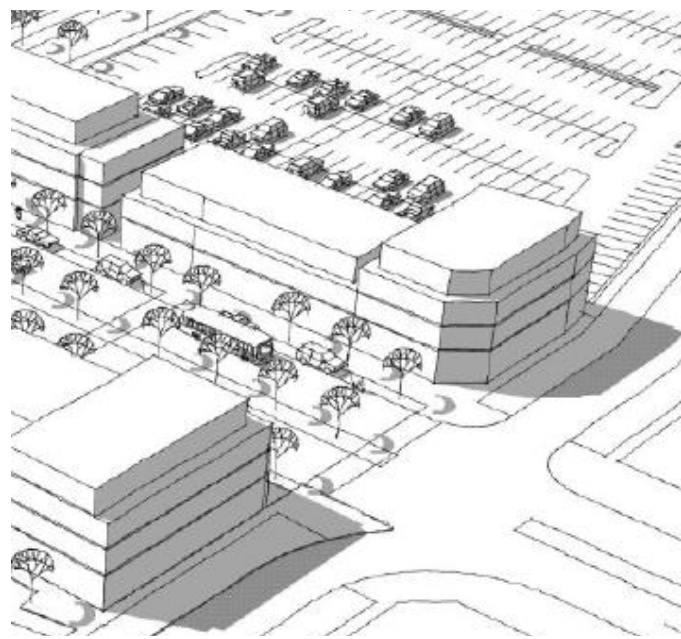
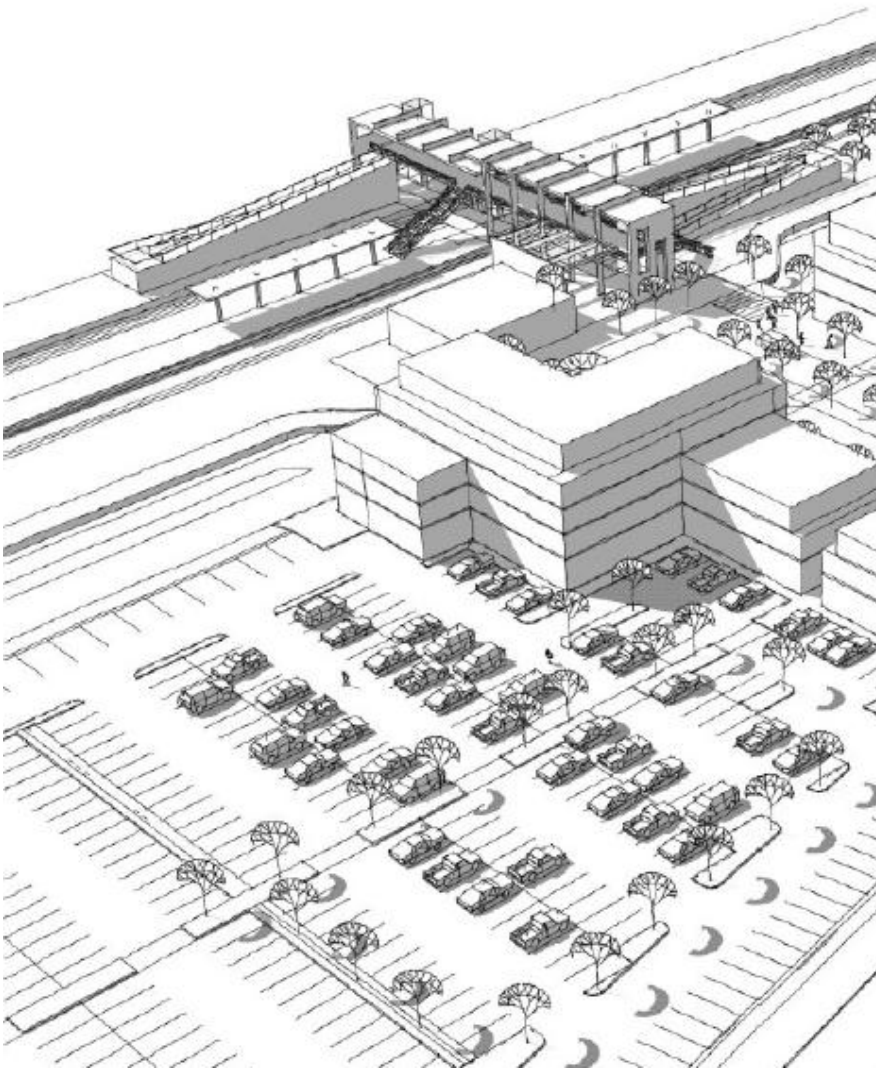


ARMSTRONG CREEK
Economic Impact Analysis



PROJECT UNDERTAKEN FOR
CITY OF GREATER GEELONG
and SURF COAST SHIRE COUNCIL

May 2011

Armstrong Creek Economic Impact Analysis

This project has been conducted by Compelling Economics Pty Ltd

Project Team

Matthew Nichol
Principal Economist

Tony Moore
Principal Economist

May 2011

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RESOURCES

All economic modelling has been undertaken using REMPLAN™ software that has been authored by Principal Research Fellow (ret.), Ian Pinge, at La Trobe University Bendigo.

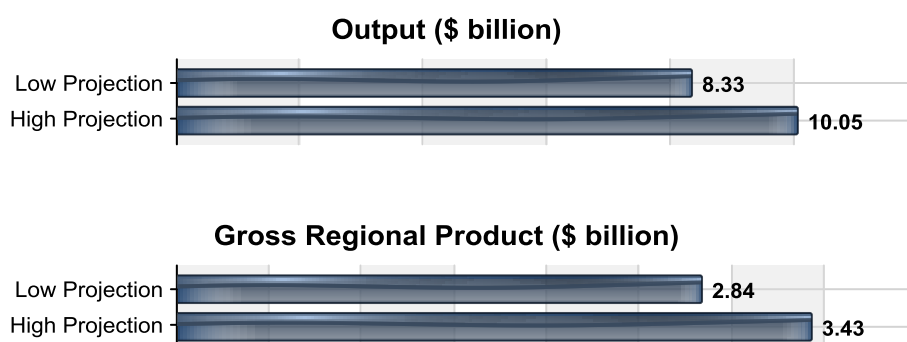


Contact us:

Compelling Economics Pty Ltd
PO BOX 5006
SANDHURST EAST,
BENDIGO, VIC 3550
TEL: 1300 737 443
Email: info@compellingeconomics.com.au

Executive Summary

Situated in the corridor linking Torquay to Geelong, Armstrong Creek has been identified as the Geelong Region's key growth area. When completed in 2030, Armstrong Creek will be home to a residential population of between 50,100 and 60,464 people, and will provide local employment within the range of 19,833 jobs to 23,934 jobs. Higher end projections indicate that the Armstrong Creek community will generate direct annual economic output of up to \$10.05 billion and Gross Regional Product of up to \$3.43 billion¹.



Businesses and consumers in Armstrong Creek are anticipated to drive demand for goods and services in the broader Geelong Region and these flow-on impacts are expected to support an estimated 25,038 additional indirect jobs. Of these indirect jobs it is estimated that 20,017 will be captured within the City of Greater Geelong, and 1,737 in Surf Coast Shire². This would represent a 27 percent increase on current employment in Greater Geelong (C), and a 29 percent increase for Surf Coast Shire³.

In order to achieve population and employment outcomes within the projected range, trunk servicing will need to be rolled-out early in the development process. The provision of 'hard' and 'soft' infrastructure is also likely to be a key determinant in achieving these outcomes, and whether the outcomes are ultimately at the higher or lower end of the projected ranges.

Hard infrastructure projects to support the development of Armstrong Creek include:

- Improvements to Marshall Station
- New high-quality public transport services to serve the Armstrong Creek community
- State-of-the-art recycling facilities and services
- Leading-edge telecommunications technology.
- Utilities placed below ground
- New footbridges linking existing and new communities
- New freeway-standard road around Geelong's western outskirts linking the Princes Freeway in Corio to the Princes Highway in Waurin Ponds

¹ At current values.

² The remainder of the jobs in the rest of the Geelong Region.

³ From 2006 employment levels.

Soft infrastructure projects to support the development of Armstrong Creek include:

- Retail, banking, government and personal services
- Health care services
- Education
- Parks, sporting facilities, museums, libraries, theatres

The early roll-out of trunk servicing, hard and soft infrastructure is anticipated to facilitate achieving 'high projection' population and employment outcomes. Similarly, a slower paced, incremental provision of services and infrastructure would likely contribute to outcomes closer to the 'low projection'. Over a ten year period from 2020 to 2030, the difference between the low projection employment and high projection employment is estimated to range from 2,456 direct jobs through to 4,038 direct jobs by 2030. Once all direct and indirect (flow-on) impacts are taken into consideration, the difference between the low to high projections over this ten year period corresponds to an estimated \$25.1 billion of economic output, and \$9.31 billion in terms of Gross Regional Product for the Geelong Region Economy; highlighting the anticipated economic benefits of the early provision of servicing and infrastructure in the development of Armstrong Creek.

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1 Introduction

1.1 Background and Intent

Armstrong Creek has been identified by the City of Greater Geelong as its key growth area. The Council aims to develop Armstrong Creek into a sustainable community that sets new benchmarks in best practice urban development. Natural and cultural features will be protected and enhanced to create a distinct urban character. Armstrong Creek will become a highly sought-after location for living, working and recreation, forming an attractive addition to Geelong.

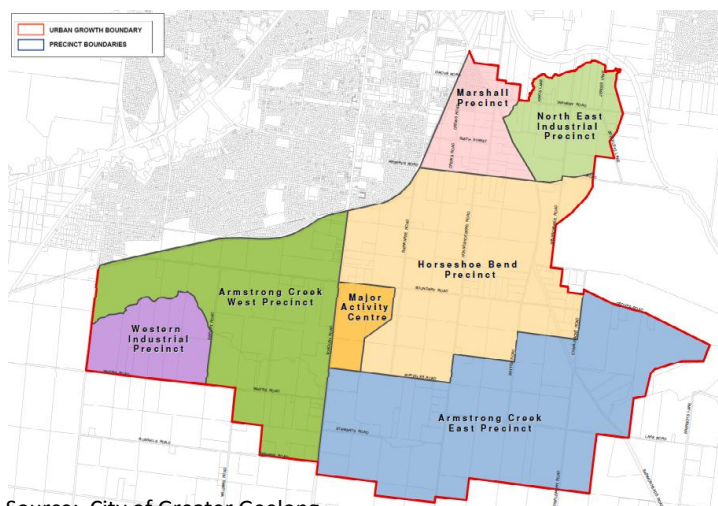
For this report, the Armstrong Creek Urban Growth Plan has been reviewed to build an understanding of road configuration, the location of retail areas and community assets such as schools, recreational facilities and public open space. The Urban Growth Plan and supplementary documents also detail planned development timeframes and likely employment outcomes based on proposed land used and likely employment outcomes based upon land use to employment ratios. These estimates have been sourced from the documents reviewed for this report, which include:

- Armstrong Creek Urban Growth Plan, Volume 1, Adopted 13 May 2008
- Armstrong Creek Integrated Infrastructure Delivery Plan, Adopted 10 March 2009
- Keystone Business Park – Economic Needs Assessment, 19 August 2009
- Armstrong Creek East Precinct Neighbourhood Activity Centre, September 2009
- Armstrong Creek East Precinct Structure Plan, May 2010
- Armstrong Creek North East Industrial Precinct Structure Plan, May 2010
- Armstrong Creek West Precinct Activity Centre Advice, November 2010

The reviewed documents include structure plans for the East Precinct and the North East Industrial Precinct.

Armstrong Creek is part of the Urban Growth Zone, which is within the Urban Growth Boundary, and was previously zoned as *farming*. The application of the Urban Growth Zone does not in itself allow urban use and development to proceed. The Urban Growth Zone is a holding zone which reserves land for future urban development. In the Urban Growth Zone, Precinct Structure Plans are the key documents that trigger the conversion of non-urban land into urban land allowing for permits to be issued for the subdivision and development of land for urban purposes. A Precinct Structure Plan is included in the Planning Scheme via a standard Planning Scheme Amendment process.

Map 1-1 Armstrong Creek Precinct Plan



Source: City of Greater Geelong

There are seven precincts in the growth area and each precinct will require a Precinct Structure Plan. As present there are structure plans in place for the East Precinct and the North East Industrial Precinct, with the remainder to be finalised in 2011.

The Urban Growth Plan, the structure plans and the other supplementary documents provide estimated employment outcomes for Armstrong Creek. This report expands on the analysis undertaken to date by exploring the likely mix of employment across the precincts. This employment mix is based on current employment profiles in the surrounding Geelong Region, and also on an aspirational benchmark based on a successful, established industrial area which is underpinned by the provision of key infrastructure.

The differences between the base-case employment mix defined by current Geelong Region employment profiles and the 'high projection' targets have been quantified, highlighting the opportunities for the Geelong Region economy of pursuing the early implementation of key infrastructure underpinning the pursuit of higher value-adding activities.

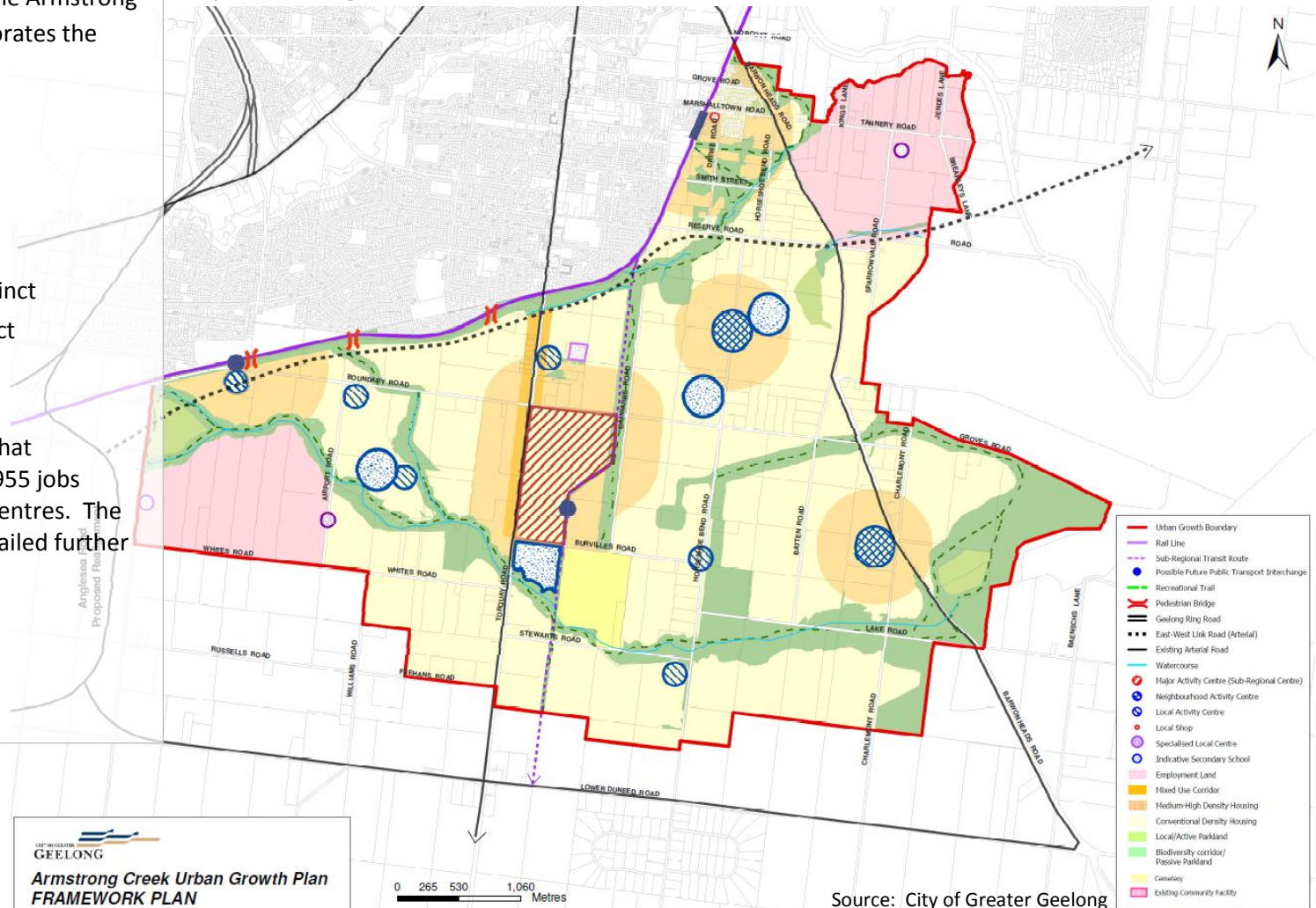
2 Urban Growth Plan – Employment Projections


As presented in Map 1-1 above, the Armstrong Creek Urban Growth Area incorporates the following precincts:

- East Precinct
- Horseshoe Bend Precinct
- Major Activity Centre
- Marshall Precinct
- North East Industrial Precinct
- Western Industrial Precinct
- West Precinct

The Urban Growth Plan projects that Armstrong Creek will support 22,955 jobs across the precincts and activity centres. The distribution of employment is detailed further on the following page.

Map 1-1 Armstrong Creek Framework Plan





Armstrong Creek Urban Growth Plan
FRAMEWORK PLAN

Table 2-1 Armstrong Creek Urban Growth Plan Employment Projections

Major Activity Centre	3,540
North Eastern Neighbourhood Activity Centre	248
South Eastern Neighbourhood Activity Centre	213
Local Shops (Residential)	214
North Eastern Industrial Precinct	8,000
Western Industrial Precinct	7,350
Home Based Business	2,200
Specialised Local Centres in Industrial Zones	190
Other	1,000
Total Jobs	22,955

It is important to note that the employment projections presented above are for a developed and complete Armstrong Creek. The project timeline is 25 years or greater.

2.1 Major Activity Centre

The Urban Growth Plan (Pg. 80) articulates the following conceptualised plan for the Major Activity Centre: “

- the full range of convenience and comparison retail, anchored by discount department stores, supermarkets, speciality stores and bulky goods stores;
- a wide range of community facilities and services, education services and health services;
- entertainment space, including a tavern and associated cinema;
- employment opportunities, including commercial and government offices.

This area can expect to hold approximately 3,540 jobs. The job mix will be focused on service, managerial, professional and clerical jobs.”

2.2 North Eastern Neighbourhood Activity Centre

The North Eastern Neighbourhood Activity Centre is conceptualised to accommodate a single supermarket that is associated with complementary convenience retailing, business services and community services including parenting support, child health services, medical, community health and wellness services.

The conceptualised plan also incorporates a 3.5ha primary school that provides opportunities for schools and community partners to work together and share the use of school facilities, for example, library or resource centre, hall or meeting spaces, performing arts spaces, information technology centre, local sporting facilities jointly used by the community; create spaces to support school-aged holiday, before and after school programs; and co-locate pre-school centres on school grounds; and be co-located with an 8.4ha secondary school, indoor sports stadium, active sports ground and base for youth services.

This area can expect to hold approximately 248 jobs. The job mix will be focused on service and clerical jobs. See Urban Growth Plan Pg. 82.

2.3 South Eastern Neighbourhood Activity Centre

The Urban Growth Plan (Pg. 82) states that the South Eastern Neighbourhood Activity Centre is conceptualised to accommodate a single supermarket that is associated with complementary convenience retailing, business services and community services.

It is estimated that the South Eastern Neighbourhood Activity Centre will incorporate a 'family hub' of children and family support services including parenting support, child health services, medical, community health and wellness services as well as other flexible spaces for use by all lifecycle groups; and

The conceptualised plan contain a 3.5ha primary school that provides opportunities for schools and community partners to work together and share the use of school facilities, for example, library or resource centre, hall or meeting spaces, performing arts spaces, information technology centre, local sporting facilities jointly used by the community; create spaces to support school-aged holiday, before and after school programs; and co-locate pre-school centres on school grounds.

This form of development can expect to hold approximately 213 jobs. The job mix will be focused on service and clerical jobs. See Urban Growth Plan Pg. 82.

2.4 Local Shops (Residential)

The growth area will include local centres scattered throughout the residential areas, focusing on areas that have relatively poor access to the three primary centres. These local nodes fall into three categories:

- Local Centres, primary school and family services
- Local Shops, convenience shops and services and other services considered desirable as part of precinct structure planning
- Corner Stores, multi-purpose store for convenience food items, coffee, newspapers, dry cleaning and café (based on corner store model).

These local centres can expect to hold approximately 214 jobs. The job mix will be focused on service jobs. See Urban Growth Plan Pg. 83.

2.5 North Eastern Industrial Precinct

The North Eastern Industrial Precinct is an extension of the Marshall Industrial Area. This area is conceptualised to accommodate a mix of business types, with a focus on the service industry needs of the area. The primary role of the Precinct is to be the home of businesses that serve the regional population and business base with light industry and trade supplies. Although designed for service industry, it is likely that this area will absorb some of the hi-tech manufacturing development that is targeted for Armstrong Creek.

This area can expect to hold approximately 8,000 jobs. The job mix will be focused on technical, trades, transport and labouring jobs. See Precinct Structure Plan, Appendix 3 Pg 82.

2.6 Western Industrial Precinct

The Western Industrial Precinct is a 'new' type of industrial development form in Geelong. This area is conceptualised as a high amenity business park, designed to accommodate hi-tech manufacturing firms and research activity. The focus is on industrial land users that require a higher amenity environment in a recognisable address for corporate, research and advanced manufacturing activities. The primary role of the Precinct is to be the home of businesses that serve international and national clients.

Although called industry, this precinct is geared to provide an outlet for 'new economy' industrial-based land uses. Pure office facilities will be clustered in activity centres. However, this employment area will accommodate a significant stock of office and research space associated with a production and/or warehouse function. Links to Deakin University are important. It is conceptualised that this precinct will provide commercialisation space for Deakin University research in biotechnology, primary industries and food. Whilst Deakin University already has 54 hectares of land earmarked for a technology park—the Geelong Technology Park (GTP)—this will not provide enough space for the

long-term employment needs of Armstrong Creek. The GTP can establish a niche based on its co-location with the university, which will set it apart from the Western Industrial Precinct.

This area can expect to hold approximately 7,350 jobs. The job mix will include a variety of managerial, professional, technical, trades, transport and labouring jobs.

A precondition for this area to succeed is quality main road access and exposure to the Geelong Ring Road system. See Urban Growth Plan Pg. 61.

2.7 Home Based Business

The residential zones of the growth area are conceptualised as 'intelligent' and 'active' zones, which encourage local business formation and activity. The continuing shift to a services based economy is encouraged across the housing areas of the growth area.

An important part of the economic strategy is to provide spaces for home based businesses to 'evolve into and out of' as they grow over time. This is enabled by the development of a diverse activity centre structure that provides a range of office tenancies, avoiding the establishment of malls which are controlled by a small number of landlords. It is assessed that approximately one in ten households will accommodate a home base business in the future.

Assuming one job per business, this translates into a **residential employment base of 2,200 jobs**. It is likely that the bulk of the jobs will be professional or personal service oriented. See Urban Growth Plan Pg. 62.

2.8 Specialised Local Centres in Industrial Zones

The industry zones are also planned to accommodate specialised local centres, which are geared to serve the needs of the workforce with services like cafes and restaurants. These nodes are well placed to also accommodate the higher job density activities of the industrial areas, which includes activities like research and development.

The employment levels anticipated are:

- **80 jobs in the North Eastern Industrial Precinct; and**
- **110 jobs in the Western Industrial Precinct (over two nodes)**

2.9 Other

Other dispersed activities like schools, health facilities and recreation nodes are **assumed to generate a further 2,000 jobs across the area.**

3 Economic Profiles

Economic profiles for the following defined areas provide further guidance regarding the likely employment mix in Armstrong Creek.

3.1 City of Greater Geelong

Map 3-1 Greater Geelong (C)

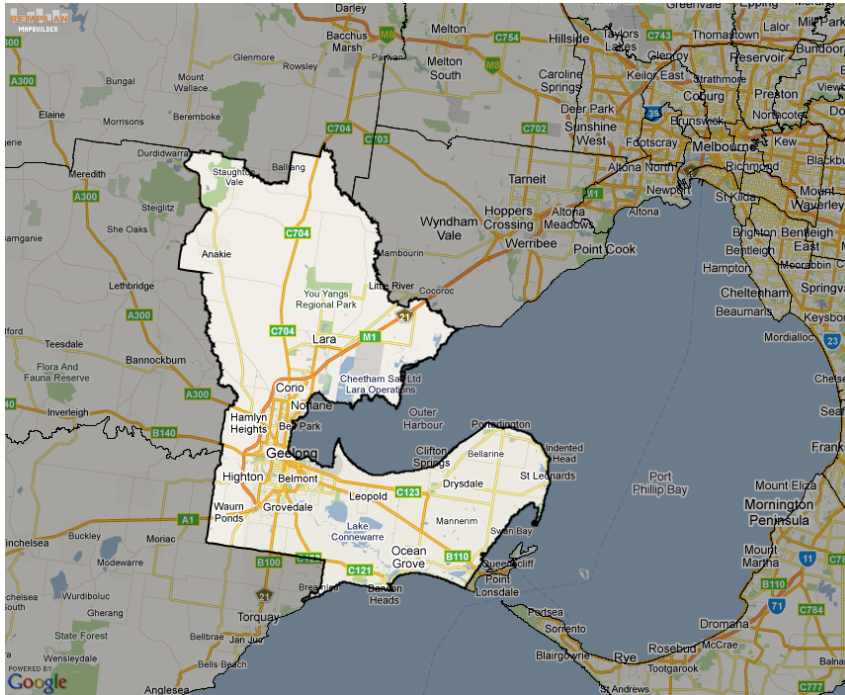
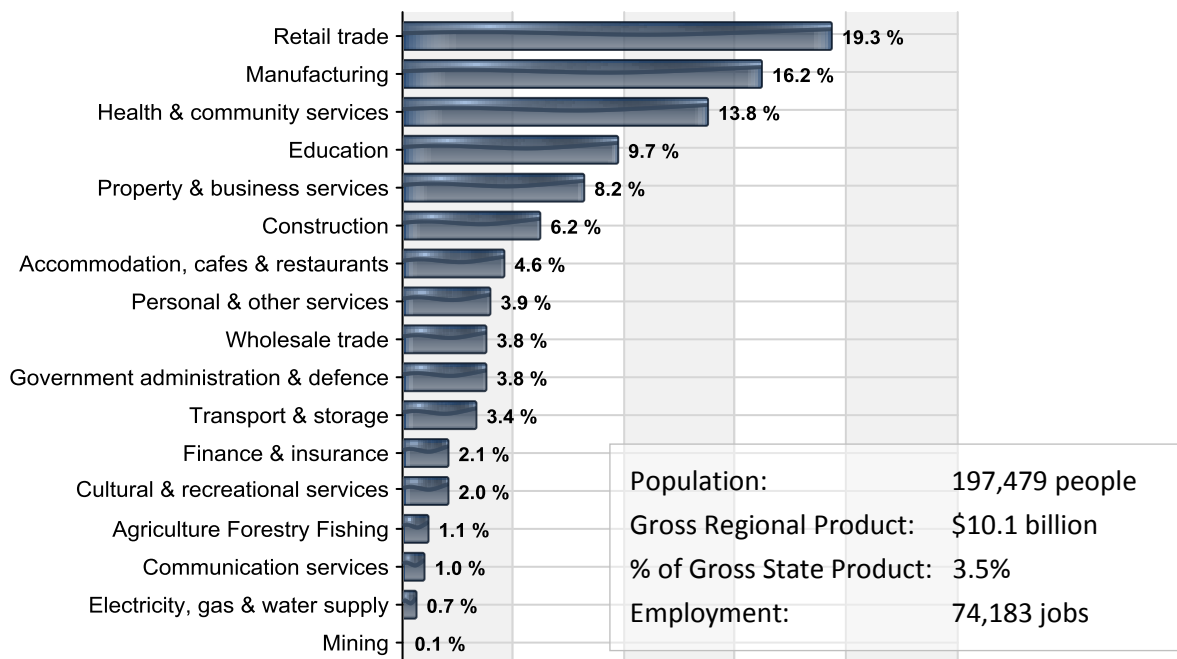


Figure 3-1 Greater Geelong (C) Employment Breakdown



3.2 Geelong CBD

Map 3-2 Geelong CBD

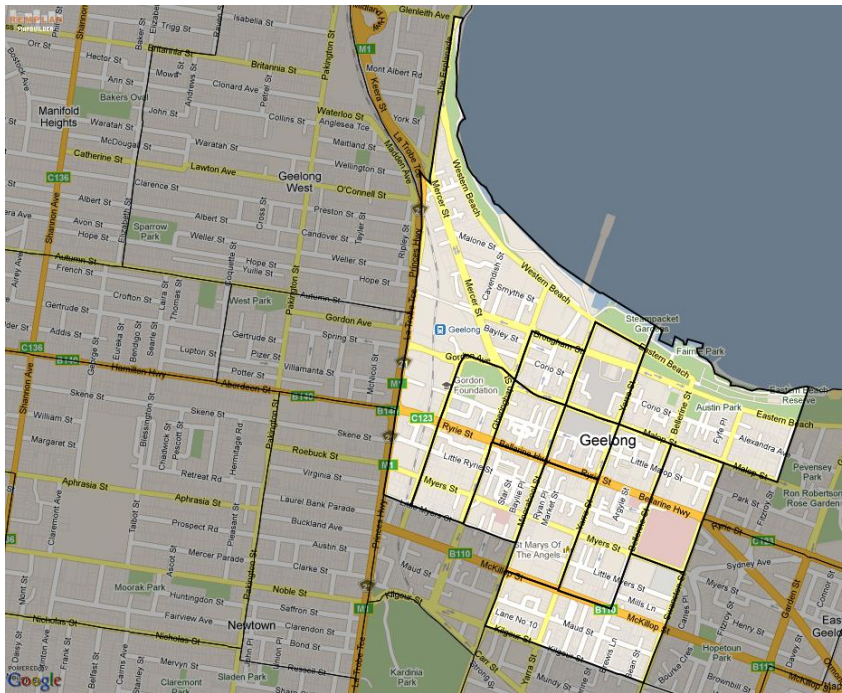
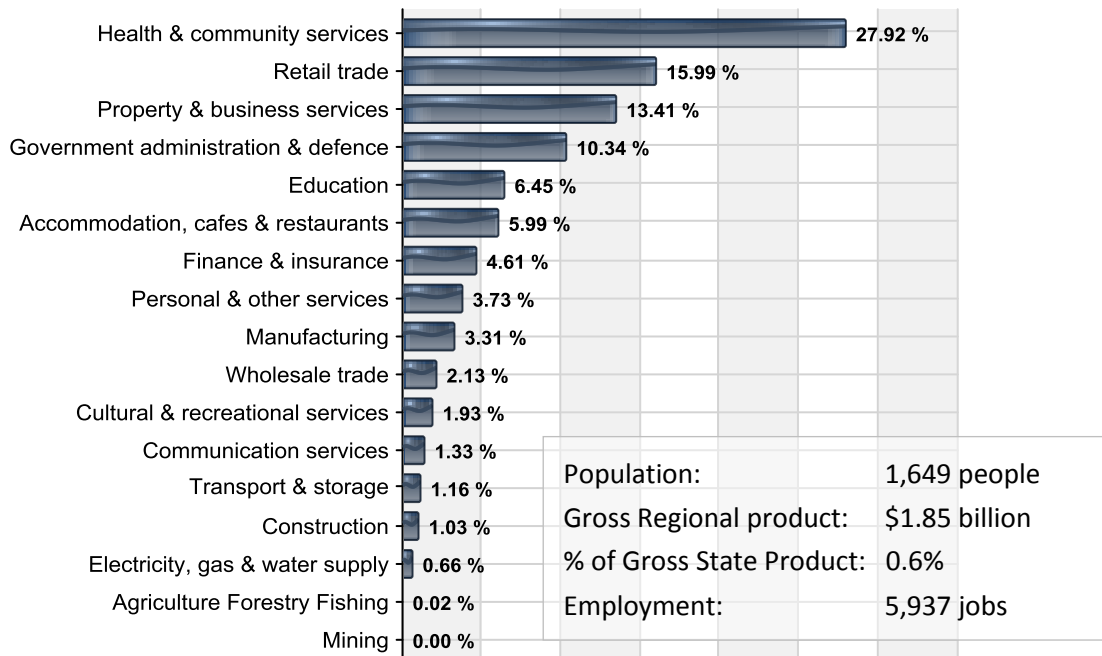


Figure 3-2 Geelong CBD Employment Breakdown



3.3 Surf Coast Shire

Map 3-3 Surf Coast (S)

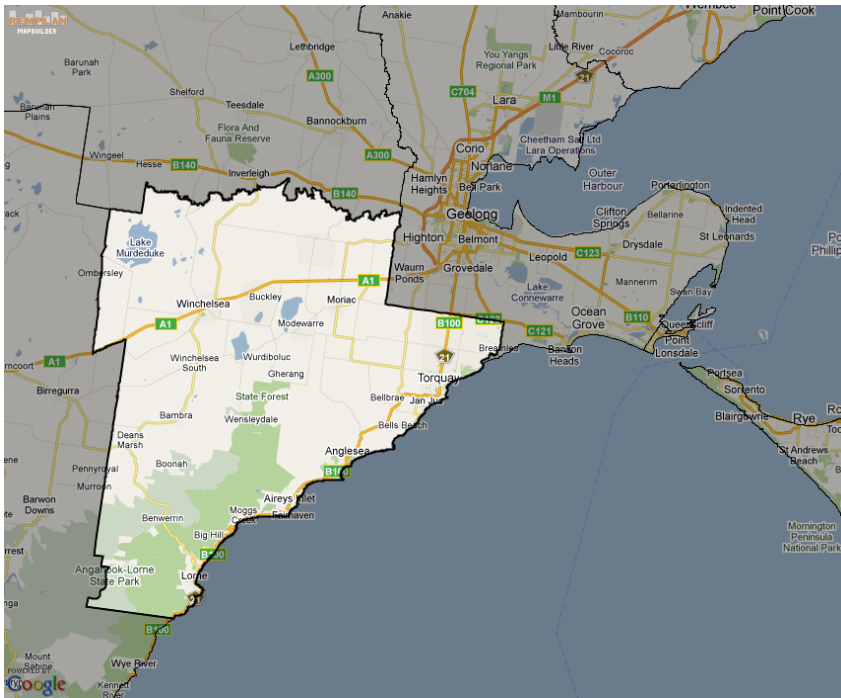
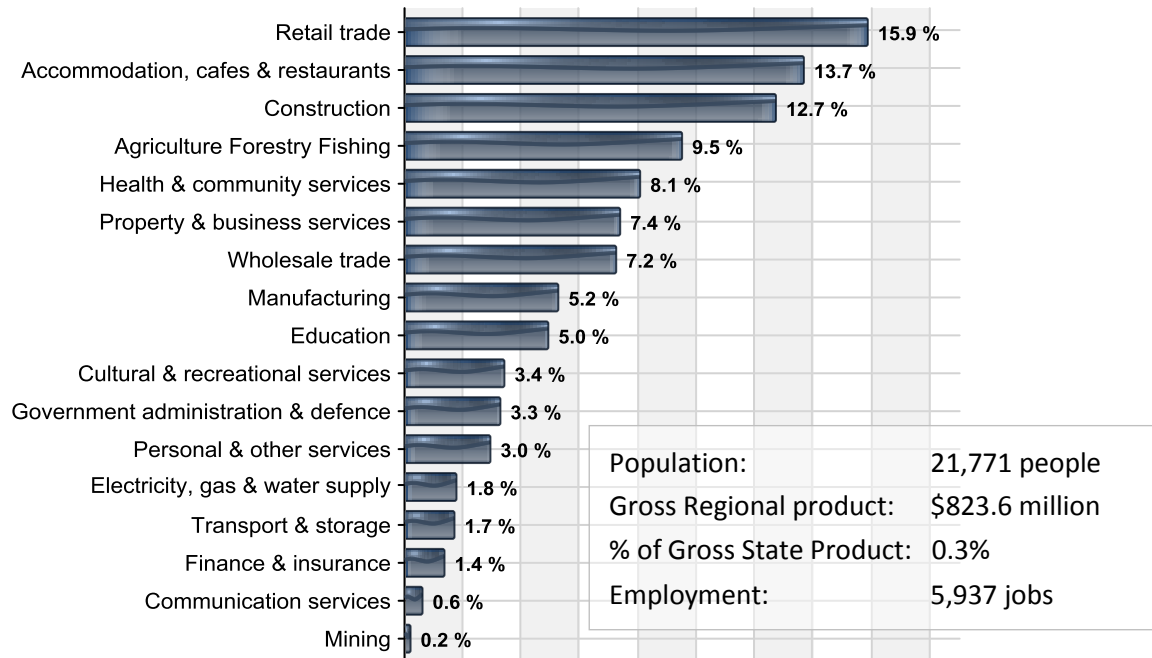
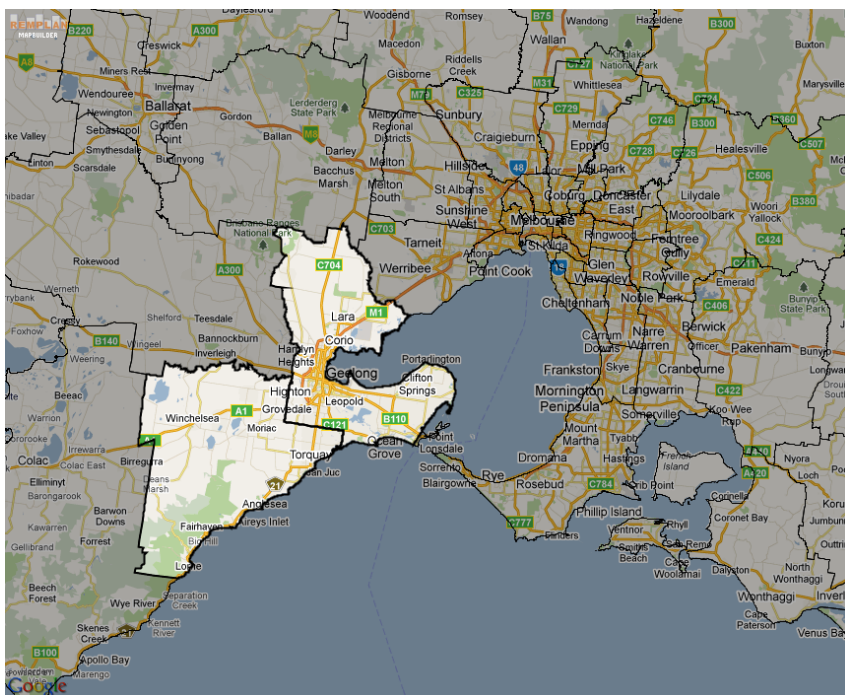


Figure 3-3 Surf Coast (S) Employment Breakdown



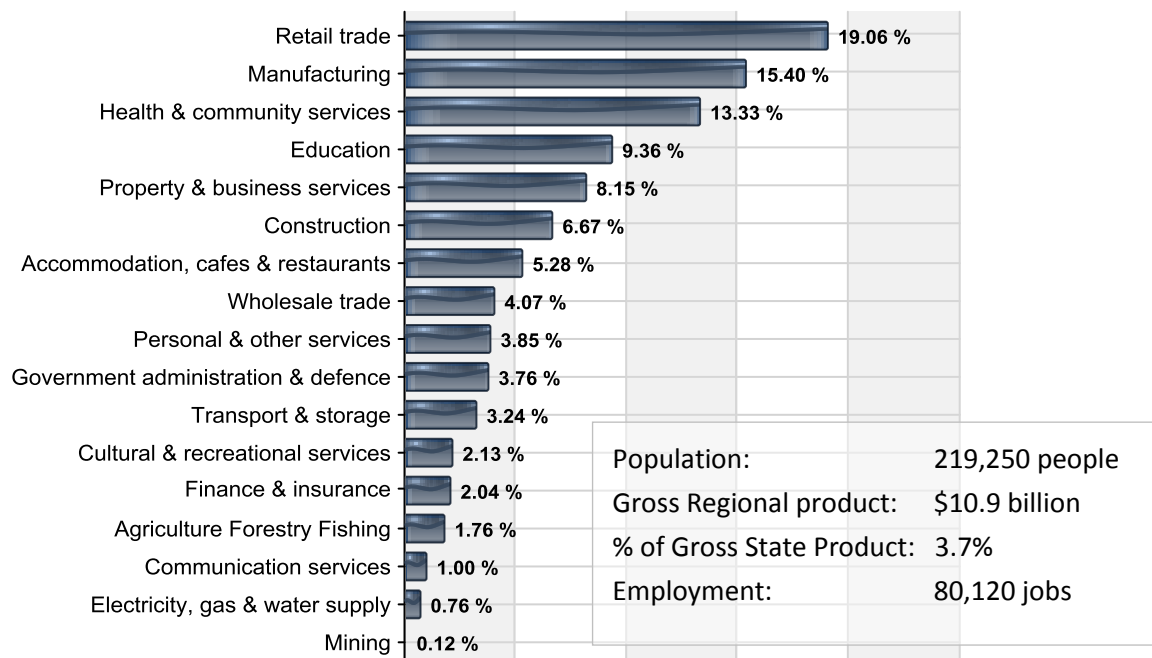
3.4 Geelong – Surf Coast Region

3-4 Geelong – Surf Coast Region



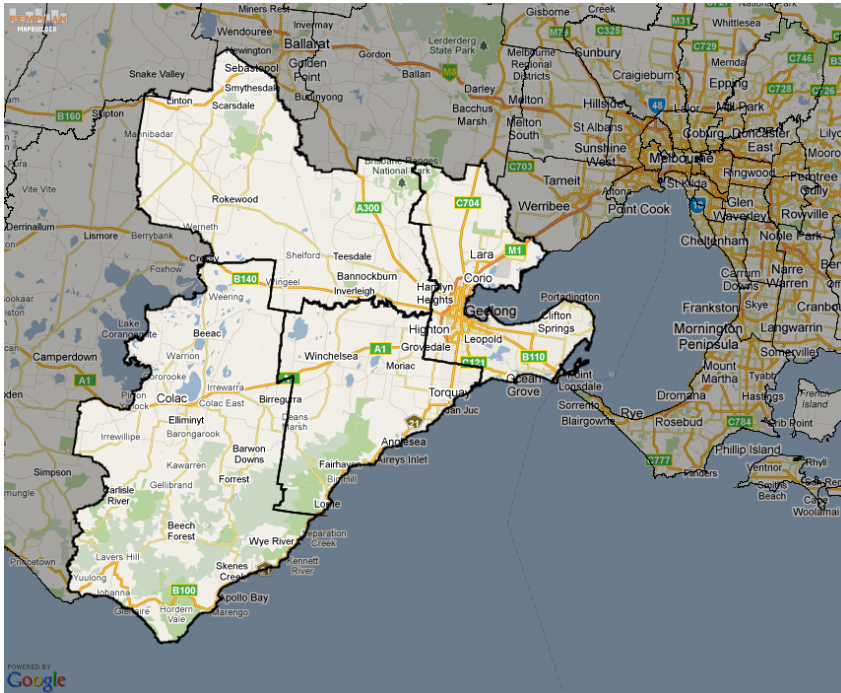
The Geelong - Surf Coast Region incorporates the local government areas of Greater Geelong (C) and Surf Coast Shire.

Figure 3-4 Geelong – Surf Coast Region Employment Breakdown



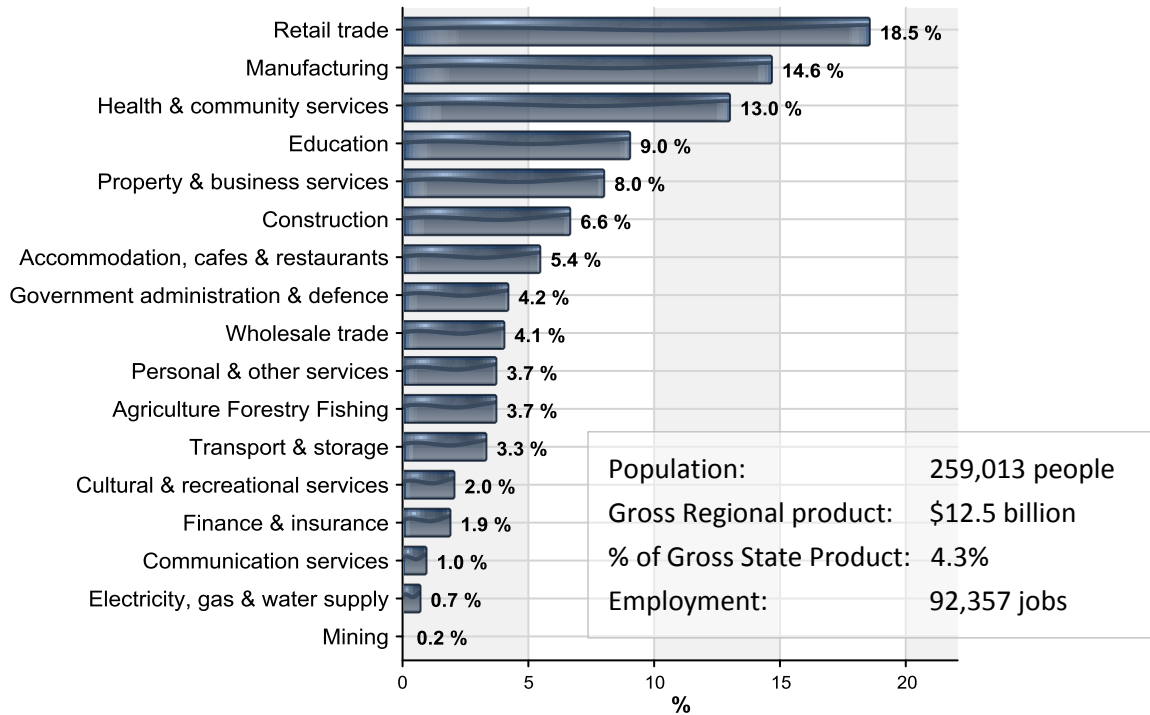
3.5 Geelong Region

Map 3-5 Geelong Region



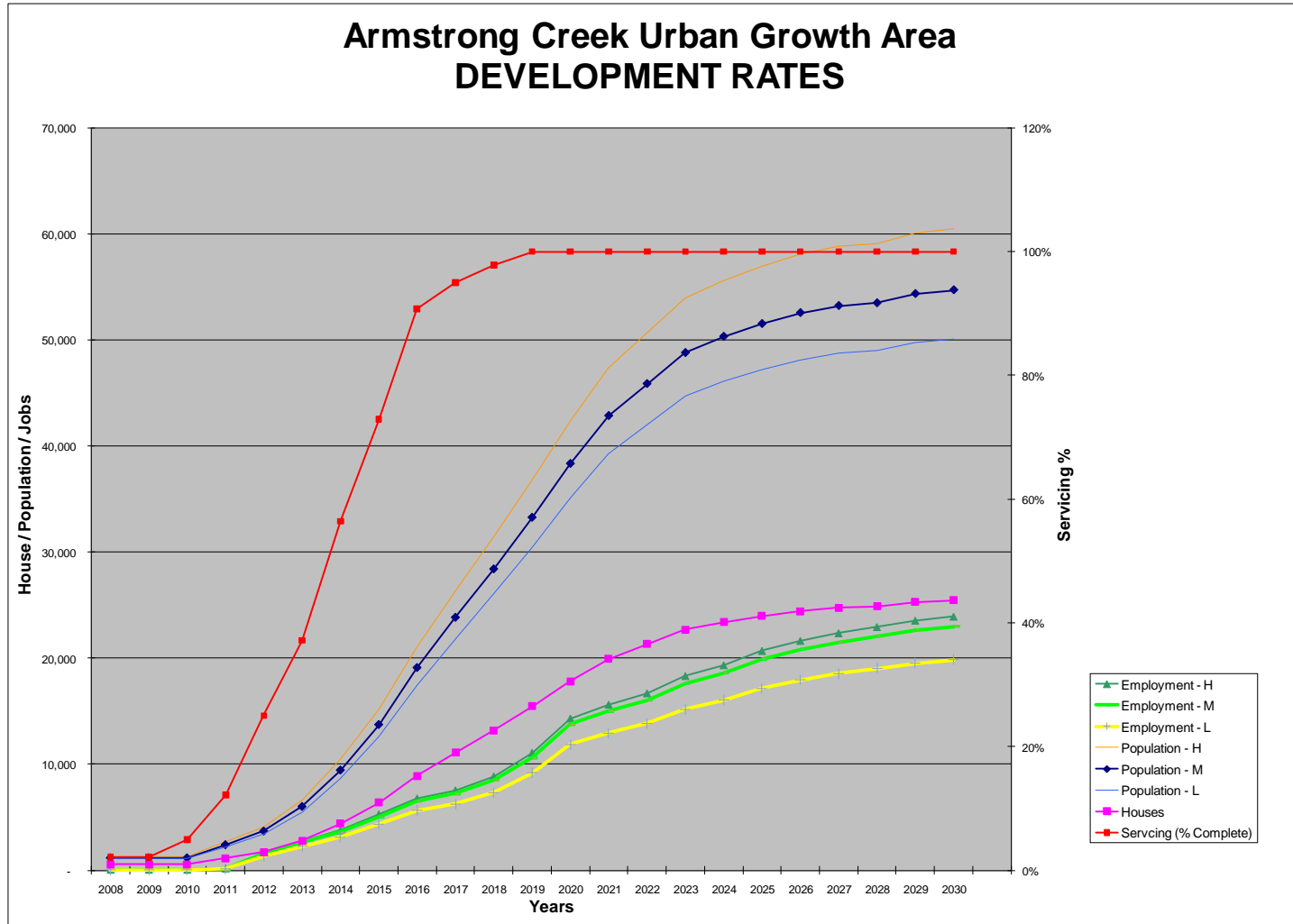
The Geelong Region incorporates the local government areas of Greater Geelong (C), Surf Coast Shire (S), Colac Otway (S), Golden Plains (S) and Queenscliffe (B).

Figure 3-5 G21 Region Employment Breakdown



4 Development Rates

Figure 4-1 Development Rates including employment projections



In figure 4-1 projections in relation to servicing, housing development, population and the employment scenario high (H) have been provided by the City of Greater Geelong.

The correlations between population and employment in these datasets, together with the employment projections detailed in the Urban Growth Plan, have provided the basis for estimating the Employment Medium (M) and Employment Low (L) projections.

Employment – M equates to 22,995 jobs by 2030, as per the projections detailed in the Urban Growth Plan.

Figure 4-1 highlights the anticipated requirement that servicing be ‘rolled-out’ early in the development process in order to achieve the population and employment projections.

5 Scenario Analysis

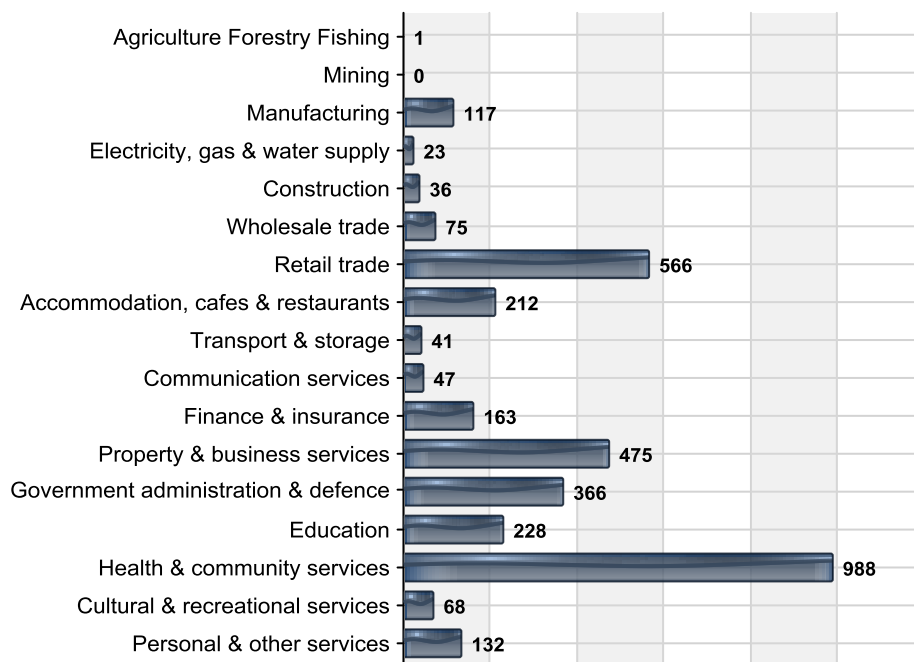
5.1 Employment 'M' Projection Scenario

Table 5-1 5.1 Armstrong Creek Precincts and Activities

	Jobs	Economic Focus
Major Activity Centre	3,540	service, managerial, professional, clerical jobs, convenience retail, discount department stores, supermarkets, speciality stores, bulky goods stores, community facilities and services, education services, health services, tavern, cinema, commercial and government offices
North Eastern Neighbourhood Activity Centre	248	single supermarket, complementary convenience retailing, business services, community services including parenting support, child health services, medical, community health and wellness services, 3.5ha primary school
South Eastern Neighbourhood Activity Centre	213	single supermarket, complementary convenience retailing, business services, community services including parenting support, child health services, medical, community health and wellness services, 3.5ha primary school
Local Shops	214	local shops, primary school and family services, corner stores, multi-purpose store for convenience food items, coffee, newspapers, dry cleaning and café (based on corner store model)
North Eastern Industrial Precinct	8,000	light industry, trade supplies, hi-tech manufacturing, transport
Western Industrial Precinct	7,350	hi-tech manufacturing, research, commercial offices,
Home Based Business	2,200	professional, personal services
Specialised Local Centres in Industrial Zones	190	cafes, restaurants, research and development
Other	1,000	schools, health facilities, recreation facilities
TOTAL Jobs	22,955	

5.1.1 Major Activity Centre – ‘M’ Scenario

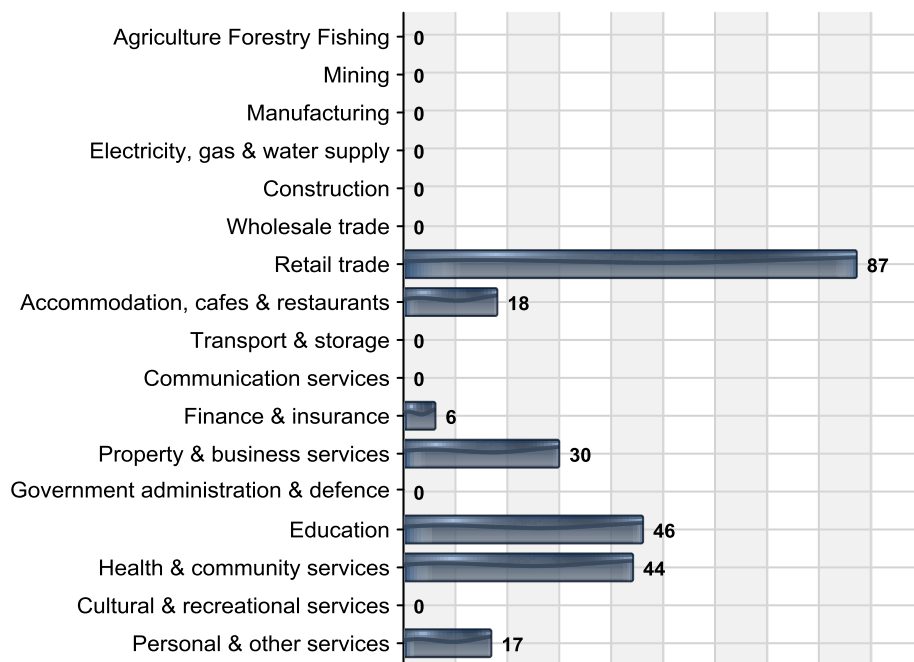
Figure 5-1 Distribution of Employment, MAC



The distribution of 3,540 jobs in Figure 5-1 above is based on the structure of the Central Geelong economy.

5.1.2 North Eastern Neighbourhood Activity Centre – ‘M’ Scenario

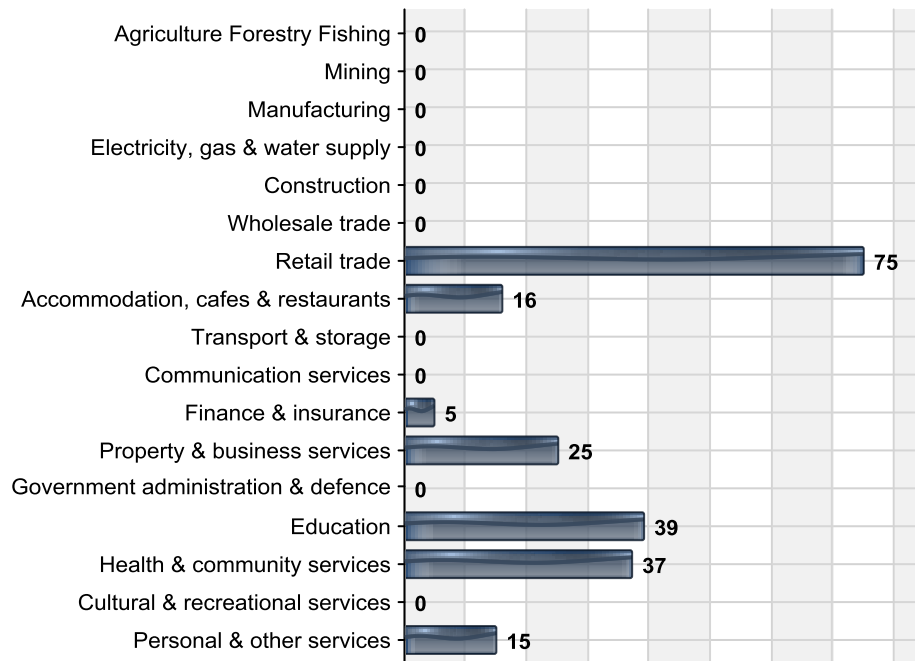
Figure 5-2 Distribution of Employment, North Eastern Neighbourhood Activity Centre



The distribution of 248 jobs in Figure 5-2 above is based on the proportionate spread of employment in the applicable sectors in the 'balance of City of Greater Geelong' economy (i.e. Greater Geelong [C] minus Central Geelong).

5.1.3 South Eastern Neighbourhood Activity Centre – 'M' Scenario

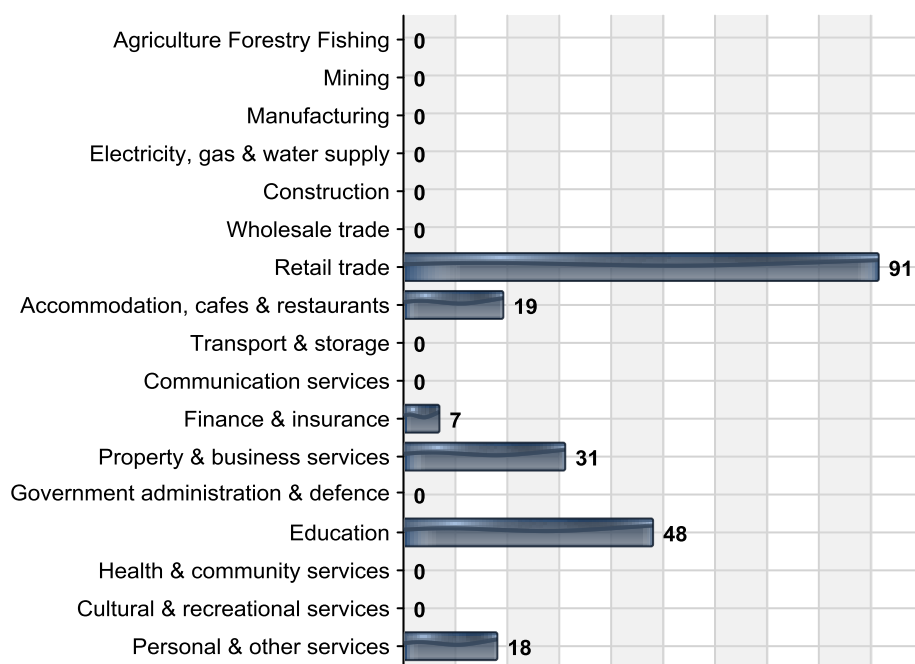
Figure 5-3 Distribution of Employment, North Eastern Neighbourhood Activity Centre



The distribution of 213 jobs in Figure 5-3 above is based on the proportionate spread of employment in the applicable sectors in the 'balance of City of Greater Geelong' economy (i.e. Greater Geelong [C] minus Central Geelong).

5.1.4 Local Shops - 'M' Scenario

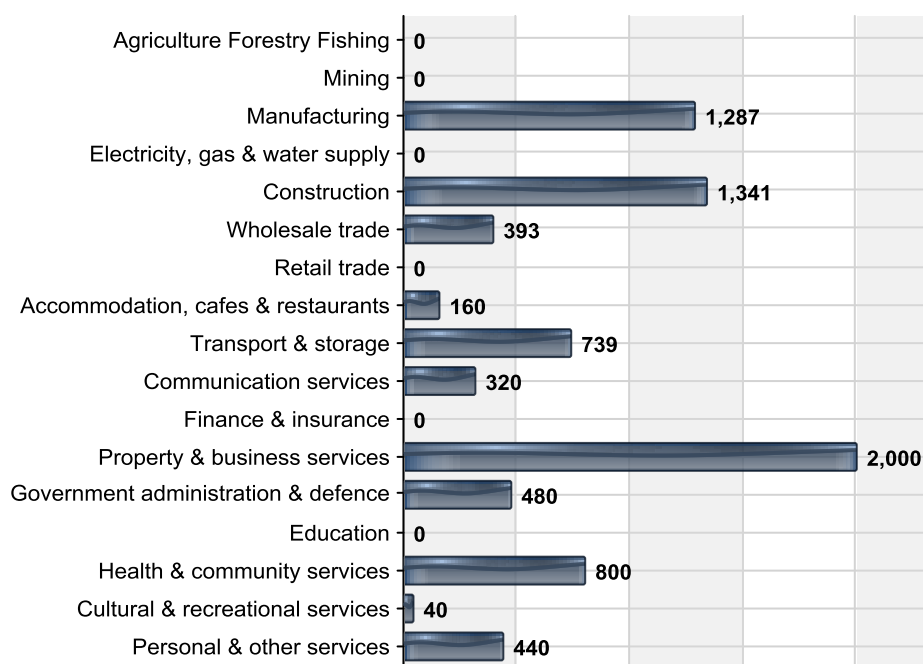
Figure 5-4 Distribution of Employment, Local Shops



The distribution of 214 jobs in Figure 5-4 above is based on the proportionate spread of employment in the applicable sectors in the 'balance of City of Greater Geelong' economy (i.e. Greater Geelong [C] minus Central Geelong).

5.1.5 North Eastern Industrial Precinct (NEIP) - 'M' Scenario

Figure 5-5 Distribution of Employment, NEIP

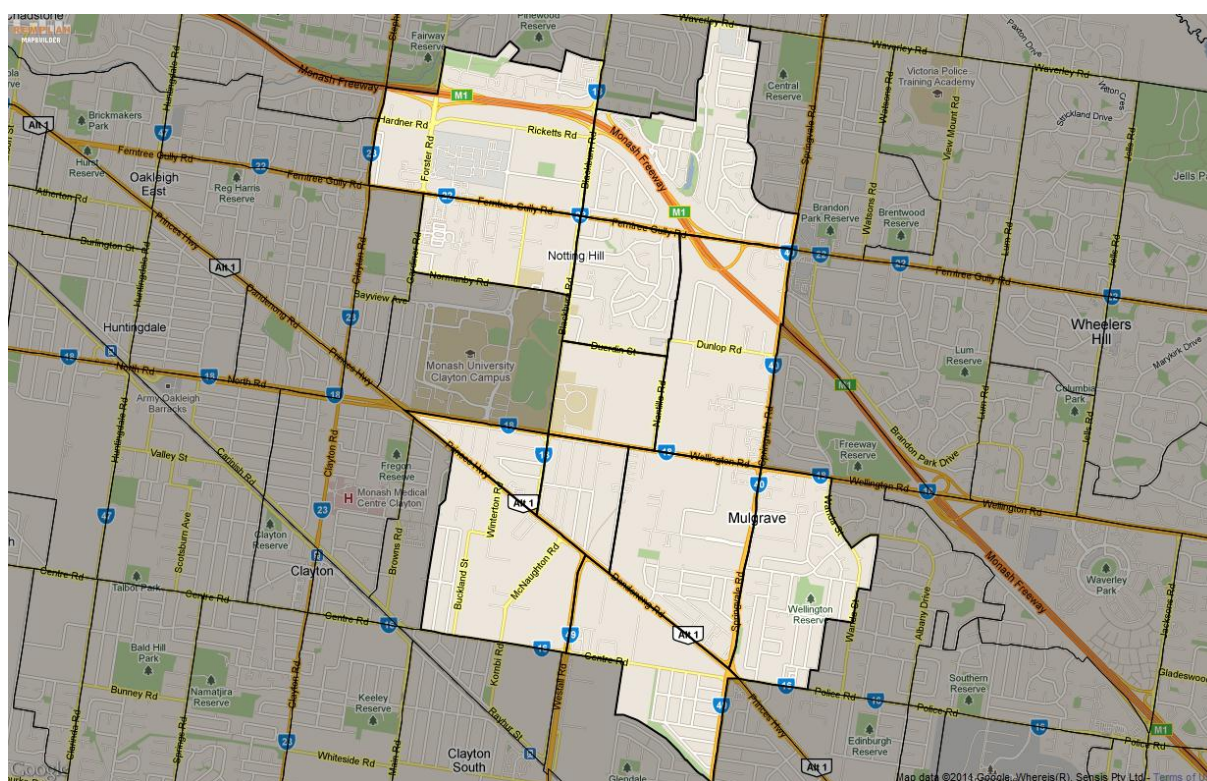


The distribution of 8,000 jobs in Figure 5-5 above is based on North East Industrial Precinct Structure Plan (PSP), and in relation to the “targeted economic signatures” component of the PSP, distribution is based upon the proportionate spread of employment in the applicable sectors in the ‘balance of City of Greater Geelong’ economy (i.e. Greater Geelong [C] minus Central Geelong).

5.1.6 Western Industrial Precinct – ‘M’ Scenario

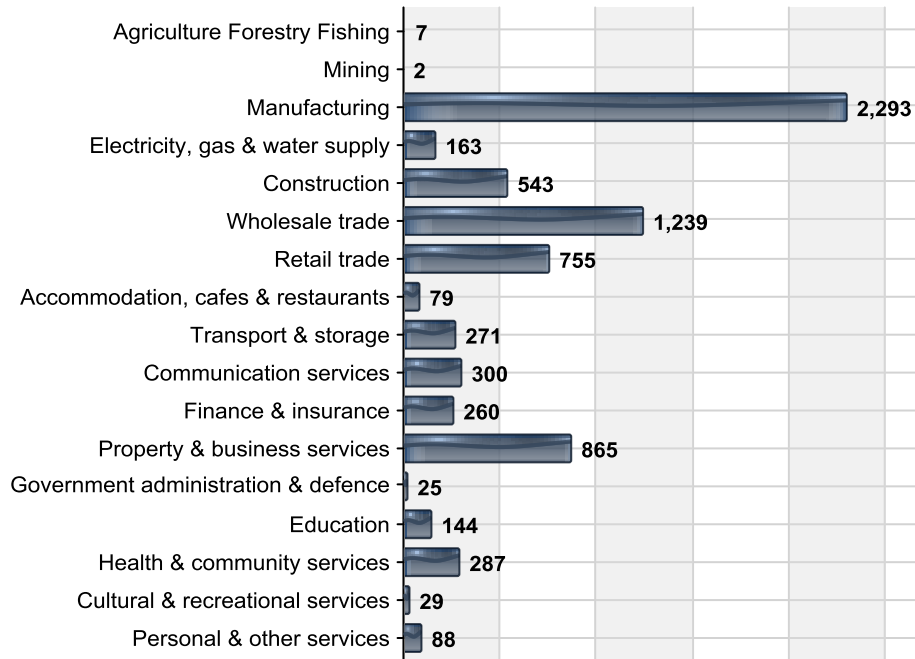
With its close proximity to Deakin University, aspirations for the Western industrial Precinct include advanced manufacturing, bio-technology, ICT, professional and technical services and environmental technology activities. In this context, the industry zone around Monash University’s Clayton Campus has been identified as a suitable benchmark upon which to define an aspirational scenario for the development of the Western Industrial Precinct.

Map 5-1 Monash University Industrial Precinct



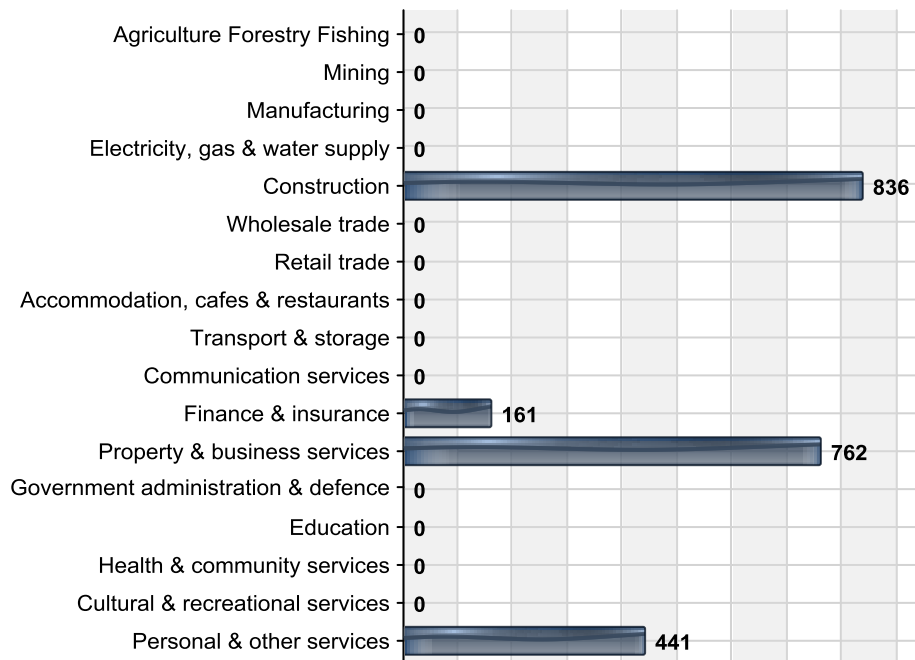
The distribution of 7,350 jobs projected for the Western Industrial Precinct in Figure 5-6 below is based on the proportionate spread of employment observed in the Monash University Industrial Precinct.

Figure 5-6 Distribution of Employment, Western Industrial Precinct



5.1.7 Home Based – ‘M’ Scenario

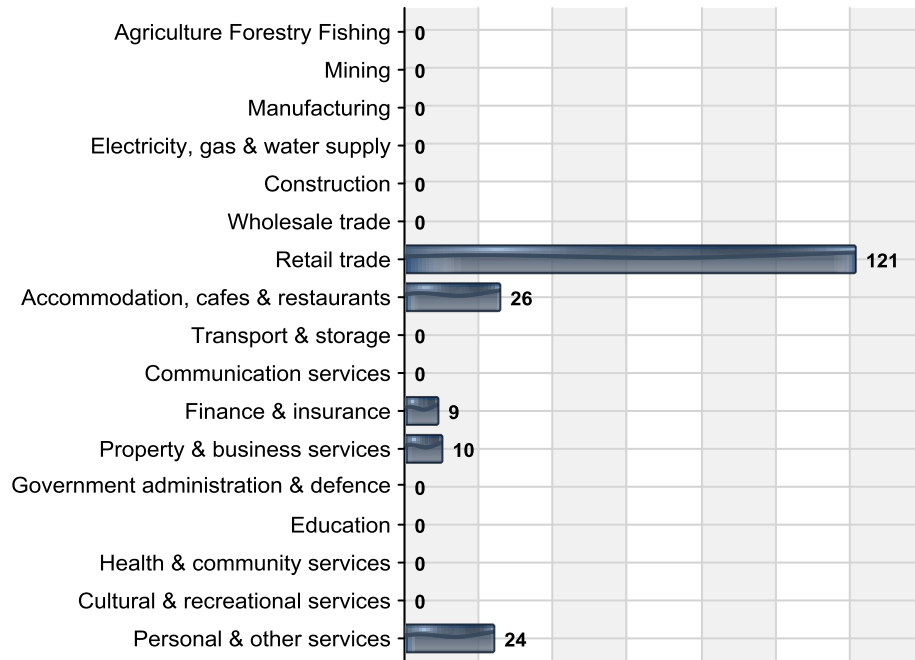
Figure 5-7 Distribution of employment, Home Based



The distribution of 2,200 jobs in Figure 5-7 above is based on the proportionate spread of employment in the applicable sectors in the 'balance of City of Greater Geelong' economy (i.e. Greater Geelong [C] minus Central Geelong).

5.1.8 Specialised Local Centres in Industrial Zones

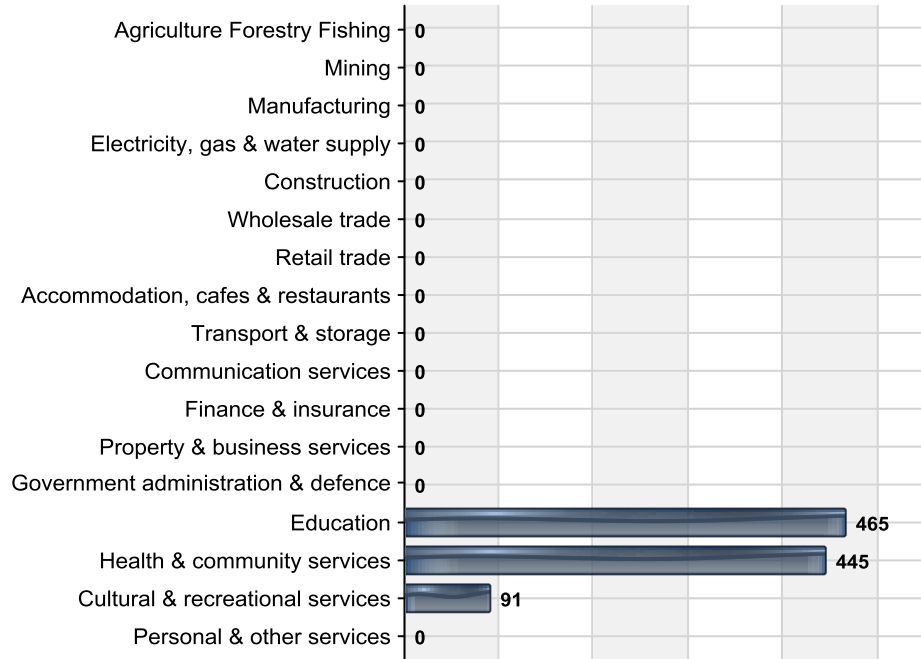
Figure 5-8 Distribution of employment, Specialised Local Centres in Industrial Zones



The distribution of 190 jobs in Figure 5-8 above is based on the proportionate spread of employment in the applicable sectors in the 'balance of City of Greater Geelong' economy (i.e. Greater Geelong [C] minus Central Geelong).

5.1.9 Other

Figure 5-9 Distribution of employment, Other



The distribution of 1,000 jobs in Figure 5-9 above is based on the proportionate spread of employment in the applicable sectors in the 'balance of City of Greater Geelong' economy (i.e. Greater Geelong [C] minus Central Geelong).

5.2 Summary – Scenario 1 Employment Distribution

Table 5-2 Employment Distribution, All Precincts and Activities

	MAC	North Eastern Neighbourhood Activity Centre	South Eastern Neighbourhood Activity Centre	Local Shops	North Eastern Industrial Precinct	Western Industrial Precinct	Home Based Business	Specialised Local Centres in Industrial Zones	Other	Total Armstrong Creek
Agriculture Forestry Fishing	1	0	0	0	0	7	0	0	0	8
Mining	0	0	0	0	0	2	0	0	0	2
Manufacturing	117	0	0	0	1,287	2,293	0	0	0	3,697
Electricity, gas & water supply	23	0	0	0	0	163	0	0	0	186
Construction	36	0	0	0	1,341	543	836	0	0	2,756
Wholesale trade	75	0	0	0	393	1,239	0	0	0	1,708
Retail trade	566	87	75	91	0	755	0	121	0	1,696
Accommodation, cafes & restaurants	212	18	16	19	160	79	0	26	0	530
Transport & storage	41	0	0	0	739	271	0	0	0	1,051
Communication services	47	0	0	0	320	300	0	0	0	667
Finance & insurance	163	6	5	7	0	260	161	9	0	611
Property & business services	475	30	25	31	2,000	865	762	10	0	4,199
Government administration & defence	366	0	0	0	480	25	0	0	0	871
Education	228	46	39	48	0	144	0	0	465	970
Health & community services	988	44	37	0	800	287	0	0	445	2,601
Cultural & recreational services	68	0	0	0	40	29	0	0	91	228
Personal & other services	132	17	15	18	440	88	441	24	0	1,175
	3,540	248	213	214	8,000	7,350	2,200	190	1,000	22,955

5.3 'M' Scenario – Impact Analysis

5.3.1 'M' Scenario – Output

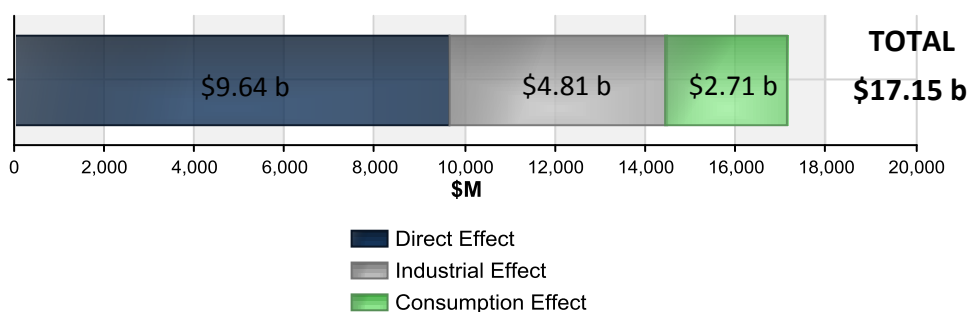
Based on the current structure and characteristics of the Geelong Region economy, an additional 22,955 jobs distributed across the industry sectors as per table 5-2 above, would generated a direct increase in output of \$9.64 billion, in turn creating demand for local intermediate goods and services of an estimated \$4.81 billion. This represents a Type 1 Output multiplier of 1.499. These industrial effects include multiple rounds of flow-on effects, as servicing sectors increase their own output and demand for local goods and services in response to the direct changes to the economy.

The increases in direct and indirect output would typically correspond to the creation of jobs in the economy. Corresponding to this change in employment would be an increase in the total of wages and salaries paid to employees. A proportion of these wages and salaries are typically spent on consumption and a proportion of this expenditure is captured in the local economy. The consumption effects under this scenario are estimated at \$2.71 billion.

Total output, including all direct, industrial and consumption effects is estimated to increase by up to \$17.15 billion. This represents a Type 2 Output multiplier of 1.780.

That is, if the Armstrong Creek community was developed and operational today, every dollar generated by the local economy would create demand for goods and services in the broader Geelong Region of \$0.78.

Figure 5-10 'M' Scenario, Output



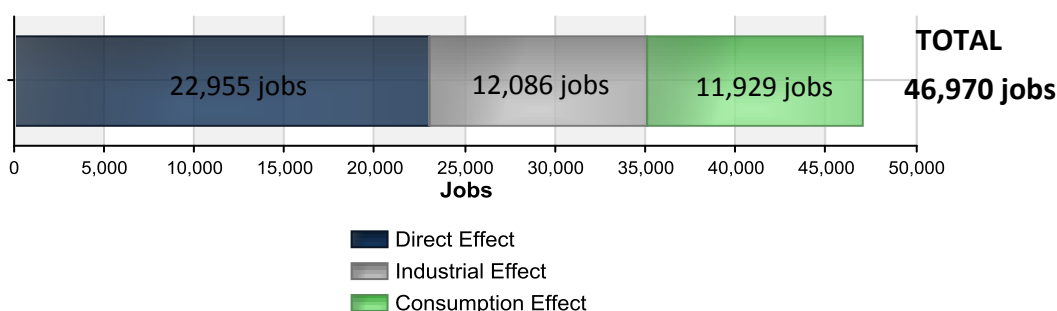
5.3.2 'M' Scenario – Employment

From a direct increase in output of \$9.64 billion the corresponding creation of direct jobs is estimated at 22,955 jobs. From this direct expansion in the economy, flow-on industrial effects in terms of local purchases of goods and services are anticipated, and it is estimated that these indirect impacts would result in the gain of a further 12,086 jobs. This represents a Type 1 Employment multiplier of 1.527.

The increase in direct and indirect output and the corresponding creation of jobs in the economy are expected to result in an increase in the wages and salaries paid to employees. A proportion of these wages and salaries are typically spent on consumption and a proportion of this expenditure is captured in the local economy. The consumption effects under this scenario are estimated to further boost employment by 11,929 jobs.

Total employment, including all direct, industrial and consumption effects is estimated to increase by up to 46,970 jobs. This represents a Type 2 Employment multiplier of 2.046. That is, for every ten new jobs in Armstrong Creek, it is estimated that slightly more than 10 additional jobs would be generated in the broader Geelong Region.

Figure 5-11 'M' Scenario, Employment



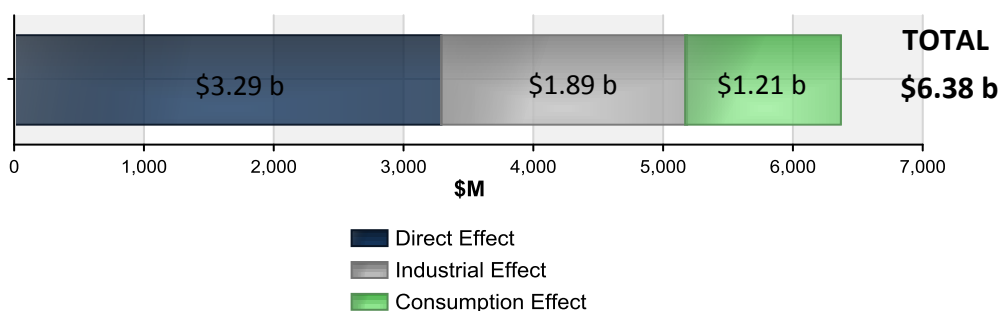
5.3.3 'M' Scenario – Value Added

From a direct increase in output of \$9.64 billion the corresponding increase in direct value-added is estimated at \$3.29 billion. From this direct expansion in the economy, flow-on industrial effects in terms of local purchases of goods and services are anticipated, and it is estimated that these indirect impacts would result in a further increase to value-added of \$1.89 billion. This represents a Type 1 Value-added multiplier of 1.574.

The increase in direct and indirect output and the corresponding boost to jobs in the economy are expected to result in an increase in the wages and salaries paid to employees. A proportion of these wages and salaries are typically spent on consumption and a proportion of this expenditure is captured in the local economy. The consumption effects under this scenario are expected to further boost value-added by \$1.21 billion.

Total value-added, including all direct, industrial and consumption effects is estimated to increase by up to \$6.38 billion. This represents a Type 2 Value-added multiplier of 1.941.

Figure 5-12 'M' Scenario, Value Added



5.3.4 'M' Scenario – Summary of Results

Table 5-3 'M' Scenario – Impact Report

Impact Summary	Direct Effect	Industrial Flow On Effect	Consumption Flow On Effect	Total	Type 1 Multiplier	Type 2 Multiplier
Output (\$b)	\$9.64	\$4.81	\$2.71	\$17.15	1.499	1.780
Employment (Jobs)	22,955	12,086	11,929	46,970	1.527	2.046
Value Added (\$b)	\$3.29	\$1.89	\$1.21	\$6.38	1.574	1.941

Table 5-4 'M' Scenario Distribution of Flow-on Industrial & Consumption Effects - Employment

	Geelong Region	Greater Geelong (C)	Surf Coast (S)	Geelong Region - Remainder
Agriculture Forestry Fishing	871	217	144	510
Mining	44	27	4	13
Manufacturing	2,681	2,386	62	233
Electricity, gas & water supply	230	172	37	21
Construction	1,611	1,209	198	204
Wholesale trade	1,071	808	122	140
Retail trade	5,086	4,258	280	548
Accommodation, cafes & restaurants	1,585	1,080	257	248
Transport & storage	1,153	932	38	184
Communication services	429	368	18	44
Finance & insurance	779	681	36	63
Property & business services	4,085	3,382	244	459
Government administration & defence	304	220	15	68
Education	1,298	1,126	46	126
Health & community services	1,260	1,073	50	137
Cultural & recreational services	662	528	70	64
Personal & other services	865	731	44	90
Total	24,014	19,198	1,666	3,150

The estimated employment impacts presented in table 5-4 above would represent a 26 percent boost to employment in Greater Geelong (C), and a 28 percent increase for Surf Coast Shire.⁴

⁴ Percentage increases from ABS 2006 Census levels

5.4 Low (L) Projection Scenario – Employment

Figure 4-1 above indicates a ‘Low’ projection scenario employment outcome of 19,833 direct jobs in Armstrong Creek, as compared to 22,955 jobs under the ‘Medium’ projection scenario. The anticipated direct and indirect impacts in terms of output, employment and value-added for the Geelong Region economy under the ‘Low’ projection scenario are summarised below.

Table 5-5 ‘L’ Scenario – Impact Report

Impact Summary	Direct Effect	Industrial	Consumption	Total	Type 1 Multiplier	Type 2 Multiplier
		Flow On Effect	Flow On Effect			
Output (\$b)	\$8.33	\$4.15	\$2.34	\$14.82	1.499	1.78
Employment (Jobs)	19,833	10,442	10,308	40,583	1.526	2.046
Value Added (\$b)	\$2.84	\$1.63	\$1.04	\$5.51	1.574	1.941

Table 5-6 ‘L’ Scenario Distribution of Flow-on Industrial & Consumption Effects - Employment

	Geelong Region	Greater Geelong (C)	Surf Coast (S)	Geelong Region - Remainder
	Agriculture Forestry Fishing	753	188	125
Mining	38	23	3	11
Manufacturing	2,317	2,062	53	201
Electricity, gas & water supply	199	149	32	18
Construction	1,393	1,045	171	176
Wholesale trade	926	699	106	121
Retail trade	4,394	3,679	242	473
Accommodation, cafes & restaurants	1,369	933	222	214
Transport & storage	996	805	33	159
Communication services	371	318	15	38
Finance & insurance	673	588	31	54
Property & business services	3,529	2,921	211	396
Government administration & defence	262	190	13	59
Education	1,121	972	40	109
Health & community services	1,089	927	44	118
Cultural & recreational services	572	456	61	55
Personal & other services	748	632	38	78
Total	20,750	16,588	1,440	2,722

The estimated employment impacts presented in table 5-6 above would represent a 22 percent boost to employment in Greater Geelong (C), and a 24 percent increase for Surf Coast Shire.

5.5 High (H) Projection Scenario – Employment

Figure 4-1 above indicates a ‘High’ projection scenario employment outcome of 23,934 direct jobs in Armstrong Creek, as compared to 22,955 jobs under the ‘Medium’ projection scenario. The anticipated direct and indirect impacts in terms of output, employment and value-added for the Geelong Region economy under the ‘High’ projection scenario are summarised below.

Table 5-7 ‘H’ Scenario 3 – Impact Report

Impact Summary	Direct Effect	Industrial Flow On Effect	Consumption Flow On Effect	Total	Type 1 Multiplier	Type 2 Multiplier
Output (\$b)	\$10.05	\$5.01	\$2.82	\$17.88	1.499	1.780
Employment (Jobs)	23,934	12,601	12,438	48,973	1.526	2.046
Value Added (\$b)	\$3.43	\$1.97	\$1.26	\$6.65	1.588	1.965

Table 5-8 ‘H’ Scenario Distribution of Flow-on Industrial & Consumption Effects - Employment

	Geelong Region	Greater Geelong (C)	Surf Coast (S)	Geelong Region - Remainder
Agriculture Forestry Fishing	908	226	150	531
Mining	46	28	4	14
Manufacturing	2,796	2,489	64	243
Electricity, gas & water supply	240	180	39	22
Construction	1,679	1,260	207	212
Wholesale trade	1,117	843	128	146
Retail trade	5,303	4,440	292	571
Accommodation, cafes & restaurants	1,652	1,125	268	259
Transport & storage	1,202	971	39	191
Communication services	447	383	18	45
Finance & insurance	812	709	37	65
Property & business services	4,259	3,526	255	478
Government administration & defence	317	230	16	71
Education	1,354	1,174	48	132
Health & community services	1,314	1,119	53	143
Cultural & recreational services	690	550	73	66
Personal & other services	902	762	46	94
Total	25,038	20,017	1,737	3,284

The estimated employment impacts presented in table 5-8 above would represent a 27 percent boost to employment in Greater Geelong (C), and a 29 percent increase for surf Coast Shire.

6 Conclusion

The development rates detailed in Figure 4-1 highlight the anticipated requirement for trunk servicing be 'rolled-out' early in the development process in order to achieve population and employment outcomes within the projected ranges. The provision of 'hard' and 'soft' infrastructure is also likely to be a key determinant in achieving these outcomes, and whether the outcomes are ultimately at the higher or lower end of the projected ranges.

Hard infrastructure projects to support the development of Armstrong Creek include:

- Improvements to Marshall Station
- New high-quality public transport services to serve the Armstrong Creek community
- State-of-the-art recycling facilities and services
- Leading-edge telecommunications technology.
- Utilities placed below ground
- New footbridges linking existing and new communities
- New freeway-standard road around Geelong's western outskirts linking the Princes Freeway in Corio to the Princes Highway in Waurin Ponds

Soft infrastructure projects to support the development of Armstrong Creek include:

- Retail, banking, government and personal services
- Health care services
- Education
- Parks, sporting facilities, museums, libraries, theatres

The early roll-out of trunk servicing, hard and soft infrastructure is anticipated to facilitate achieving 'High' projection scenario population and employment outcomes. Similarly, a slower paced, incremental provision of services and infrastructure would likely contribute to outcomes closer to the 'Low' projection. Over a ten year period from 2020 to 2030, the difference between the 'Low' projection employment and 'High' projection employment is estimated to range from 2,456 jobs through to 4,038 jobs by 2030. Over the ten year period, the difference within the low to high range is estimated to correspond to \$14.1 billion of direct economic output and \$4.80 billion in terms of direct Gross Regional Product (GRP). Once flow-on industrial and consumption effects are also taken into consideration the difference in output and GRP over the ten year period is estimated at \$25.1 billion and \$9.31 billion respectively.