research and Development Monograph Series, 2000 Canadian Environmental Assessment Agency www.ceaa.gc.ca/015/001/009/index_e.htm

Global Reporting Initiative (GRI) (2006) Sustainability Reporting Guidelines Version 3, available at www.globalreporting.org/ReportingFramework/G3Online/

Goldsmith, Suzy and Samson, Danny (2005) 'Sustainable Development and Business Success - Reaching Beyond the Rhetoric to Superior Performance' Foundation for Sustainable Economic Development, University of Melbourne - A Report of the Australian Business Foundation and the Foundation for Sustainable Economic Development at the University of Melbourne

Hill PDA (2006) Wagga Wagga Industrial Land Study

Holmes Air Sciences (2008) Odour Modeling and Impact Assessment: Bomen Industrial Estate, Wagga Wagga

Indigo Development (2005) Industrial Ecology webpage available at www.indigodev.com/IE.html

Jacobs, Michael (1999) ‘Sustainable Development as a Contested Concept in Andrew Dobson, Fairness and Futurity - Essays on Environmental Sustainability and Social Justice Oxford University Press ed, 328, 21-45

Kelleher Nightingale Consulting Pty Ltd (2008) Wagga Wagga Local Environmental Study Aboriginal Cultural Heritage Assessment

Leyshon Consulting (2007) Advisory Report Retail and Commercial Development Strategy City of Wagga Wagga

Lowe, Ernest A (2001) Eco-industrial Park Handbook for Asian Developing Countries. A Report to Asian Development Bank, Environment Department, Indigo Development, Oakland, CA at http://indigodev.com/Handbook.html

Murrumbidgee Catchment Management Authority (2008) Murrumbidgee Catchment Action Plan

NSW Government (2006) State Plan - A New Direction for NSW

Newcastle City Council (2007) Steel River Project Strategic Impact Assessment Study
Pope, Jenny and Grace, William (2006) ‘Sustainability Assessment in Context: Issues of Process,

Policy and Governance' 8(3) Environmental Assessment Policy and Management 373

Riverina Regional Development Board (2004) Strategic Plan 2004 - 2010

Roberts, Brain. H (2004) 'The Application of Industrial Ecology Principles and Planning Guidelines for the Development or Eco-Industrial Parks: An Australian Case Study' Journal of Cleaner Production 12 997-1010

Stratcorp Consulting (2005) Recreation and Open Space Strategy (2005 – 2015)

Sustainable Futures Australia, Local Government Managers Australia (NSW) and Department of Environment and Conservation (NSW) (2006) Sustainability Health Check

United Nations (2005) World Summit Outcome Document webpage available at www.un.org/summit2005/documents.html

Willana Associates (2008) Wagga Wagga City Council Local Environmental Study

World Commission on Environment and Development (1987) Our Common Future at www.un-documents.net/wced-ocf.htm

WWF (2008) Climate Witness: The stories of climate change here and now, accessed at http://www.panda.org

Appendix A

STEP and SWOT Analyses

Stakeholder Workshop 17 December 2008

Bomen master plan **Wagga Wagga City Council**
SWOT & STEP Analysis Summary from Stakeholder Workshop held on 17 December 2008 at Wagga Wagga City Council

SWOT SUMMARY

General Conditions	Infrastructure	Phasing	ESD
STRENGTHS			
Greenfield site – best practice	Transport access	Current industries – starting point	Links to agriculture
Minimal land use conflict	Electricity / gas utility available – gas upgrade medium long term		Weather conditions suitable for development
Two major landowners	New upgraded sewer works		
Agricultural parts for servicing	Significant rail spur potential & choice		
Location (Sydney / Melbourne / Canberra)	Buffers		
General support locally	Busiest freight corridor		
Topography	Currently only 11% on rail		
Availability of land	One developer is a rail operator		
WEAKNESSES			
Current access to sale yards (short term)	Two storm water catchments – east catchment is fairly pristine	Staging of development – servicing	
Some restrictions on certain development precincts	Close rail crossing (grade) – only one road / rail intersection	Staging of infrastructure	
Many authorities & departments involved	Power / gas / water (utilities)		
How to quantify what a developer needs in terms of infrastructure	Availability of infrastructure funding		
	Public transport		
	Bottleneck Dampier & Bonus Rd		
	Industrial precinct on eastern side has no rail		
	B Triple access		
	Eunony Bridge		
	Kapooka Bridge		
	Telecommunications		
OPPORTUNITIES			
Remove sale yards to join existing with new	Increased rail use – currently only 11%	Phasing of development allow to expand in future	Best practice world class development – energy, water recycling, amenity
New job / industry creation	Gateway to Wagga needs best practice amenity		Integrated water management
	Infrastructure connections		Renewable / integrated energy water usage
	Provide multiple rail overpasses		Reduce carbon footprint

	Transport fatigue, can drive between Wagga & Sydney in one trip, can't from Albury		
	Secondary transport system to bring freight to Wagga		
	Want industry to utilise rail infrastructure		
	Need for truck parking facility		
	Upgrade of Hume Hwy & other road infrastructure		
	Install infrastructure to support 1.8km trains		
	Upgrade utility infrastructure		
THREATS			
Regional competition – Albury	Lack of community & business support		Impact on Byrnes Rd housing
Lack of political support	Surface & ground water quality if not managed effectively		Control visual impact of estate or major transport routes
Future / existing residential	Access to Olympic Hwy – multiple accesses may not be suitable for safety & noise reasons		Transport dangerous goods by road & rail
Land development of Cartwright's Hill			Climate change
Existing development in Brucedale – life style			
Labour / skills			

Bomen Business Park Master Plan Wagga Wagga City Council
SWOT & STEP Analysis Summary from Stakeholder Workshop held on 17 December 2008 at Wagga Wagga City Council

STEP SUMMARY

Short term trends and issues

Support Activities & Development	Strategy & Governance	Transport & Infrastructure	Sustainability (Industrial Ecology)
SOCIETY			
Benefits for surrounding communities in region, such as Junee	Impact on adjoining development		Resource recovery recycling and reuse – industries in their own right
How will educational institutions be effected and involved?	Impacts of adjoining development, planned and extant		Reuse wastes on site
Ageing population	Housing prices increasing		Harvest storm water
Exodus of young people (to capital cities)	Changing culture – Wagga is no longer a small town		
Population growth	Promote as a regional industrial / enterprise / business hub		
Need for training – skill shortage	Suffer from "metro-centric" thinking		
Need to retail skilled people	Need to import skilled people to the region – people reluctant to move to regional areas		
Need for employment			
TECHNOLOGY			
Training in new technology is essential and ongoing	Cluster activities to enable resource and energy synergies	21st Century communications – fast internet needed	Alternative energy sources, solar and cogeneration
	Accommodate site requirements of various enterprises	Rail and road transport are key to the future	
	Tender for broadband services currently under evaluation	Hi-tech industries are desirable	
		Phase infrastructure provision	
		Emerging technologies in managing logistics: tracking and security	
		Increase rail efficiency	
ENVIRONMENT			
High quality environment should be designed	Extend sewer to unsewered areas	Huge roof areas available to collect stormwater	Retain remnant vegetation
Worker and family-friendly places and services required	Carbon trading – what will the impacts on transport and industry be?		Support strategies to reduce emissions and carbon footprint
Waling and cycle ways			Re-use of wastes – studies have been conducted
			"Dirty" industries leaving capital cities
			Odour and light spill requires

			management
POLITICS			
Pressure to release more land for residential growth	Location is of national, strategic significance	Need to extend gas and electricity supplies	
Competition from other proposals must be considered – eg. Albury Wodonga (Ettamogah)		Concept of utilities corridor is supported	
A "can-do" attitude is needed	LEP exhibition will attract interest	Developer contributions framework needs review	
	Funding needed for rail overpass, road changes and rail sidings		
	Safe seats don't get much support		
	Complex legal systems – "legislative creep"		
	Complete LEP process ASAP		
	Improve Stakeholder communication and coordination		

Bomen Business Park Master Plan Wagga Wagga City Council
SWOT & STEP Analysis Summary from Stakeholder Workshop held on 17 December 2008 at Wagga Wagga City Council

STEP SUMMARY
Long term trends and issues

Support Activities & Development	Strategy & Governance	Transport & Infrastructure	Sustainability (Industrial Ecology)
SOCIETY			
Childcare, convenience retailing and other local services required	A professional precinct should be considered		
A service hub could be located near the Highway	Void encroachment of incompatible uses		
Provide public transport to Bomen from Wagga	Predictable (certain) plans are required to enable confidence for investors		
Compatibility of industry with planned (and existing) land use			
Number of professionals in the community is increasing			
Promote what City has to offer – education, culture, sport – lifestyle			
Strategic alliance with university			
Business support and health services required			

TECHNOLOGY			
Increased use of technology needs a higher and more specifically skilled workforce	Zoning and planning must be flexible to allow range of existing and emerging industries	Use of technology should be bold and ambitious	Infrastructure to be planned to allow resources and energy to be transferred from site to site
	Plan road and rail transport holistically		Use of technology should be bold and ambitious
	Opportunity to do things differently as Bomen is a Greenfields site		Explore potential for cooperative management of energy, waste, hazards and resources
			Means to assess and manage aggregate impacts
ENVIRONMENT			
Vegetated buffers required	Integrated water cycle management is required		Create a 'closed cycle' to eliminate pollutant
Impacts on rural outlooks from surrounding areas (Eg. Brucedale) to be considered	Manage hazards cooperatively		
High quality built environment to be designed			
POLITICS			
Wagga can take the lead as a place for sustainable industrial development	Future of sale yards – compatible with Bomen's future?	Continuing advocacy for planning and delivery of infrastructure	A cooperative approach to energy and resource use should be promoted
	Commitment and role of Commonwealth and State Governments	An eastern bypass across Eunony to Bomen required to improve access for commuters (and access to airport)	
	Streamline approval process	Servicing Melbourne and Sydney – how can access to markets and facilities be best exploited?	
	Project manage the entire site		
	Significant investment in rail essential		

Appendix B

Sustainability Assessment Framework

Appendix B Sustainability assessment framework

This Appendix describes the key components of the sustainability assessment framework and indicates how the Framework was used to analyse the three options and the draft master plan.

In developing the sustainability assessment framework, a number of activities were undertaken including:

- a literature review of relevant documents including Council reports, legislation and peer reviewed journal articles
- analysis of Council workshop outcomes, including of the SWOT and STEP stakeholder workshops
- review of the applicability of approaches to sustainability assessment being used on similar projects

The key components and method for applying the sustainability assessment framework are described below.

Key components and methodology Elements

Elements

The elements used within the sustainability assessment framework refer to the 'pillars' of sustainable development that have been adopted in Wagga Wagga City Council's 2005 Sustainability and Our Local Government Area report as well as in a number of international law instruments (United Nations, 2005).

The four elements used were:

- Social
- Environmental
- Economic
- Governance

Objectives

The objectives summarise the key sustainable development principles and sustainability issues relevant to Bomen Business Park. The objectives were used as criteria to assess the three options, including identification of the limitations and/or opportunities for Bomen Business Park associated with each objective. The objectives fall within the four sustainability elements – social, economic, environmental and governance. These objectives are listed in Table 1.

Table 1 List of sustainability objectives used for the assessment process.

SOCIAL		
	Objective	Reference
1	Provision of public transport and pedestrian / cycle access	(STEP)
2	Meaningful stakeholder engagement (gauging perceptions)	(WISDOM)
3	Improve lifestyles of local community	(WISDOM)
4	Provision of community facilities (including childcare and public amenities)	(STEP)
5	Recognise, foster and maintain local cultural identity	(City of Wagga Social Plan)
6	Ensure safety and well-being of local community	(City of Wagga Social Plan)
7	Provision of skill development (training, university partnerships etc)	(STEP)
8	Provision of a more efficient road network	(STEP & SWOT)
9	Provision of positive visual amenity	(STEP)

ECONOMIC		
	Objective	Reference
1	Provision of advanced telecommunication facilities	(STEP & SWOT)
2	Minimise sterilisation of agricultural activities	(WISDOM & SWOT)
3	Foster innovation in technology development	(STEP & SWOT)
4	Generate local employment opportunities	(STEP & SWOT)
5	Contribution to regional economic growth	(STEP & Vision 21)
6	Growth opportunities for local business and industry	(STEP & SWOT)
7	Improve national and regional distribution and logistics efficiently	(STEP & SWOT)
8	Assists in securing Federal / State funding	(STEP)

ENVIRONMENT		
	Objective	Reference
1	Maximise well-being of catchment including the protection of downstream water quality	(WISDOM & STEP)
2	Minimise vulnerability to drought periods from climate change (implementation of integrated water cycle management)	(STEP)
3	Minimise air pollution from odour and dust	(WISDOM & STEP)
4	Maximise re-use and recycling of water	(STEP)
5	Minimise energy consumption (carbon footprint)	(STEP)
6	Maximise on-site power generation (renewable and gas recovery)	(STEP)

7	Minimise vulnerability to bushfires from climate change	(CSIRO)
8	Minimise vulnerability to extreme heat from climate change	(STEP)
9	Minimise on site contamination risk	(STEP)
10	Minimise noise pollution	(STEP)
11	Maximise protection of native vegetation and use of corridors and buffers	(STEP)

GOVERNANCE		
	Objective	Reference
1	Consistency with existing council planning instruments	(STEP)
2	Consistency with federal / State government transport strategies for the region	(STEP)
3	Compliments adjacent land uses (avoids residential encroachment)	(STEP)
4	Well connected business, institutions, Council and Riverina regional partners	(GROW-Wagga Wagga)
5	Promote Council as a regional service provider	(Community Strategic Plan)
6	Promotes business park as a leader in sustainable industrial development	(STEP)

Criteria and overall priority ranking

Once the sustainability opportunities and limitations for each objective were considered, a score of between 1 and 3 was assigned to each element using the sustainability assessment criteria provided in Table 2. Table 3 was then used to produce a total score for each of the three options based on the score of 1-3 in each element.

An overall priority ranking of A-D for each option was then assigned using Table 3.

Assessment process

Figure 3 describes the four (4) step process used to undertake the sustainability assessment. Steps 1 and 2 were repeated for each of the three options and the draft master plan, which allowed for an overall comparison of the sustainability benefit likely to be achieved using Steps 3 and 4.

Figure 3 Flow chart illustrating the sustainability assessment process of the three options for Bomen Business Park.

Step 1

Using the sustainability assessment worksheet, the opportunities and/or limitations for each objective were considered within the four sustainability elements – social, economic, environment and governance.

Step 2

Using Table 2and the sustainability assessment worksheet in conjunction, a score of between 1 and 3 was assigned to each of the four sustainability elements. The score was totaled in the worksheet.

Step 3

The total score for each element and each option was put into Table 3. Scores for each element are included to highlight variation between the options and to enhance the analysis.

Step 4

The total score for each option in Table 2 reveals a sustainability priority ranking of either A, B, C or D as per Table 3.

Table 2 Summary table of scoring applied to each corresponding element.

Element	Criteria
Social	1. Low social benefits / unknown 2. Limited social benefits for stakeholder groups (ie land users – residential, industrial etc) 3. Significant social benefits across multiple stakeholders (ie LGA–wide)
Economic	1. Low economic benefits / unknown 2. Limited economic benefits for stakeholder groups (ie land users – residential, industrial etc) 3. Significant economic benefits across multiple stakeholders (ie LGA-wide)
Environmental	1. Low environmental benefits / unknown 2. Limited environmental benefits for issues (ie biodiversity management, pollution control etc) 3. Significant environmental benefits across multiple issues (ie LGA-wide)
Governance	1. Not within scope of Council's responsibility (ie State Government) 2. Identified as a corporate commitment 3. Legislative requirement

Table 3 Sustainability assessment results for each element for each option.

Element	Option 1	Option 2	Option 3
Social	1 to 3	1 to 3	1 to 3
Economic	1 to 3	1 to 3	1 to 3
Environmental	1 to 3	1 to 3	1 to 3
Governance	1 to 3	1 to 3	1 to 3
TOTAL	4-12	4-12	4-12

Table 4 Final step to the process revealing the overall priority ranking based on sustainability for each option.

Overall priority ranking	Confidence level	Description
A	11-12	Significant sustainable outcomes expected for this option
B	9-10	High sustainable merit for this option
C	7-8	Moderate sustainable merit for this option
D	5-6	Minimal sustainable merit for this option
E	4	Not sustainable – consider an alternative option

Sustainability Assessment Framework - Bomen				
		Option 1	**Option 2**	**Option 3**
Element	Objectives	Opportunities / Limitations	Opportunities / Limitations	Opportunities / Limitations
Social	1. Provision of public transport and pedestrian / cycle access	Rail focused on freight transport. Limited opportunity for intermodal on east side.	Rail network potential. Strong North-South network.	Sustainable transport planning – potential cycleway / pedestrian link to CBD. Rail network potential.
	2. Meaningful stakeholder engagement (gauging perceptions)	Option outlined at stakeholder workshop.	Option outlined at stakeholder workshop.	Option outlined at stakeholder workshop.
	3. Improve lifestyles of local community	No opportunities highlighted.	No opportunities highlighted.	No opportunities highlighted.
	4. Provision of community facilities (including childcare and public amenities)	Potential for business hub for prevision of local facilities.	Potential for business hub for provision of local facilities.	Centrally located business hub for provision of local facilities.
	5. Recognise, foster and maintain local cultural identity	Maximises protection of aboriginal heritage areas.	Maximises protection of aboriginal heritage areas.	Maximises protection of colonial and aboriginal heritage.
	6. Ensure safety and well-being of local community	No opportunities highlighted.	No opportunities highlighted.	No opportunities highlighted.
	7. Provision of skill development (training, university partnerships etc)	Provision of land use zoning compatible for educational facilities.	Provision of land use zoning compatible for educational facilities. Strong local research and development / skill training business campus focus.	Provision of land use zoning compatible for educational facilities.
	8. Provision of a more efficient road network	Limited to east-west.	Allows for alternative access around CBD to southern areas (airport)- frees up railway corridor, however outside of site boundary. Connections with Olympic Way.	Limited to northern end. Multiple intersections in close proximity along Olympic Way.
	9. Provision of positive visual amenity	Increase in open space.	Provision of open space and maximum use of green corridors along transport nodes. Campus environment in business area.	Provision of open space and green corridors along transport nodes and adjacent to residential zones.
	Social total	1	2	2
Economic	1. Provision of advanced telecommunications facilities	Telecommunications corridor provided.	Telecommunications corridor provided.	Telecommunications corridor provided.
	2. Minimise sterilisation of agricultural activities	No provision of agricultural land use transition.	Land use competition in North-East. Relocation of existing sale yards.	No provision of agricultural land use transition.
	3. Foster innovation in technology development	No opportunities highlighted.	No opportunities highlighted.	No opportunities highlighted.
	4. Generate local employment	Allows for a mix of light and heavy industrial and	Allows for a mix of light and heavy industrial and	Allows for a mix of light and heavy industrial and

	opportunities	business land uses.	business land uses.	business land uses.
	5. Contribution to regional economic growth	Opportunities from freight transport terminal and new business and industrial zonings. Provision of logistic and trading based business.	Opportunities from freight transport terminal and new business and industrial zonings. Increased potential for large scale industrial development.	Opportunities from freight transport terminal and new business and industrial zonings. Spatial planning allows long term business growth.
	6. Growth opportunities for local business and industry	Opportunities from freight transport terminal and new business and industrial zonings.	Opportunities from freight transport terminal an new business and industrial zonings. Variety of mixed land uses proposed.	Opportunities from freight transport terminal and new business and industrial zonings. Opportunities for mixed business types.
	7. Improve national and regional distribution and logistics efficiency	Strong provision of railway for freight transport to other regional centres.	Provision of railway for freight transport to other regional centres. Also optimum road access to regional airport. Entrances based on route of distribution.	Provision of railway for freight transport to other regional centres.
	8. Assists in securing Federal / State funding	Reduced infrastructure investment.	No opportunities highlighted.	No opportunities highlighted.
	Economic Total	2	2	2
Environment	1. Maximise well-being of catchment including the protection of downstream water quality	Reduced soil disturbance to areas with increased erosion potential, however increase in hard surface areas for storm water runoff.	Reduced soil disturbance to areas with increased erosion potential, however increase in hard surface areas for storm water runoff.	Reduced soil disturbance to areas with increased erosion potential, however increase in hard surface areas for storm water runoff.
	2. Minimise vulnerability to drought periods from climate change (implementation of integrated water cycle management)	Opportunities for reuse of wastewater from STP.	Opportunities for reuse of wastewater from STP.	Opportunities for reuse of wastewater from STP.
	3. Minimise air pollution from odour and dust	No opportunities highlighted.	No opportunities highlighted.	No opportunities highlighted.
	4. Maximise re-use and recycling of waste	No opportunities highlighted, however proximity of industrial zones provide potential.	No opportunities highlighted, however proximity of industrial zones provide potential.	No opportunities highlighted, however proximity of industrial zones provide potential.
	5. Minimise energy consumption (carbon footprint)	No opportunities highlighted.	No opportunities highlighted.	No opportunities highlighted.
	6. Maximise on-site power generation (renewable and gas recovery)	No opportunities highlighted.	No opportunities highlighted. Scattered existing energy utilities.	No opportunities highlighted. Need to realign major energy utilities.
	7. Minimise vulnerability to bushfires from climate change	Road/rail network provide physical barrier to potential bushfire events.	Road/rail network provide physical barrier to potential bushfire events.	Road/rail network provide physical barrier to potential bushfire events.
	8. Minimise vulnerability to extreme heat from climate change	Green corridor maintained, increasing shade / passive protection.	Green corridor maintained, increasing shade / passive protection.	Green corridor maintained, increasing shade / passive protection.
	9. Minimise on site contamination risk	Increased potential from industry.	Increased potential from industry.	Increased potential from industry.

	10. Minimise noise pollution	Increased potential from rail, roads and industry.	Increased potential from rail, roads and industry.	Increased potential from rail, roads and industry. However, reduced road noise potential.
	11. Maximise protection of native vegetation and use of corridors and buffers	Significant protection of existing ecology.	Significant protection of existing ecology along with extensive use of green corridors. Less intensive land uses near buffer / open space areas. Minimum impact on existing site conditions.	Significant protection of existing ecology along with extensive use of green corridors, particularly around sensitive zones.
	Environment total	1	2	2
Governance	1. Consistency with existing council planning instruments	Not consistent with proposed LEP zonings, in particular transition and extent of industrial zoning.	Not consistent with proposed LEP zonings, in particular transition and extent of industrial zoning.	Not consistent with proposed LEP zonings, in particular transition and extent of industrial zoning. However, compiles with Council's strategic planning.
	2. Consistency with Federal / State government transport strategies for the region	TBD	TBD	TBD
	3. Compliments adjacent land uses (avoids residential encroachment)	Limited transition of existing residential areas into business park land uses.	Allows transition and buffer to residential development.	Limited transition of existing residential areas into business park land uses. Road network passes through residential area.
	4. Well connected business, institutions, Council and Riverina regional partners	Limited connections.	Strong connection with nearby academic precinct. Potential competition from nearby intermodal hubs.	No opportunities highlighted.
	5. Promote Council as a regional service provider	Regional intermodal hub. Strong provision of regional rail infrastructure.	Strong provision of varied land uses and regional academic connections. Avoids competition with other neighbouring intermodal hubs.	Strong provision of varied land uses and regional academic connections.
	6. Promotes business park as a leader in sustainable industrial development	Only with respect to the provision of open space. Industrial ecology elements difficult to assess at this stage.	Only with respect to the provision of open space. Industrial ecology elements difficult to assess at this stage.	Only with respect to the provision of open space. Industrial ecology elements difficult to assess at this stage.
	Governance Total	1	2	1
Combined Total		5	8	7

Overall priority ranking	Total	Descriptions
A	11 to 12	Significant sustainable outcomes expected for this option
B	9 to 10	High sustainable merit for this option
C	7 to 8	Moderate sustainable merit for this option
D	5 to 6	Minimal sustainable merit for this option
E	4	Not sustainable – consider an alternative option

Appendix C

PTW Architects Character Profiles

Bomen Business Park Character Profiles

Introduction

This set of character descriptions prepared by PTW provides character profile guidelines as a part of the preparation of a site specific Development Control Plan (or “neighbourhood plan”) for the Bomen Business Park, Wagga Wagga.

PTW has identified five desirable development characters for the Bomen Business Park. In these profiles, the significant changes and the increased knowledge and understanding of Ecologically Sustainable Development (ESD) principles that has occurred in the last decade are communicated. ESD is defined in a statement of principle in the Local Government Act to require the effective integration of economic and environmental considerations in decision making processes.

Also, these guidelines build a general understanding of the character that will prevail in each designated profiles. From Rural Small Holdings to industrial characters, the Bomen Business Park will successfully juxtapose different characters by respecting the scale of each profile and by skillfully negotiating the transition between profiles, the Bomen Business Park and the rural surroundings north of Wagga Wagga.

PTW has identified six (6) dominant characters profiles in the Bomen Business Park:

- Small Rural Holdings
- Support Services Centre
- Light Industrial
- Industrial
- Rail Dependent Industries
- Landscape Buffer

This document is intended to inform a DCP for the Bomen Business Park at a later stage in the planning process.

Urban Planning and Urban Design Principles

These Character Profiles have been developed respecting seven essential Urban Planning and Urban Design Principles in order to guarantee that the DCP for the Bomen Business Park respects the fundamental aspects of successful urban planning.

Especially when dealing with large-scale industrial facilities such as in the Bomen Business Park, it is important to make sure the development of characteristics of each profile is a part of an overall plan which respects:

- an overall strategy for the site in which the natural setting is taken into account;
- in which the street layout and pedestrian movements are carefully considered;
- in which activities and uses are planned in concert;
- in which open space is provided;
- in which the built form, character and scale of the profiles are coherent
- and in which the resulting development is ecologically sustainable.

These principles are overarching and are reflected in each one of the Character Profiles for each planned profile within the Bomen Business Park. As a result, respecting the Character Profiles will result in a harmonious and well-balanced development which successfully negotiates a variety of land uses such as residential and industrial.

Principle 1: Integration into an Overall Strategy

The Bomen Business Park Character Profiles are a direct response to the physical context of the site as it stands today and as it will be developed in the future. By developing these Character Profiles, a balance of the desired social, economic and environmental imperatives throughout the site has been reached.

The Bomen Business Park will not come into existence overnight as the Council has proposed a 15-20 year development strategy. The implementation process of the development plan will take years. To keep the long-term goals for Bomen Business Park in sight, the Character Profiles provide the planning framework for the built form and landscape that will deliver a consistent outcome.

The Character Profiles also successfully incorporates two Support Services Centres along with public open space, which provides flexibility for community activities and appropriate facilities near the Rural Small Holdings profile which emphasizes the importance of creating a lively and active community within the Bomen Business Park.

With provisions for open space and landscaping, the Character Profiles successfully integrate the natural setting into the Bomen Business Park. The Character Profiles provide an open space network which provides long term benefits for workers and visitors along with a high level of amenity and visual security within Bomen. The open space network provides pedestrian and bicycle networks throughout the neighbourhood and significant areas for tree planting and spaces for various types of recreational activity (both active and passive) where suitable.

In addition, the Character Profiles were developed based on existing infrastructure into the development and build a development type character onto the existing elements.

Principle 2: Respecting the Natural Setting

Of prime importance when planning an industrial profile such as the Bomen Business Park is to consider any potential damage that may be caused. The planned Bomen Business Park is located in an area that

is today characterised mostly as a rural area. Therefore the natural setting in which light and heavy industries are going to be implanted in the future is affected and must be reckoned with.

The Character Profiles ensure that connectivity between open spaces in maintained in the Rural Small Holdings profiles and in the Support Services Centre. Where possible, the protection and incorporation of any existing significant vegetation into the development of the neighbourhood has been considered. In addition, as described in the Character Profiles, the existing vegetation will be enhanced across the Bomen Business Park.

Principle 3: Connecting the Street Layout and Pedestrian Movement

The Bomen Business Park Character Profiles are mindful of the existing road and pedestrian network and seeks to encourage pedestrian mobility in the Rural Small Holdings profile and the Support Services Centre. However, these profiles provide guidelines to improve pedestrian safety and the pedestrian experience by providing sidewalks, heavily planted streets, and large setbacks. Safe pedestrian links across and along open space corridors are also provided to connect residential areas with neighbourhood areas.

The Rural Small Holdings profile and Support Services Centre profiles also provide a legible street network for cars and pedestrians alike by proposing a regular grid which minimises cul-de-sacs and circuitous road links. Also, the impact of vehicular traffic on residential amenity is minimised through careful street design.

Principle 4: Combining Activities and Uses

The rationale for the Character Profiles for the Bomen Business Park is to ensure a harmonious combination of uses and activities in each profile throughout the site. The proposed configuration of the site provides buffers between the agricultural properties (grazing), Rural Small Holdings profiles and the Industrial Profile so as to allow the coexistence of these uses within the site boundaries.

The Support Services Centre profile presents the most mixed-use development. The Support Services Centre Character Profiles ensures that Support Services centres intersect and front at least two primary streets, and that the streets direct the public to all the important areas of the Bomen Business Park. In addition, the Support Services Centre uses are centrally located for accessibility and visibility. The main streets and pedestrian axes are lined with commercial and recreational activities in the Support Services Centres.

Principle 5: Providing Open Space

Given the desired industrial character of Bomen, vegetation is to play an important environmental and aesthetic role in the development. Therefore, the Character Profiles offer opportunities to preserve, enhance and extend vegetation and incorporate it into the open space network in all profiles except the Industrial and Rail Dependent Industries profiles.

All added vegetation will be of local origin and planted in appropriated densities so as not to hamper the functioning of the streets and pathways but to still provide an element of nature within the urbanised area. In addition, open spaces will be designed as passive or active recreational areas in the Rural Small Holdings profile and the Support Services Centre profile.

Principle 6: Coherent Built Form, Character, and Scale

The Character Profiles have the double purpose of identifying the scale and character of existing built form as well as helping define desired future character for the profiles. In each profile, the preferred building type, the heights and character are specified to ensure uniformity of aspect within the profiles. By respecting the character of the profile, new buildings will be appropriately scaled to street widths and open spaces.

Principle 7: Ecologically Sustainable Development

ESD is defined in a statement of principle in the Local Government Act to require the effective integration of economic and environmental considerations in decision making processes. ESD can be achieved through development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. The ESD Principles considered when developing the Character Profiles include:

- The Precautionary Principle
- Intergenerational Equity
- Conservation of biological diversity and ecological integrity
- Improved valuation, pricing and incentive mechanisms

This starts with a firm understanding and respect for the natural qualities of the site and the structure of the land including: topography, solar orientation, erosion, soil stability, existing vegetation, local species (fauna and flora), views, water courses and any other significant natural features present in Bomen . The aim of these guidelines is to minimise the impact of the development on existing stormwater, water supply, sewerage and energy supply infrastructure through appropriate site planning.

Also, the Character Profiles imply measures for the conservation, enhancement and management of any areas or items of historic, cultural or environmental significance. This ranges from indigenous vegetation to site of historical or aesthetic relevance

To make the Bomen Business Park enjoyable to current and future users, the Character Profiles for the Rural Small Holdings profile and the Support Services Centre provide safe and convenient bike and pedestrian transportation throughout the Bomen Business Park. As an additional measure towards the promotion of high-quality of life for today’s and tomorrow’s public, these profiles designate open space to meet the needs of current and future populations of the Bomen Business Park in accordance with Council’s Recreation and Open Space Policy.

Character Profile 1: Rural Small Holdings

The Rural Small Holdings Character Profile is defined as an area with very low density development, e.g. each dwelling occupying a large plot area (up to 1 ha).

Figure 1: Typical Cross Section (not to scale) for Rural Small Holdings Character Profile

a. Street Types

In low-density areas, the streets are mostly local streets facilitating access to and from rural small holdings. There are typically large setbacks, apart from Cartwrights Hill, between houses and public thoroughfares as shown in the cross section.

b. Land Use

The rural small holding areas of the Bomen Business Park are suited for buildings of residential uses and ancillary structures. The uses allowed are uses that are permitted in rural zones.

c. Building Type

The preferred building types for dwellings are cottages, semi-detached dwellings and single dwellings. To keep the low-density character which predominates in rural small holding areas, the buildings which house the supporting uses should be in keeping with the architectural character and the building volumes of the nearby dwellings.

d. Typical Heights

Typical heights for Rural Small Holdings areas in the rural living areas are between three and six metres. This height allows for the preservation of the character and the scale of the neighbourhood.

e. Vegetation

In terms of vegetation, the Rural Small Holdings areas should be characterised by heavy canopies to provide on-street shading for pedestrians and parked cars. In addition, vegetation in the form of hedges and rows of trees along plot edges is intended to materialise the boundaries of individual plots.

f. Open Space

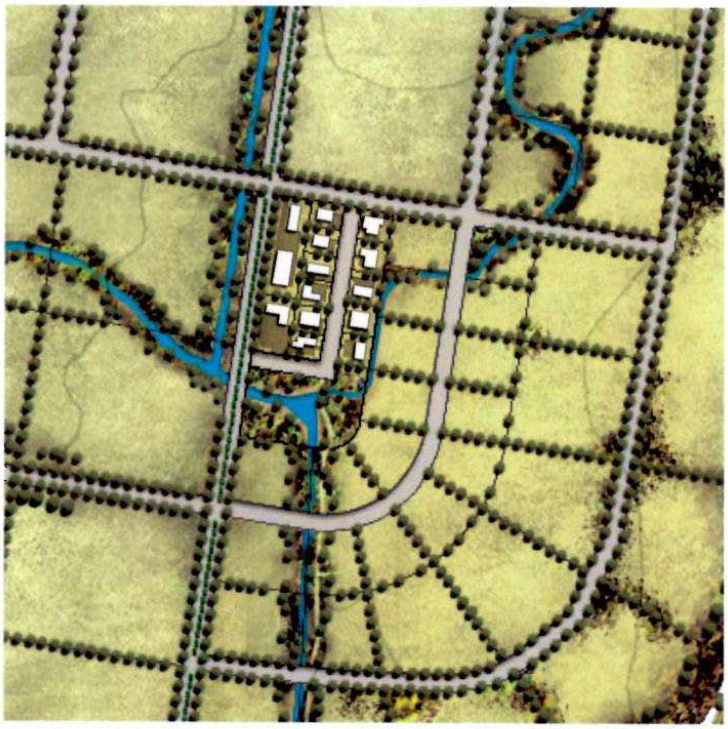
The low site coverage ratios which prevail in Rural Small Holdings provide the neighbourhood with an abundant of open space. Even though the open space will contribute to the rural character of the Rural Small Holdings, most open space is planned to be included in plots and therefore will be used privately.

g. Car Park

Parking guidelines will be prepared in the planning controls for Bomen.

Character Profile 2: Support Services Centre

A Support Services Centre is a multi-functional area of the development at a central location to provide common daily needs and amenities of the residents and employees of the Bomen Business Park.



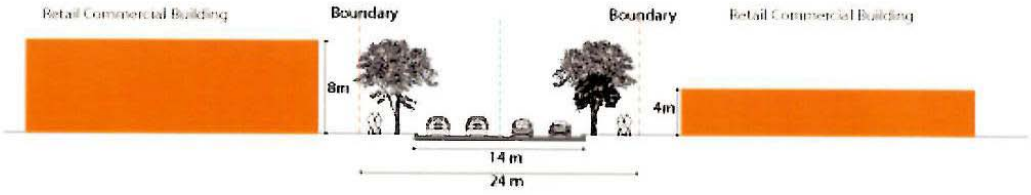


Figure 2: Typical Cross Section (not to scale) for the Support Services Centre Character Profile
Bomen Business Park Character Profiles

a. Street Types

The street types in the Support Services Centre are larger than in the Rural Small Holdings Profile. The streets are main streets or arterial streets which connect back to the local streets and lanes of the Low-density Rural Small Holdings Profile.

b. Land Use

The Support Services Centres systematically offer small businesses, community facilities, and post offices which are not compulsory in the Rural Small Holdings Profile. As the density diagram shows, the Support Services Centre is also located along key intersections in the Rural Small Holdings and Light Industrial profiles. In addition, the Support Services Centre is characterized by its mixed uses.

c. Building Type

The preferred building types in a Support Services Centre are low rise multistorey buildings located along the main axis with stores on the ground floor and other retail or commercial uses above.

d. Typical Heights

The Support Services Centre typical heights are comprised between four and eight meters which translate into one to two storey buildings.

e. Vegetation

The vegetation is to be concentrated along the main axis in order to create shaded areas for pedestrians and parked cars.

f. Open Space

The open spaces in this area are mainly small parks, but could facilitate a community plaza with historical or cultural public art installations. Each would be designed for public use.

g. Car Park

Parking guidelines will be prepared in the planning controls for Bomen.

Character Profile 3: Light Industrial

Light industrial areas are defined as areas with non contaminating industrial development. Generally, each facility occupies larger plot areas (up to 5 hectares) to accommodate at-grade car parking with substantial landscaping.

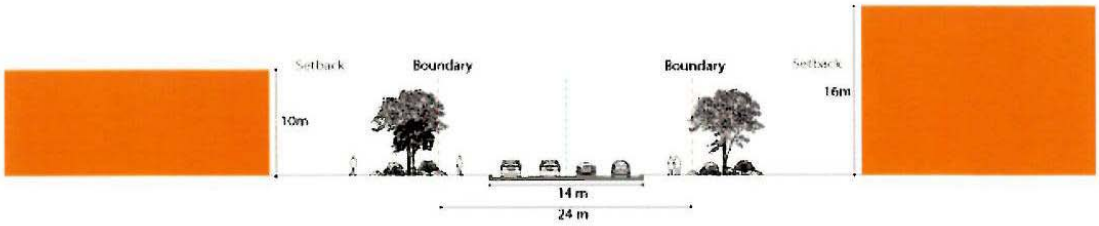


Figure 3: Typical Cross Section (not to scale) for the Light Industrial Character Profile
Bomen Business Park Character Profiles

a. Street Types

The street types in the Light Industrial profiles are large streets such as boulevards, local roads, and smaller access roads such as lanes.

b. Land Use

To maintain the character of light industrial profiles, only certain low-impact, low-pollution industries will be permitted. In the interest of preserving the quality of life in the Rural Small Holdings profiles adjacent to the light industrial profiles, the industries should not produce excessive noise or odour. Suitable industries might be high-tech industries or light manufacturing.

c. Building Type

The building types for the Light Industrial profiles are warehouses, storage facilities, offices and small manufacturing and processing plants.

d. Typical Heights

Typically, the building heights are comprised between ten and sixteen metres. However, building footprints are likely to be quite large.

e. Vegetation

In order to lessen the visual impact of light industrial facilities, the roads and plots boundaries are to be heavily planted with large trees and hedges. In addition, there is substantial landscaping on car parking lots.

f. Open Space

As the Light Industrial profiles are unsuitable for recreation, the provision of open space will be limited on each plot.

g. Car Park

Parking guidelines will be prepared in the planning controls for Bomen.

Character Profile 4: Industrial

The industrial areas are defined as areas with industries that are considered heavier impact industries. Each facility occupies larger plot areas than in the Light Industrial profiles with plots generally greater than five (5) hectares to accommodate large areas of hardstand space for assembling equipment, for storage and at-grade parking with limited landscaping.

Figure 4: Typical Cross Section (not to scale) for the Industrial Character Profile
Bomen Business Park Character Profiles

a. Street Types

The street types in the Industrial profiles are highways, boulevards, local roads and lanes to access the industrial facilities.

b. Land Use

The Industrial Profiles provides areas for manufacturing, storage and distribution of goods, which otherwise may be considered offensive due to noise and odor. The industries are located a substantial distance from sensitive uses such as Rural Small Holdings and generally provide a buffer between Light Industrial and Rail Dependent Industries.

c. Building Type

The building types for the Industrial profiles are industrial plants, warehouses, storage facilities, offices and large manufacturing and processing plants.

d. Typical Heights

Typically, building heights are comprised between twelve and twenty four metres. Building footprints are likely to be quite large and have high site coverage requirements.

e. Vegetation

Landscaping is minimal in the Industrial profiles. Vegetation, including larger trees, is only required along plot edges.

f. Open Space

The Industrial profiles will have few open spaces that are restricted to private on-site spaces.

g. Car Park

Parking guidelines will be prepared in the planning controls for Bomen.

Character Profile 5: Rail Dependent Industries

Within the Rail Dependent Industries, there is an intermodal facility defined as an industrial area with large areas of hard-stand space with access both to the rail infrastructure and the highway. The rail infrastructure is used to store and transfer freight between two modes of transport and is generally used to describe the area of land where the transfer of containers from road to rail or vice versa occurs. The transfer takes place in order to deliver materials or ship products.

Figure 5: Typical Cross Section (not to scale) for Rail Dependent Industries

a. Street Types

The street types within the Rail Dependent Industries profile are wide to allow for varying access conditions such as access ramps to the railway, warehouses and other roadways.

b. Land Use

The main purpose of the intermodal facility within the Rail Dependent Industries profile is to ensure the interface between rail and road for transport logistics. In the areas designated as Rail Dependent Industries by hatching or additional colouring on the map, only the following uses will be permitted:

- Loading and unloading of freight and containers
- Storage and repair of containers
- Servicing of and repairs to locomotives and rolling stock
- Warehousing
- Heavy vehicle servicing and parking
- Allied and associated activities
- Industries that require or would benefit from frontage and access, or proximity, to the railway

c. Building Type

The building types within the Rail Dependent Industries Profile will be heavy industrial facilities, large warehouses and storage facilities, logistic facilities and equipment and office space.

d. Typical Heights

The typical building heights will range from sixteen to twenty-four metres.

e. Vegetation

There are no vegetation requirements for the Rail Dependent Industries Profile.

f. Open Space

There are no open space requirements within this profile, however, it is strongly encouraged to provide some small break-out areas around office portions of buildings which can be shaded by natural or artificial means.

g. Car Park

Parking guidelines will be prepared in the planning controls for Bomen.

Character Profile 6: Landscape Buffer

Landscape buffer is defined as a vegetated area at an average width of up to 60 metres providing environmental protection to and from study area. This area incorporates water-sensitive urban design elements to create environmental sustainable eco-corridor and provide space for recreational activities, and small scale outbuildings associated with adjacent uses.

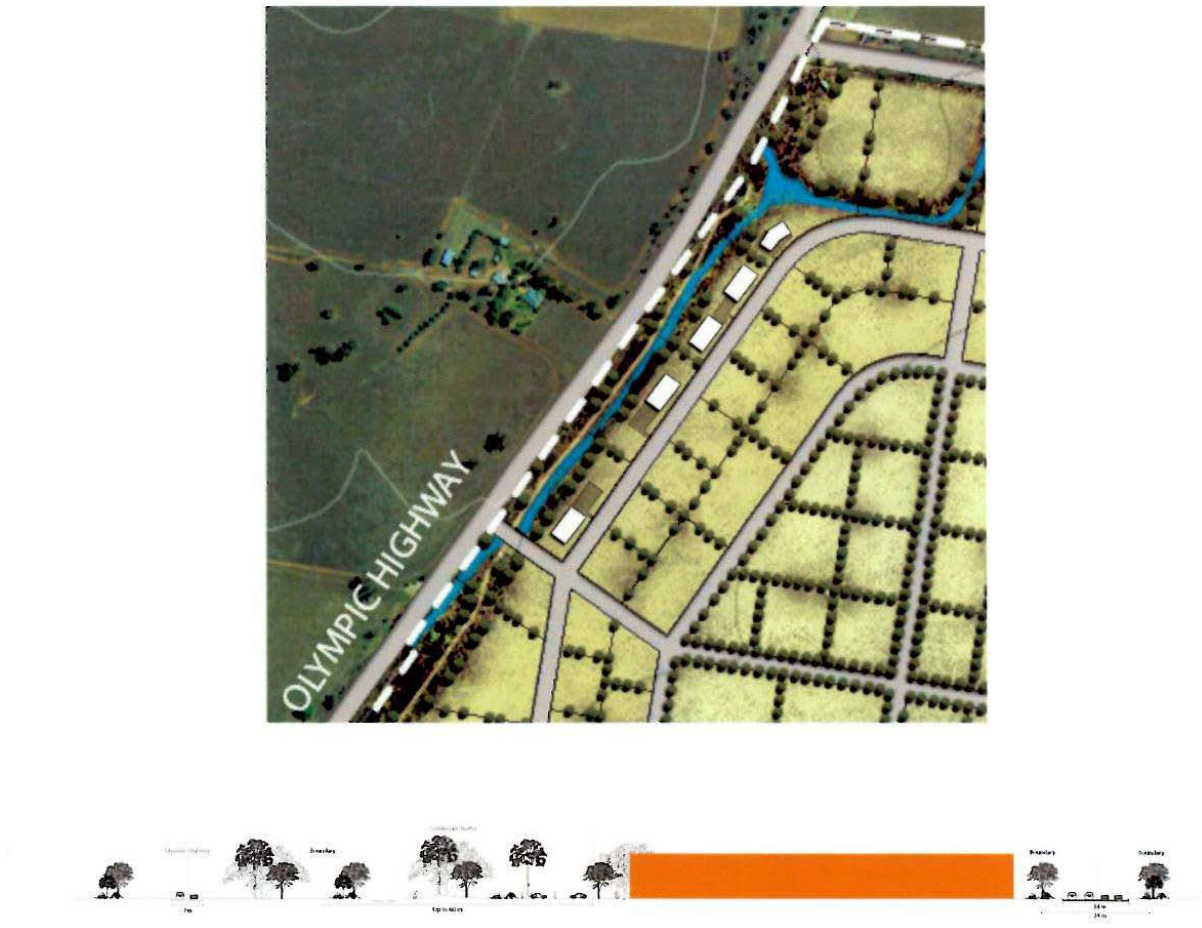


Figure 6: Typical Cross Section (not to scale) for the Landscape Buffer

a. Land Use

Designated as the landscape buffer, this sixty metre-wide vegetated corridor allows for built form of small scale, light-weight structures for recreational purposes only; and for car parking.

b. Building Type

The building types for the landscape buffer are recreational facilities.

c. Typical Heights

Building heights are limited to a maximum of six metres and should not exceed the top of the tree canopy where trees are provided (see the cross-section).

d. Vegetation

The vegetation comprises of trees with heavy canopies to provide shading for pedestrians and parked cars. In addition, vegetation in the form of hedges and rows of trees along plot edges is intended to materialise the boundaries of individual plots. In addition, lower bushes and ground covers are essential elements of rehabilitated water channels.

e. Open Space

The open space consists of walking trails and outdoor recreational spaces. Recreational spaces providing cover and shelter are connected by continuous walking trail and cycling paths with clear wayfinding aids within the sixty metre perimeter. This open space network provides venues for outdoor activities. The water features are existing water channels which have been transformed into landscape feature, in line with Water Sensitive Urban Design Principles, which seek to integrate water cycle management into urban planning and urban design.

f. Car Park

Parking guidelines will be prepared in the planning controls for Bomen.