

# 19. Economic

The Economic Impact Assessment explored the potential economic effects of the Project, including the effects on the local community and the wider region.

During construction, the Project is expected to create approximately 2,220 Full Time Equivalent (FTE) jobs for Option 1 and 2,200 FTE jobs for Option 2. These totals are jobs directly and indirectly involved in construction of the Project. Flow on effects to the wider community are expected (sourcing of goods and services and expenditure by workers and their families) to create 4,130 FTE jobs for Option 1 and 4,090 FTE jobs for Option 2. It is expected that the Project would enhance connections between the local agricultural industry and the Port of Melbourne. The Project would also have benefits for the tourism industry by allowing more efficient movement of people to and through the area.

The construction of the Project would result in the loss of agricultural facilities and infrastructure valued at approximately \$1.3M - \$1.5M over a 30 year timeframe. The Project would also result in the loss of agricultural land and severance of properties with an economic impact on businesses estimated to be in the range of \$2.2M - \$2.5M over a 30 year timeframe. VicRoads would compensate eligible landholders in accordance with the *Land Acquisition and Compensation Act 1986* which reduces the residual risk rating for this impact to low.

It is expected that the Project may disrupt access to businesses during construction resulting in a revenue loss estimated to be less than \$100,000 over a three year period. VicRoads would work with businesses to optimise their construction schedules which would reduce the residual risk rating for this impact to low. Construction may also result in a reduction in passing trade to one business. The economic impact to this business is estimated to be less than \$100,000. The installation of signage for this business is expected to result in a residual risk rating of low.

## 19.1 EES Objectives

The EES evaluation objectives relevant to the economic assessment are:

- *To avoid or minimise disruption and other adverse effects on infrastructure, land use (including agriculture) and households, as well as road users resulting from the construction and operation from the highway duplication.*

- *To provide net economic benefits for the State, having regard to road user benefits, direct costs, and indirect costs including with respect to other land uses and economic activities*

This chapter discusses the economic features of the project area, the potential impacts from the Project on these features, and opportunities where the Project could have a positive benefit. More specifically, this chapter:

- Identifies the potential economic effects of the Project during construction and operation at the local and regional level in relation to employment, income distribution and existing land uses in the area, including key infrastructure or services, agriculture, business and tourism.
- Provides an overall analysis of the costs and benefits of the proposed works and relevant alternatives, including the “no project” scenario, taking account of other infrastructure changes, land use impacts as well as expected direct and indirect economic benefits.

This chapter is based on an Economic Impact Assessment report completed by GHD Pty Ltd (2012i). The full report is included in Technical Appendix P.

## 19.2 Study Area

### Local Study Area

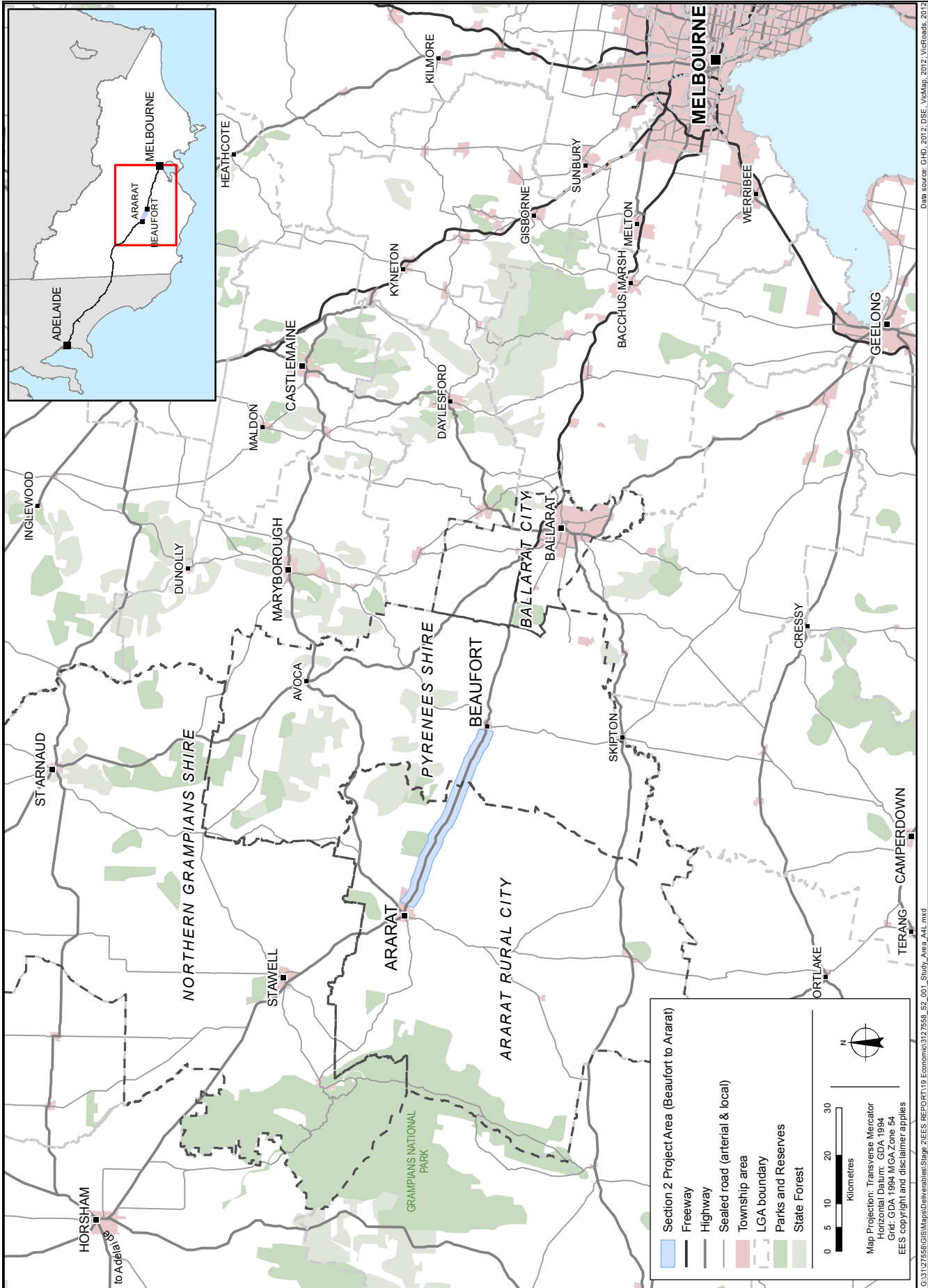
The study area for the economic assessment is defined as commencing at the railway crossing near Old Shirley Road, west of the Beaufort township and extending for a distance of approximately 38 kilometres (km) to Heath Street, Ararat. The study area extends approximately 1500 metres (m) from either side of the road reserves of the existing Western Highway. Buangor is the only town in the study area.

### Regional Study Area

For the purposes of the economic assessment, a regional study area has been defined (see Figure 19-1) as all area and road infrastructure incorporated into the local government areas of:

- Ballarat City
- Pyrenees Shire
- Ararat Rural City
- Northern Grampians Shire.





### Figure 19-1 Regional Context

## 19.3 Methodology

### Existing Conditions

In order to document the existing local and regional economic conditions, the following was documented through desktop analysis, internet searches, field inspections and consultation:

- The characteristics of the farming environment including climate, soils, landform, vegetation patterns and land capability.
- The type of farming activity being conducted and its significance to the regional economy.
- The pattern of land ownership and the type and degree of land management impacts being anticipated through constructing the Buangor bypass.

To understand the economic effects of the Project on the study area and the region, the method described below has been used:

- The regional economic context of the study area was described;
- The existing conditions of the study area were described. This is the base case against which potential effects are measured;
- A Benefit Cost Assessment (BCA) was calculated; and
- The potential economic effects were assessed and where possible, these effects were quantified, otherwise they are described qualitatively.

The economic effects that have been quantified are outlined in Table 19-1. A detailed description of the assessment methodology is included in Technical Appendix P.

**Table 19-1 Quantified economic effects**

Effect	Measure
Change in travel time and travel costs for business travel, personal travel and freight transport	Savings in travel times and savings in vehicle operating costs
Costings in terms of construction and maintenance	Construction and operation costs
Displacement (wholly or partially) of businesses and farm operations that operate on land which would be required for the Project	Change in productivity of land
Infrastructure loss of some landholdings along the Project route	Estimated through required investment in new infrastructure

## 19.4 Legislation and Policy

The relevant legislation and government policies for the Economic Assessment are shown in Table 19-2.

**Table 19-2 Relevant legislation and government policies**

Legislation/Policy	Description
<b>National</b>	
Nation Building Program (2010)	The Australian Government's Nation Building Program (2010) commits the Commonwealth Government to \$505 million towards the Project.
National Land Freight Strategy – Discussion Paper 2011	<p>The Western Highway is part of the indicative national land freight network. The relevant goals include:</p> <ul style="list-style-type: none"> <li>▪ High productivity/performance based standard network for 'national' highways - (identification of operating impediments to high productivity vehicle access, including local housing/traffic and traffic lights etc).</li> <li>▪ Town bypasses and grade easing on national highways</li> <li>▪ Improved safety outcomes embedded in each of the initiatives.</li> </ul>
<b>State</b>	
Transport Integration Act 2010	<p>Part 2, Division 2 of the <i>Transport Integration Act 2010</i> outlines the objectives of the Act, many of which are relevant to the economic assessment:</p> <p>► <b>Social and economic inclusion (Section 8)</b></p> <p><i>The transport system should provide a means by which persons can access social and economic opportunities to support individual and community wellbeing including by—</i></p> <p><i>(a) minimising barriers to access so that so far as is possible the transport system is available to as many persons as wish to use it;</i></p>

Legislation/Policy	Description
	<p><i>(b) providing tailored infrastructure, services and support for persons who find it difficult to use the transport system.</i></p> <p>► <b>Economic prosperity (Section 9)</b></p> <p><i>The transport system should facilitate economic prosperity by—</i></p> <p><i>(a) enabling efficient and effective access for persons and goods to places of employment, markets and services;</i></p> <p><i>(b) increasing efficiency through reducing costs and improving timeliness;</i></p> <p><i>(c) fostering competition by providing access to markets;</i></p> <p><i>(d) facilitating investment in Victoria; and</i></p> <p><i>(e) supporting financial sustainability.</i></p> <p>► <b>Efficiency, coordination and reliability (Section 12)</b></p> <p><i>(1) The transport system should facilitate network-wide efficient, coordinated and reliable movements of persons and goods at all times.</i></p> <p><i>(2) Without limiting the generality of subsection (1), the transport system should—</i></p> <p><i>(a) balance efficiency across the network so as to optimise the network capacity of all modes of transport and reduce journey times;</i></p> <p><i>(b) maximise the efficient use of resources including infrastructure, land, services and energy;</i></p> <p><i>(c) facilitate integrated and seamless travel within and between different modes of transport;</i></p> <p><i>(d) provide predictable and reliable services and journey times and minimise any inconvenience caused by disruptions to the transport system.</i></p>
10 Year Tourism and Events Strategy (2006)	<p>The guiding strategy for tourism and events development in Victoria is the 10 Year Tourism and Events Strategy which was released in 2006, followed by a progress report in 2010. Four key focus areas are set out in this Strategy. These focus areas are:</p> <ol style="list-style-type: none"> <li>1. Build upon existing strengths</li> <li>2. Develop new strengths       <ul style="list-style-type: none"> <li>▪ Assist with investment attraction and facilitation to leverage new major tourism investment in Victoria</li> </ul> </li> <li>3. Focus on long term growth opportunities       <ul style="list-style-type: none"> <li>▪ Focus on business events acquisition with the finalisation of a business case for developing business events in regional Victoria and the implementation of a new strategy to attract and leverage these</li> <li>▪ Focus on regional destination development and marketing programs, particularly the regions beyond Melbourne's surrounds that have the greatest growth potential in the next 5 – 10 years. Focus on attracting entrepreneurs to invest in iconic tourism product in regional Victoria.</li> </ul> </li> <li>4. Strengthen the partnership between government and industry</li> </ol> <p>Since then, a number of strategies have been developed that specify the implementation of the framework in the 10 Year Strategy. These are:</p> <ul style="list-style-type: none"> <li>▪ Three Year Business Plan 2008-2011;</li> <li>▪ <i>Regional Tourism Action Plan 2009 – 2012</i>; and</li> <li>▪ Specific Market Segment Plans, of which the following are relevant for the Western Highway Project due to the tourism product located in the wider region:       <ul style="list-style-type: none"> <li>○ <i>Backpacker Tourism Action Plan 2009-13</i></li> <li>○ <i>Victoria's Aboriginal Tourism Development Plan 2006-2009</i></li> <li>○ <i>Victoria's Food and Wine Tourism Action Plan</i> (a new version is currently under development)</li> <li>○ <i>Victoria's Nature-Based Tourism Strategy 2008-2012</i>, and</li> </ul> </li> </ul>

Legislation/Policy	Description
	<ul style="list-style-type: none"> <li>o <i>Victorian Trails Strategy 2005-2010.</i></li> <li>▪ Regional Marketing and Development Plan 2011-2012 – Grampians, which covers the Grampians Tourism Region<sup>1</sup> and implements the Strategy's State level initiatives at a regional level.</li> </ul> <p>The Western Highway Project is relevant for these tourism development efforts because access to tourism destinations is an important aspect of the experience and reduced travel time would ease access.</p>
<i>Planning and Environment Act 1987</i>	<p><i>The Planning and Environment Act 1987</i> (P&amp;E Act) establishes a framework for planning the use, development and protection of land in Victoria in the present and long-term interest of all Victorians. The Act sets out the legislative basis to ensure that planning provisions are prepared and approved throughout Victoria.</p> <p>The P&amp;E Act provides for a single instrument of planning control, the planning scheme, which sets out the way land may be used or developed. A planning scheme is a statutory document which sets out objectives, policies and provisions relating to the use, development, protection and conservation of land in the area to which it applies, usually a municipality.</p>
State Planning Policy Framework	<p>Every Victorian planning scheme includes the State Planning Policy Framework (SPPF). The SPPF consists of general principles for land use and development in Victoria as well as specific objectives and strategies applying to the whole State or to areas of State significance.</p> <p>The following clauses of the SPPF are of particular relevance to the economic assessment of the Project:</p> <p>Clause 11.05 relates to regional development and sub-clause 11.05-1, which relates to regional settlements networks, contains the following relevant strategies:</p> <ul style="list-style-type: none"> <li>▪ "Direct urban growth into the major regional cities of Geelong, Ballarat, Bendigo and the Moe, Morwell and Traralgon cluster" support sustainable development of the regional cities and centres of Ararat...Horsham...promote transport and communications and economic linkages between the various settlements through the identification of servicing priorities in regional land use patterns"</li> </ul> <p>Sub-clause 11.05-4, which relates to regional planning strategies and principles, contains a strategy to support a network of integrated and prosperous regional settlements by, amongst other things: "strengthening networks of settlements by maintaining and improving transport links, spatial patterns of service delivery, and promoting commercial relationships and community activities".</p> <p>Clause 18 relates to transport and has the overall objective that: "Planning should ensure an integrated and sustainable transport system that provides access to social and economic opportunities, facilitates economic prosperity, contributes to environmental sustainability, coordinates reliable movements of people and goods, and is safe"</p> <p>Sub-clause 18.02-4 relates to the management of the road system and contains the following relevant strategies: "Selectively expand and upgrade the road network to provide for:</p> <ul style="list-style-type: none"> <li>▪ High quality connections between Metropolitan Melbourne and regional cities, and between regional cities;</li> <li>▪ Upgrading of key freight routes "improve the management of key freight routes to make freight operations more efficient while reducing their external impacts."</li> </ul>
<b>Local</b>	
Pyrenees Shire Growth and Development Strategy 2010-2014	<p>The strategies for Pyrenees Shire specifically identify the Western Highway and duplication of the highway as being important to the Shire's growth and development. In the Pyrenees Shire Growth and Development Strategy 2010-2014, transport links are identified as important to the support and development of large export driven businesses in particular. The duplication of the Western Highway is specifically identified as transport infrastructure that would improve safety and efficiency of road freight on the Melbourne to Adelaide route and is supported by Council as a positive contribution to growth and development (refer Strategy p8).</p>
Ararat Economic Development Strategy 2009-2012	<p>The key focus for economic development as set out in the Ararat Economic Development Strategy 2009-2012 is to grow the local economy through growing the city's population base. The strategy contains actions which focus on attracting new residents as well as on educating and retaining the existing labour force to be able to</p>

<sup>1</sup> Grampians Tourism Region incorporates the municipalities of Ararat, Northern Grampians, Southern Grampians, Horsham, West Wimmera, Hindmarsh, Yarriambiack, Buloke and Mildura. Note that Pyrenees shire is part of the Goldfields Tourism Region.



Legislation/Policy	Description
	<p>provide workers for new projects and expansion of existing businesses. Employment in the city is mainly in retail, manufacturing, agriculture, trades and services and there are strategies to support and strengthen these sectors. In the Economic Development Strategy, the Ararat Prison is identified as a large and important employer and a case study demonstrates the employment impacts of the currently ongoing expansion of the prison. The strategy includes actions to increase industrial land usage and identifies 'proposed wind farm developments' and the Ararat Renewable Energy Park as current projects that will increase the future demand for labour.</p> <p>The Economic Development Strategy makes no specific mention of the existing highway. However, in terms of economic development, the role of the highway is clearly important as it is a major transport route to the prison, the Ararat Renewable Energy Park and the retail precinct in the town centre.</p>
Beaufort and Avoca Industrial Land Strategy, 2002 and Supplementary Review, 2005	<p>In the Beaufort and Avoca Industrial Land Strategy, 2002 and Supplementary Review, 2005, Beaufort is identified as one of two important strategic locations for industrial land in the Pyrenees Shire. It notes that one of Beaufort's key strength is its strategic location on Western Highway between Melbourne and Adelaide (Strategy p25) with tourism potential as a highway service town and serviced industrial land available at a reasonable price. Duplication of the Western Highway would augment these attributes and therefore be a contributing factor to growth and development of Pyrenees Shire.</p>

## 19.5 Existing Conditions

### 19.5.1 Regional Agricultural Conditions

- Analyses of land use characteristics (derived from the Australian Bureau of Statistics data) for the regional study area shows that: grazing is the most dominant land use in both area and value. Sheep are dominant and represent over 80% of livestock equivalents followed by beef (<20%). The sheep enterprises are principally wool production, but prime lamb production is a significant and growing proportion.
- Cropping represents about 30% of land use overall, with the majority located in the Ararat and the Northern Grampians municipalities. The major crop types are cereals (wheat, barley, oats, triticale) and oilseeds (canola) grown on a rotation basis. Other lesser but significant crop types include potato production (Ballarat) and grapes, particularly in the Great Western locality.
- Forestry is a minor enterprise over all municipalities.
- Agricultural establishment number (number of food producing enterprises) is similar between the more rural municipalities of Pyrenees Shire, Ararat Rural City Council and Northern Grampians Shire.

### 19.5.2 Local Agricultural Conditions

The area used to define the local agricultural conditions was a 3km wide strip of land, stretching 1.5km to the south of the existing highway and 1.5km to the north. This defined area should include all the farms directly or indirectly impacted by the Project.

The farming environment within this area is predominately cropping and grazing based, due to the combination of landform, climate and soil type characteristics. There is considerable physiographic change along the route through the interaction of these natural features.

### Farming Systems

The farming systems practised locally include both crop and stock. Crop rotations are usually based on some combination of oilseeds (canola) and cereals (wheat, barley, oats) with a rotation length of three years, after which the land returns to pasture. Expected crop yields are in the range of 1.5-2.2 tonnes per hectare (t/ha) for canola and 2.5-4.0t/ha for cereals.

The pasture phase supports livestock enterprises including merino wool production, prime lamb and beef cattle. The average stocking rate is estimated at 9 dry sheep equivalents per ha (dse/ha) but with the range 7-15dse/ha, depending on land quality and management capability.

### 19.5.3 Local Land Ownership

From the start of the proposed alignment near Old Shirley Road, Beaufort, tenements (land titles in common ownership) are small (in the range of 10-30ha), due to the combined influences of location to Beaufort and relatively low land quality. However, by the 3km mark, tenements become larger, generally >40ha and often substantially greater as rural activity becomes commercial. Blue gum plantations commence and extend to near Buangor. The township of Buangor has a large number of small allotments, but most are undeveloped and their influence is minor.

Beyond Buangor, tenements continue to be large, the only exception being where road patterns have resulted in land severance (such as at the intersection of Hillside Road and the Western Highway). West of Langi Ghiran Picnic Ground Road, the allotment pattern becomes smaller and more regular, although this does not appear to be reflected in tenement patterns which remain large.

Rural activity can be summarised as the dominant commercial use (both cropping and grazing), and smaller holdings generally only occur at Buangor and on the outskirts of Beaufort and Ararat.

#### 19.5.4 Regional Employment

Agriculture drives the region's economy. The services sector is also important within the region,

as are the sectors of tourism and manufacturing. Table 19-3 provides a breakdown of the 2006 Census information on fields of employment for the population of the regional area by Local Government Area (LGA).

**Table 19-3 Regional area top industries of employment 2006**

LGA	Industry	Number of People Employed	Proportion of Total LGA Employment
Ararat	Sheep, Beef Cattle and Grain Farming	763	16.20%
	School Education	252	5.40%
	Hospitals	244	5.20%
	<b>Total LGA Employment</b>	<b>4,706</b>	
Ballarat	Hospitals	2,372	6.30%
	School Education	2,221	5.90%
	Cafes, Restaurants and Takeaway Food Services	1,587	4.20%
	<b>Total LGA Employment</b>	<b>37,537</b>	
Pyrenees	Sheep, Beef Cattle and Grain Farming	509	19.0%
	Hospitals	117	13.0%
	School Education	101	10.0%
	<b>Total LGA Employment</b>	<b>2,540</b>	
Northern Grampians	Sheep, Beef Cattle and Grain Farming	580	11.30%
	School Education	259	5.00%
	Hospitals	255	5.00%
	<b>Total LGA Employment</b>	<b>5,149</b>	

Source: Census Quickstats, 2006

#### Manufacturing

While not generating the highest employment within the local study area, when measured in terms of output, manufacturing is an important industry in

the region. The contribution of manufacturing to LGA output is shown in Table 19-4.

**Table 19-4 Manufacturing Output**

LGA	Output \$M
Pyrenees Shire <sup>1</sup>	\$112
Ararat Rural City <sup>2</sup>	\$438

Source: (1) Pyrenees Shire Growth & Development Strategy – 2011-2014 based on 2009 REMPLAN data.(2) Ararat Rural City Economic Development Strategy, based on December 2008 REMPLAN data.

The close link between agricultural output and manufacturing employment is demonstrated in the Pyrenees Shire, where wine and spirit manufacturing accounts for \$83M or 73% of output from the

manufacturing industry. As a large proportion of this industry's output is exported, transport links to capital cities and major ports are important to the

future competitiveness of the industry, and in turn to the agricultural industry.

The study area's manufacturing industry benefits from the strategic location of towns such as Beaufort and Ararat on the Western Highway, the main transport route between Melbourne and Adelaide, and the provision of affordable industrial land. In the Beaufort and Avoca Industrial Land Strategy Review (2005), a 5.4ha parcel of land south of the Western Highway in Beaufort is recommended for rezoning from Public Use 2 to Industrial 1 to meet demand for industrial land. Further west, Ararat Rural City Council has recently rezoned a 30ha site in Ararat for the development of the Ararat Renewable Energy Park, which includes 17 lots varying in size from 3,000m<sup>2</sup> up to 8ha. This Renewable Energy Park is located within the study area. To date, no sites in the Energy Park have been developed, but the estate is part of Council's long term planning for provision of industrial land and Council is keen to retain the estate.

Ararat and Pyrenees Councils' development strategies both focus on providing suitable industrial land with good access to the highway, therefore highway access to/from these identified industrial areas would be an important criteria for assessment of alignment options and impacts.

### 19.5.5 Tourism and other Industries

An important driver for the upgrade of the Western Highway is to maintain the important tourism industry in the region. Some of the study area is located within the Grampians Tourism Region. Visitation to this region has declined over the 11 year period from 2000, and analysis of the visitation data shows that the Grampians Region is losing its comparative advantage compared with other regional destinations and compared to Melbourne.

Tourism expenditure in the Grampians Tourism Region is estimated at approximately \$193.9M, based on 2007 and 2008 data indexed to March 2011. This is a conservatively low estimate, and excludes international visitors to the region. It is based on estimated expenditure per day trip visitor in 2008 of \$74 per visitor, and per domestic overnight visitors in 2007 of \$79 per night (Tourism Research Australia, Regional Expenditure Tables).



In 2005, tourism employment in the Grampians region was estimated at 1,840 or 4.4% of total employment (TTF Australia Victoria Tourism Employment Atlas 2005). This employment is measured in 14 tourism-related sectors, the most important of these being:

- Travel agency & tour operator services, where tourism accounts for 97.1% of the industry employment.
- Accommodation, where tourism accounts for 90.1% of the employment.
- Air & Water Transport (67.1%).
- Cafés and Restaurants (26.6%).
- Clubs, Pubs, Bars & Taverns (19.1%).

Tourism contributes 8.1% to employment in retail trade, and in tourist destinations this percentage would be significantly higher. The value of tourism to the region can also be measured by its contribution to Gross Value Added of other industries. Estimates by Tourism Victoria of the ratio of the tourism region's total tourism output to the region's total economic output, indicates that tourism represents 2.7% of the economy of the Grampians region in 2007/08 (refer Grampians Market Profile, Year Ending December 2010).

Tourism and retail operations and attractions in the local study area include the following:

- United Service Station (known locally as the Red Kangaroo Service Centre – Red Roo) – on the north side of the existing Western Highway on the western outskirts of Beaufort
- Hotel in Buangor – south side of the existing Western Highway (currently closed)
- Off the Beaten Track cellar door and art gallery in Buangor– south side of the existing Highway
- Challicum Hills Wind Farm signage and viewing parking area
- Entrance to Green Hill Lake recreation area (Figure 19-2) on the eastern outskirts of Ararat
- Langi Ghiran State Park.







**Figure 19-2 Green Hill Lake recreation area**

### **19.5.6 Land Transport Infrastructure**

The rail line within the study area between Beaufort and Ararat is single track and is broad gauge. It lies to the west of the Ballarat connection of the V/Line corridor and terminates at Ararat.

The rail line provides passenger rail services operated by V/Line. There are three services per day on weekdays and two services per day during the weekend that serve Beaufort and Ararat from Melbourne. There is also the same number of services from Beaufort and Ararat to Melbourne (V/Line, 2011).

The regional V/Line bus services operate along the Western Highway between Ararat and Ballarat. Bus stops are located within Trawalla, Beaufort, Buangor (only one in the study area) and Ararat.

There are no interstate or intrastate freight movements on this rail line.

## **19.6 Impact Assessment**

### **19.6.1 Key Issues**

The economic impacts for the Project can be broadly divided into agricultural impacts and non-agricultural business impacts. The key issues for agriculture are economic impacts arising from the following:

#### **Direct land loss**

- Severance of landholding(s)
- Impacts on infrastructure
- Vehicle and stock movement
- Impact on access.

The key issue for non-agricultural businesses is economic impacts arising from disruptions to access during construction.

### **19.6.2 Impact Pathways**

This section identifies and describes economic cause and effect pathways associated with the construction and operation of the Project. The economic impact pathways are those for agriculture and other businesses.

#### **Agriculture**

- Construction of the Project would result in the loss of agricultural facilities and infrastructure (including dams, stock yards) across the alignment. The cost for this impact is estimated at \$1.3M - \$1.5M over a 30 year period (GHD, 2012i).
- Construction of the Project would result in the loss of agricultural land and severance of properties across the alignment. The economic impact on businesses for this impact is estimated in the range of \$2.2M - \$2.5M over a 30 year period (GHD, 2012i).

#### **Non-Agricultural businesses**

- The Project may disrupt access to businesses during construction across the alignment resulting in a loss of revenue. The cost of this impact is expected to be less than \$100,000 over the estimated 3 year construction period (GHD, 2012i).
- Construction of the Project may result in the loss of passing trade for one particular business. The economic impact of this impact is expected to be

less than \$100,000 over the estimated 3 year construction period (GHD, 2012i).

19.6.3 Benefit Cost Assessment

The economic impact assessment has been undertaken using a conventional BCA approach and an assessment of the wider economic impacts.

Travel Time Savings

It is acknowledged that some landholders along the highway may have minimal increases in travel times (refer to Chapter 9 (Traffic and Transport)), however, in economic terms, travel times savings are estimated to be in the order of \$46.2M for Option 1 and \$48.1M for Option 2 over the 30 year life of the Project (GHD, 2012i).

Vehicle Operating Cost Savings

To calculate vehicle operating cost savings, the vehicle kilometres travelled is applied to the vehicle operating cost rates to generate estimates of daily vehicle operating costs. Vehicle operating cost savings that would occur have been estimated at \$86.6M for Option 1 and \$88.1M for Option 2 (GHD, 2012i).

Crash cost savings

Crash cost savings were derived from estimates based on the previous crash history on the route and the known improvements to the standard of infrastructure that would occur as a result of the Project. Crash cost savings estimated for this Project are in the order of \$9.4M for Option 1 and Option 2 over the 30 year life of the Project (GHD, 2012i).

Residual value

When infrastructure assets have a life that extends beyond the time horizon covered in an economic assessment (as this Project would), any residual value in the asset is recorded as a benefit. As the economic assessment has been conducted over the standard 30 year period and the pavement in the

Project is expected to last 50 years, the Project has a residual benefit of \$32.1M for Option 1 and \$31.9M for Option 2.

Capital Costs

Capital costs, which is defined as the sum of money required to oversee the construction of the road alignment, have been estimated to a 90 per cent confidence level which is consistent with VicRoads risk based estimating requirements. The present value of the capital costs as a result of the Project was estimated as being in the order of \$313.8M for Option 1 and \$311.4M for Option 2. Capital costs involved in the construction of the Project include construction cost of the road and an estimation of compensation costs to landowners (GHD, 2012i).

Maintenance Costs

VicRoads estimates that the maintenance costs of the Project would be in the order of \$9.0M for both Option 1 and Option 2 over the 30 year life of the Project (GHD, 2012i).

Benefit Cost Ratio

The Benefit Cost Ratio (BCR) is a ratio attempting to identify the relationship between the cost and benefits of the Project.

Table 19-5 summarises the contribution of the above benefits and costs to the Project’s BCR of 0.5 for Option 1 and 0.6 for Option 2. A ratio of 1 indicates that there is a balance between benefits and costs for the Project. The direct costs of the Project exceed those direct benefits that are incorporated into the assessment. However, this result is not unusual for Projects of this nature in regional areas, given relatively low traffic volumes and long project lengths compared with an urban transport project.

Further details on the basis of the figures in Table 19-5 are included in Technical Appendix P.

Table 19-5 Results of Benefit Cost Assessment

	Present Value (4.4 % discount rate over 30 years)	
	Option 1	Option 2
Vehicle Operating Cost Savings	\$86.6M	\$88.1M
Travel Time savings	\$46.2M	\$48.1M
Crash Cost savings	\$9.4M	\$9.4M
Externality savings	\$0.0M	\$0.0M
Residual value	\$32.1M	\$31.9M
<b>TOTAL BENEFITS</b>	<b>\$174.3M</b>	<b>\$177.4M</b>
Capital Costs	\$313.8M	\$311.4M
Maintenance Costs	\$9.0M	\$9.0M
<b>TOTAL COSTS</b>	<b>\$322.8M</b>	<b>\$320.4M</b>
<b>Benefit Cost Ratio</b>	<b>0.5</b>	<b>0.6</b>
<b>Net Present Value</b>	<b>\$-148.5M</b>	<b>\$-143.0M</b>

Source: GHD (2012i).

### 19.6.4 Other Economic Impacts

There are other economic impacts in addition to those identified in the BCA. These are:

- Construction employment which would create approximately 2,220 Full Time Equivalent (FTE) jobs for Option 1 and 2,200 FTE jobs for Option 2 over the three year construction period (GHD, 2012i). These totals are jobs directly and indirectly involved in construction of the Project.
- Flow on effects to the wider economy are estimated to create 4,130 FTE jobs for Option 1 and 4,090 FTE jobs for Option 2 (GHD, 2012i).
- The Project is also expected to have a positive impact on the agricultural industry as connections between the region and the Port of Melbourne would be enhanced, enabling positive outcomes for imports and exports.
- The Project is expected to have a positive impact on the region's tourism as the movement of customers and staff would be enhanced.

#### 19.6.4.1 The Preferred Option

Option 1 has the greatest negative impact on agricultural land, property and severance. Option 1 involves substantial property severance between Hillside Road and Langi Ghiran Picnic Ground Road, including the severing of several rural allotments.

There is no significant difference between the Options in terms of direct land loss and facilities loss.

In terms of impacts to non-agricultural businesses, both options were found to have impacts of a low magnitude.

As outlined in Table 19-5, the BCR for Option 1 is 0.5 and 0.6 for Option 2.

As such, the preferred Option for the Project from an economic viewpoint is Option 2.

## 19.7 Risk Assessment

An environmental risk assessment was undertaken on the Project options to identify key environmental issues associated with the construction and operation of the Project. The methodology for this risk assessment has been described in Section 4.2 of Technical Appendix P. A risk assessment report that explains the process in detail and contains the complete project risk register has also been included as Technical Appendix Q. Table 19-6 shows a summary for economic of:

- The impact pathways identified
- A description of the consequence

**Table 19-6 Economic Risks**

Risk No.	Impact Pathway	Consequence Description
E1	Construction of the Project would reduce passing trade for some businesses (Buangor)	Some businesses along the alignment rely for a portion of their turnover on passing traffic. This traffic would be reduced with a consequent reduction in turnover.
E2	Construction of the Project would result in the loss of agricultural facilities and infrastructure plus the loss of agricultural land and severance of properties across the alignment	Stock yards, sheds, access lanes and other infrastructure may require replacement or relocation. Some agricultural and would be lost as a result of the construction and there would be severance and access issues to some properties
E3	Construction of the Project would disrupt access to non-agricultural businesses during construction	Some agricultural and other businesses along the route would have access disrupted during the construction process

## 19.8 Environmental Management Measures

VicRoads has a standard set of environmental management measures that are typically incorporated into its construction contracts for road works and bridge works. These measures have been used as the starting point for the assessment of construction related risks and are described in detail

in Chapter 21 (Environmental Management Framework). In some cases, additional project specific controls are recommended to reduce risks.

The management measures specific to each identified economic risk, and the residual risk rating after the environmental management measures have been applied, are outlined in Table 19-7.



**Table 19-7 Specific Economic EMF management measures and residual risks**

Risk No.	Environmental Management Measures	Residual Risk Rating
E1	New signage would be installed for any business areas affected by the reduction in passing trade and for creating an awareness	Low
E2	Compensation measures would be provided for loss of infrastructure, land, severance and access issues.	Low
E3	Communicating with businesses would occur to optimise construction schedules.	Low

### 19.8.1 Residual risks

Following implementation of the proposed mitigation measures there are not expected to be any significant negative economic impacts. All three identified risks have a residual risk rating of low.

## 19.9 Conclusion

The regional economy is based primarily on agriculture and tourism. An economic impact assessment has been conducted to determine potential impacts of the Project on both agricultural and non-agricultural businesses.

Impacts were considered by examining the amount of land severance, the BCR outcome, consequences to employment, and effects on tourism and other non-agricultural industry in the area.

Of the two alternative alignments Option 2 is the preferred option as it has less land severance and a BCR of 0.6, compared with a BCR 0.5 for Option 1. BCRs within such a range are typical of projects of

this nature. It is expected that construction of the Project would create approximately 2,220 FTE jobs for Option 1 and 2,200 FTE jobs for Option 2. This would have positive flow on effects for the region in the order of 4,130 FTE jobs for Option 1 and 4,090 FTE jobs for Option 2. The operation of the Project would result in significant economic benefits totalling around \$174.3M for Option 1 and \$177.4M for Option 2 over a 30 year operating life (GHD, 2012i) due to vehicle operating cost savings, travel time savings, crash cost savings, externality savings (GHD, 2012i) and residual savings (GHD, 2012i).

It is also expected that the Project would enhance connections for the agricultural industry with the Port of Melbourne and enable a more efficient movement of people which is expected to create a positive outcome for the region's tourism industry.

Overall, the negative economic impacts of the Project are expected to be low and the economic benefits of the Project are expected to be moderate.



*Intersection of Western Highway, Goulds Lane and Ferntree Gully Road*