ESSENTIAL ECONOMICS

Implications of Population Growth on Infrastructure and Resources in Regional Cities

2012 Report

FINAL

Prepared for

Regional Cities Victoria

by

Essential Economics Pty Ltd

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Authorship

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EXECUTIVE SUMMARY

1. Background

Regional Cities Victoria (RCV) has engaged Essential Economics to undertake an assessment of future infrastructure and resource requirements and associated costs for Victoria's 10 largest regional centres over the period 2011 to 2031. The study has received grant assistance from Regional Development Victoria (RDV).

Infrastructure and resource requirements, along with their associated costs, were prepared for the following three population growth scenarios for the 20-year period:

- Base Case Scenario – based on State Government population projections included in VIF 2012 which shows regional Victoria securing 25% of State population growth over the period 2011-2031. Under this scenario the population of the Regional Cities expands by +208,070 persons.
- Medium Growth Scenario – based on regional Victoria securing approximately 30% of Victoria's population growth over the period 2011-2031, with the Regional Cities population expanding by +247,070 persons over the period.
- High Growth Scenario – based on regional Victoria accommodating approximately 35% of Victoria's population growth over the period 2011-2031, with the Regional Cities population expanding by +288,250 persons over the period.

2. Population Estimates

The population of the Regional Cities is projected to increase from 742,000 persons in 2011, to between 950,400 persons (Base Case Scenario) and 1,030,500 persons (High Growth Scenario) in 2031. This represents an increase of between +208,000 persons and +288,000 persons over the 20-year period.

3. Capacity

Regional Cities have the capacity to accommodate significantly higher population levels over and above Base Case Scenario projections. The analysis shows:

- Residential capacity of 178,860 lots (zoned and unzoned), which could accommodate +425,000 persons (noting the High Growth Scenario increases population levels by approximately +290,000 persons over the 20-year period)
- Industrial capacity of 4,700 ha (zoned and unzoned), which could accommodate 190,000 jobs (noting the High Growth Scenario requires approximately +145,000 new jobs to be generated over the 20-year period).
- Additional employment generating capacity is available on non-industrial land, such as in town centres, schools, hospitals etc.

4. Economic Performance and Sustainability

Regional Cities have performed well in terms of job creation and economic output over the most recent period of strong population expansion (2006-2011). The analysis shows one job has been created for every new labour force participant (+37,300 additional jobs) over this period, while economic output has increased from $25.3 billion in 2006, to $26.7 billion in 2011 (noting this period coincides with the Global Financial Crisis).

Population expansion in the Regional Cities has been occurring in a sustainable manner. For example, between 2008 and 2012 (a time period of high population growth) there were reductions in total

household consumption of water (-5.5%), electricity (-6.5%) and gas (-1.9%); while household waste generation (+4.3%) increased at a relatively lower rate than dwelling expansion (+9.1%).

5. Resource Requirements

In view the strong population outlook (under any of the growth scenarios), significant additional infrastructure and resources will be required in the Regional Cities to support population expansion, business growth, employment and liveability.

Requirements include additional infrastructure and resources for: utilities (water, gas, electricity), public transport (rail, bus), land development (residential, industrial), communications (broadband), health (hospital beds, emergency services), education (schools, TAFE, university), social (kindergarten, childcare, aged care), community needs (libraries, arts, recreation) and waste services (kerbside collections).

Detailed infrastructure and resource requirements under each population scenario are provided in Chapter 4.

6. Cost of Providing Future Infrastructure and Resources

Significant costs will be associated with meeting these future requirements. These costs will be a shared responsibility between Government, private sector, ratepayers and consumers.

Specific costs for critical enabling infrastructure have been estimated in this study, and these costs focus principally on infrastructure provision which is mainly the responsibility of Federal and State governments. Costs include funding for public transport; hospital infrastructure; residential and industrial land planning and servicing; kindergarten, school and higher education facilities; aged care facilities; waste management infrastructure; and arts and recreational facilities.

The estimated 20-year cost of providing these selected key infrastructure items under each scenario is as follows:

- Base Case Scenario +$3.4 billion
- Medium Growth Scenario +$3.9 billion
- High Growth Scenario +$4.4 billion

The additional marginal costs of providing key infrastructure to support population levels higher than the Base Case Scenario have also been calculated to 2031. These estimates show:

- An additional $495 million (or $500 million rounded) would be required to accommodate +39,000 persons under the Medium Growth Scenario, and
- An additional $1,040 million (or $1.0 billion rounded) would be required to accommodate +80,000 persons under the High Growth Scenario.

Detailed cost estimates under each population scenario are provided in Chapter 5.

7. Net State Benefit Associated with Higher Regional Population Outcomes

Net State Benefits associated with higher populations in Regional Cities include:

- Efficient use of taxpayer resources with regard to population settlement and associated infrastructure and service delivery.

- Reduced stress on metropolitan Melbourne infrastructure, which will assist in improving existing congestion-related inefficiencies (recognising that a proportion of future population settlement in the Regional Cites would otherwise be accommodated in Melbourne's outer growth areas).

- Enhanced economic and social outcomes for regional communities eg. economic output, new business investment opportunities; expanded skills pool; industry diversification; improved service provision; enhanced lifestyle opportunities; improved support for small towns, and enhanced social outcomes.

- Continuation of successful State Government policy with regard to population and business expansion, and government investment in regional Victoria.

Conclusion

- The findings of this report show that investing in critical 'hard' infrastructure to support moderately higher populations in established Regional Cities (as per the medium and high growth scenarios) is likely to provide efficient and sustainable outcomes for regional Victoria and the State.

- Higher regional population levels can positively contribute to a more efficient population settlement pattern in Victoria, recognising that many regional centres have established and well-functioning economies, with significant capacity to expand further in a sustainable manner.

- Importantly, many positive social and economic development outcomes are likely to flow from higher population levels in the Regional Cities and to surrounding communities.

- Supporting further sustainable population expansion in the Regional Cities is consistent with a range of State Government policies, including long-term planning, marketing and budgetary initiatives.

INTRODUCTION

Background

Regional Cities Victoria (RCV) commissioned Essential Economics to provide a detailed update to the 2008 report titled "*Implications of Population Growth on Infrastructure and Resources in Regional Cities*". This 2012 report has been prepared with grant assistance from Regional Development Victoria (RDV).

The key findings of the 2008 report were as follows:

- Regional Cities have the capacity to accommodate significantly higher population levels than are being currently planned for, and this can be achieved in a sustainable manner.
- The cumulative cost of providing critical infrastructure to support an additional 50,000 persons in the Regional Cities is $1.0 billion; this compares with inefficiency costs of $3.1 billion associated with the same number of persons being accommodated in metropolitan Melbourne.

Net State Benefits of higher population levels in Regional Cities include:

- Efficient use of taxpayer funds
- Contribution to reduced stress on metropolitan Melbourne infrastructure and reduced congestion and greenhouse gas emission costs
- Enhanced economic and social outcomes for regional communities
- Alignment with State Government policy (eg *Make it Happen in Provincial Victoria* and *Moving Forward)*.

The 2008 report has been widely used by RCV and their 10 composite regional councils to advocate for improved infrastructure funding with various State Government departments.

RCV is updating this key document to provide an up-to-date evidence base for the Regional Cities to support their ongoing economic development and strategic planning work.

Objectives

The objectives of this 2012 Report are:

- To highlight where the Regional Cities are currently placed in terms of population levels and infrastructure and service provision.
- To assess progress achieved over the past four years in securing better levels of infrastructure and services.
- To confirm the long-term physical and economic capacity of the Regional Cities to continue to expand.
- To quantify infrastructure and resources required to meet population growth targets over the coming 20 years for the base case and the medium and high growth scenarios.
- To assess costs associated with meeting identified infrastructure and resource requirements.
- To highlight benefits to the State associated with higher regional population levels.

This Report

This report is organised in the following chapters:

Chapter 1: **Population Trends and Outlook** – Presents an overview of State, Metropolitan and regional population trends over the past 20 years, and provides base case, medium and high growth scenarios for regional Victoria and the Regional Cities for the period 2011-2031.

Chapter 2: **Capacity Assessment –** Presents an assessment of the capacity of the Regional Cities to accommodate higher levels of population with reference to residential land supply, industrial land supply and employment generation performance.

Chapter 3: **Infrastructure and Resources Survey –** Presents an outline of the components of data capture survey completed by each of the 10 participating RCV councils. This survey data provides key information which underpins the analysis in this report.

Chapter 4: **Identification of Future Requirements – Presents** estimates for future infrastructure and resource requirements under each population growth scenario at 2021 and 2031 and highlights progress made in the provision of infrastructure and services since 2008.

Chapter 5: **Cost of Providing Required Infrastructure and Resources –** Presents high level cost estimates associated with providing the identified level of infrastructure and resources under each scenario,

Chapter 6: **Cost Benefit Assessment –** Presents an overview of the net benefits to the state of higher population outcomes in the Regional Cities.

Chapter 7: **Key Findings –** Presents a summary of the main findings of this Compendium Report.

Appendices: **Appendix 1 –** Provides a listing of references sourced in the report

Appendix 2 – Provides summary analysis sheets for each of the 10 RCV councils

1 POPULATION TRENDS AND OUTLOOK

This Chapter provides an analysis of recent population trends for Victoria, metropolitan Melbourne, regional Victoria and the Regional Cities, together with scenario projections for the period 2011 to 2031. Specifically the analysis includes:

- An assessment of current population levels and population growth trends from 1991 to 2011
- Preparation of three population growth scenarios for regional Victoria and the Regional Cities for the period 2011 to 2031, which will be used as the basis for assessing future infrastructure and service needs and their associated costs.

Historic population trends have been prepared with regard to ABS Estimated Resident Population (ERP) data, and population scenarios are based on the Department of Planning and Community Development (DPCD) *Victoria in Future 2012* (VIF 2012) data series (which is based on available ABS ERPs at the time of preparing the series).

Since the population scenarios were prepared for this study, the ABS has released revised ERP data which indicates existing population levels for the Regional Cities may be lower than those included in VIF 2012. Note these latest ABS ERPs (refer to Cate No. 3218.0 Regional Population Growth, 31 July 2012) are based on the ABS Census for 2011, but are provisional only and will be finalised at a later date.

1.1 Population Trends

The estimated resident population (ERP) of regional Victoria was 1,483,780 persons in 2011, having increased from approximately 1,264,800 persons in 1991. This represents a net increase of 218,980 persons over the period, at an average growth rate of 0.8% pa. Over this same period the population of the Regional Cities increased from 612,200 persons to 742,300 persons, representing a net increase of 130,100 persons at an average growth rate of 1.0% pa. The population trends are shown in Table 1.1 and Figure 1.1.

These long-term growth trends show that regional Victoria has lagged metropolitan Melbourne in terms of population growth, noting metropolitan Melbourne averaged annual growth of 1.4% pa between 1991-2011.

A more detailed review of the data shows that population growth in regional Victoria and the Regional Cities was especially modest in the 1991-2006 period, averaging only 0.6% and 0.8% respectively, compared with 1.1% for metropolitan Melbourne. As highlighted in Figure 1.2, the most recent five-year period (2006-2011) has seen population growth expand considerably in regional Victoria (1.4% pa) and in the Regional Cities (1.6% pa), although this needs to be considered in the context of the 1.9% annual growth experienced across metropolitan Melbourne over the same period.

The following highlights the changing growth dynamics in regional areas:

<u>Regional Victoria</u>

- Population growth 1991-2006: +119,000 persons (average +7,930 persons pa)
- Population Growth 2006-2011: +100,000 persons (average 20,000 persons pa)

<u>Regional Cities</u>

- Population growth 1991-2006: +130,000 persons (average +8,670 persons pa)
- Population Growth 2006-2011 + 56,000 persons (+11,200 persons pa)

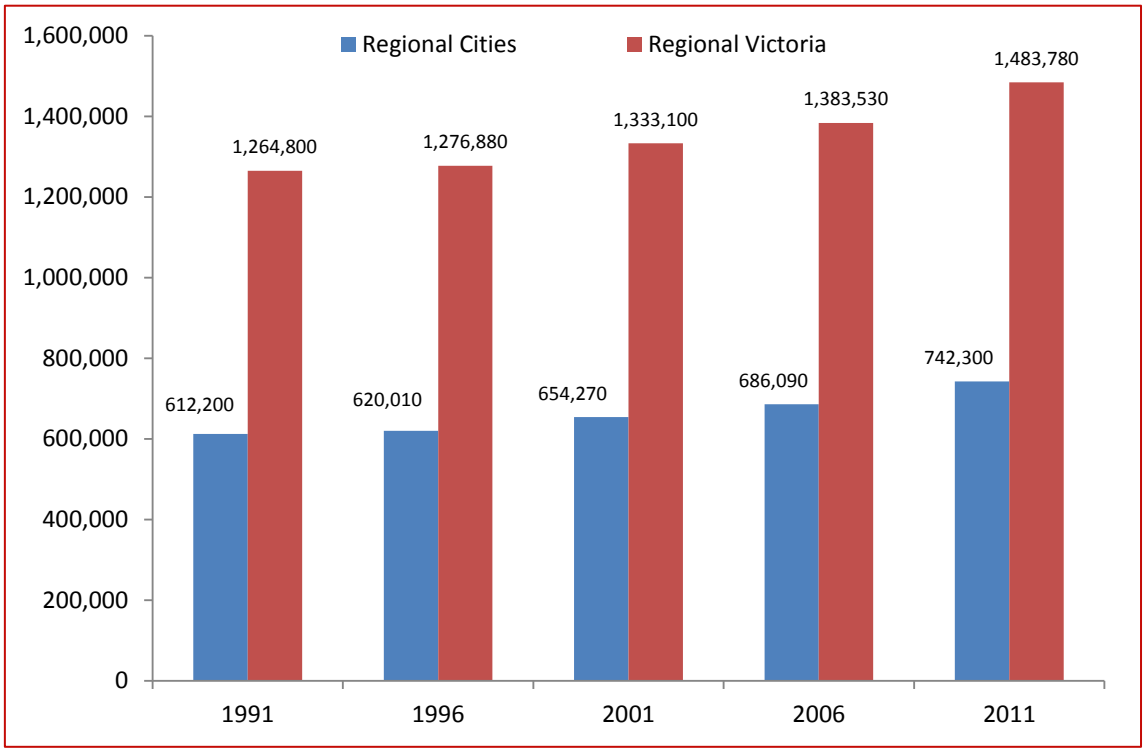
Table 1.1 also shows the proportion of people living in regional Victoria has declined from 28.6% in 1991 to 26.4% in 2011, and a similar trend is observed for the Regional Cities which declined from 13.8% to 13.2%. These trends need to be considered in the context of metropolitan Melbourne's population expansion of almost 1 million persons over this 20-year period.

Table 1.1: Population Trends, Selected Locations 1991 to 2011

LGA Name	1991	1996	2001	2006	2011	Change 1991-2011	AAGR 1991-2011
Regional Cities	**612,200**	**620,010**	**654,270**	**686,090**	**742,300**	**130,100**	**1.0%**
Regional Victoria	1,264,800	1,276,880	1,333,100	1,383,530	1,483,780	218,980	0.8%
Metropolitan Melbourne	3,155,580	3,283,280	3,471,630	3,743,020	4,137,430	981,850	1.4%
Victoria	4,420,370	4,560,150	4,804,730	5,126,540	5,621,210	1,200,840	1.2%
Regional Cities proportion of State population	13.8%	13.6%	13.6%	13.4%	13.2%	n/a	n/a
Regional Victoria's proportion of State population	28.6%	28.0%	27.7%	27.0%	26.4%	n/a	n/a
Metropolitan Melbourne's proportion of State population	71.4%	72.0%	72.3%	73.0%	73.6%	n/a	n/a

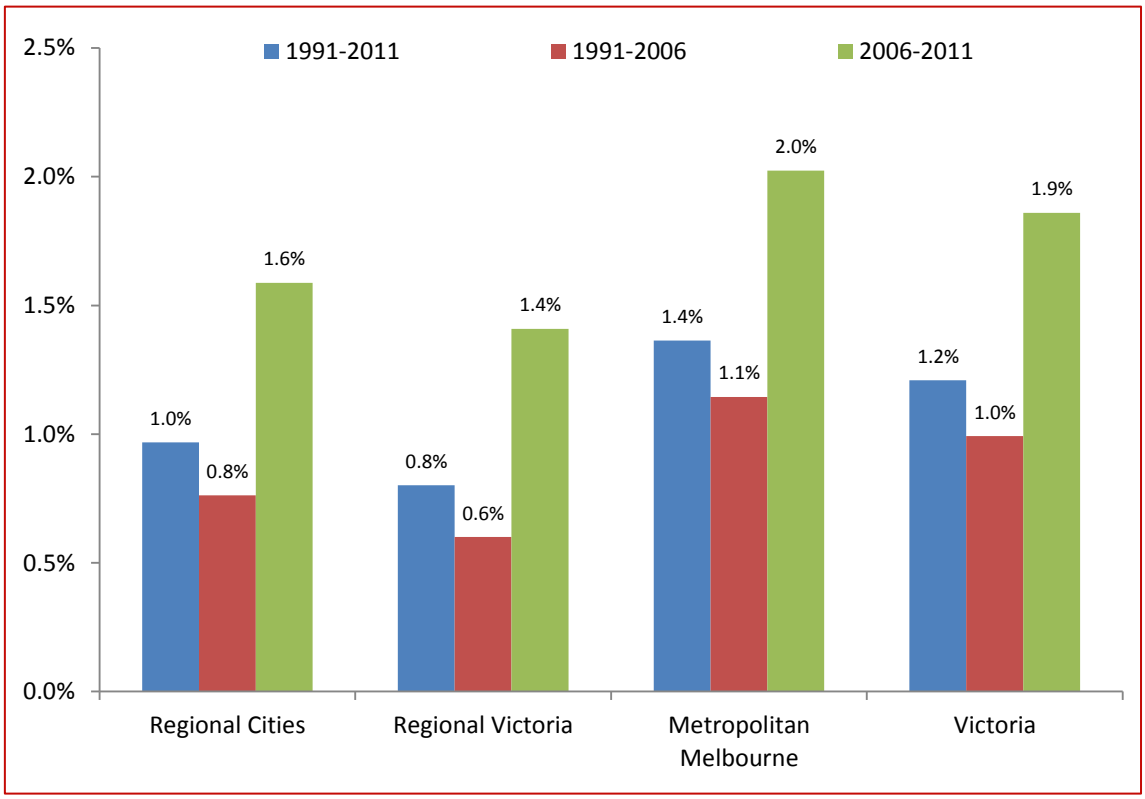
Source: ABS Regional Population Growth Australia Cat. No. 3218.0.55.001 (various)
Note: Figures rounded. AAGR – Average Annual Growth Rate

Figure 1.1: Population Growth, Selected Locations, 1991-2011



Source: ABS Regional Population Growth Australia Cat. No. 3218.0.55.001 (various)

Figure 1.2: Population Growth Rates, Selected Locations, 1991-2011



Source: ABS Regional Population Growth Australia Cat. No. 3218.0.55.001 (various)

When population growth shares are examined, as presented in Table 1.2, the outlook for regional Victoria and the Regional Cities looks more positive. For example, between 1991 and 2011 regional Victoria secured 18.2% of State population growth, with the Regional Cities accounting for 10.8% of State growth. Over the coming 20 years, DPCD VIF 2012 data shows these shares increasing to 25.3% and 12.2% respectively, highlighting a sustained improvement in growth outcomes for regional areas. Data included in the VIF 2012 forms part of the 'Base Case' population scenario, which is described in the following section.

Table 1.2: Historic and Forecast Share of State Population Growth, Selected Locations

	1991-2011	2011-2031
Regional Cities	10.8%	12.2%
Regional Victoria	18.2%	25.3%
Metropolitan Melbourne	81.8%	74.7%
Victoria	**100.0%**	**100.0%**

Source: ABS Regional Population Growth Australia Cat. No. 3218.0.55.001 (various)

1.2 Population Scenarios

This section provides three population scenarios for which infrastructure and resource requirements and associated costs will be assessed. The three scenarios are as follows:

- Base Case Scenario – based on State Government population projections included in *Victoria Future 2012*. As noted above, these projections show regional Victoria is projected to accommodate approximately 25% of Victoria's population growth over the period 2011-2031.
- Medium Growth Scenario – based on regional Victoria securing approximately 30% of Victoria's population growth over the period 2011-2031, and the Regional Cities maintaining their share of regional growth as outlined in VIF 2012.
- High Growth Scenario – based on regional Victoria accommodating approximately 35% of Victoria's population growth over the period 2011-2031, and the Regional Cities maintaining their share of regional growth as outlined in VIF 2012.

As with the 2008 report, alternative population scenarios have been developed on the assumption that population is redirected to regional Victoria (including the Regional Cities) from metropolitan Melbourne, while the VIF population projections for the state as whole remain constant. This redirection of population to the regional areas is dependent on a mix of factors such as regionally-focused policy initiatives; improved infrastructure and services; enhanced liveability; greater attraction of migrants, tree changers, retirees and returning residents; improved levels of commercial investment and employment opportunities; and so on.

Methodologies and population outcomes under the three growth scenarios are described below.

Base Case Scenario – Victoria in Future 2012

DPCD has released updated population and household projections for Victoria (*Victoria in Future 2012*) which are based on the 2011 ABS population estimates and supersede the projections published by DPCD in 2008.

Like the 2008 projections, the VIF 2012 projections are based on latest available ABS Census and ERP data, and focus on two main components of population change:

- Natural increase (births less deaths)
- Net migration (people moving into an area minus those moving out).

Within these components, more detailed analysis is undertaken when estimating future change, and this analysis includes:

Natural increase

- How births are affected by age structures and fertility rates
- How deaths are affected by age structures and mortality rates

Migration

- Overseas migration
- Interstate migration
- Within-state migration

The projections cover the period 2011-2051 for Victoria, metropolitan Melbourne and the whole of regional Victoria. For smaller geographies, such Statistical Districts (SDs), Local Government Areas (LGAs) and Statistical Local Areas (SLAs), projections have been prepared for the 20-years from 2011 to 2031.

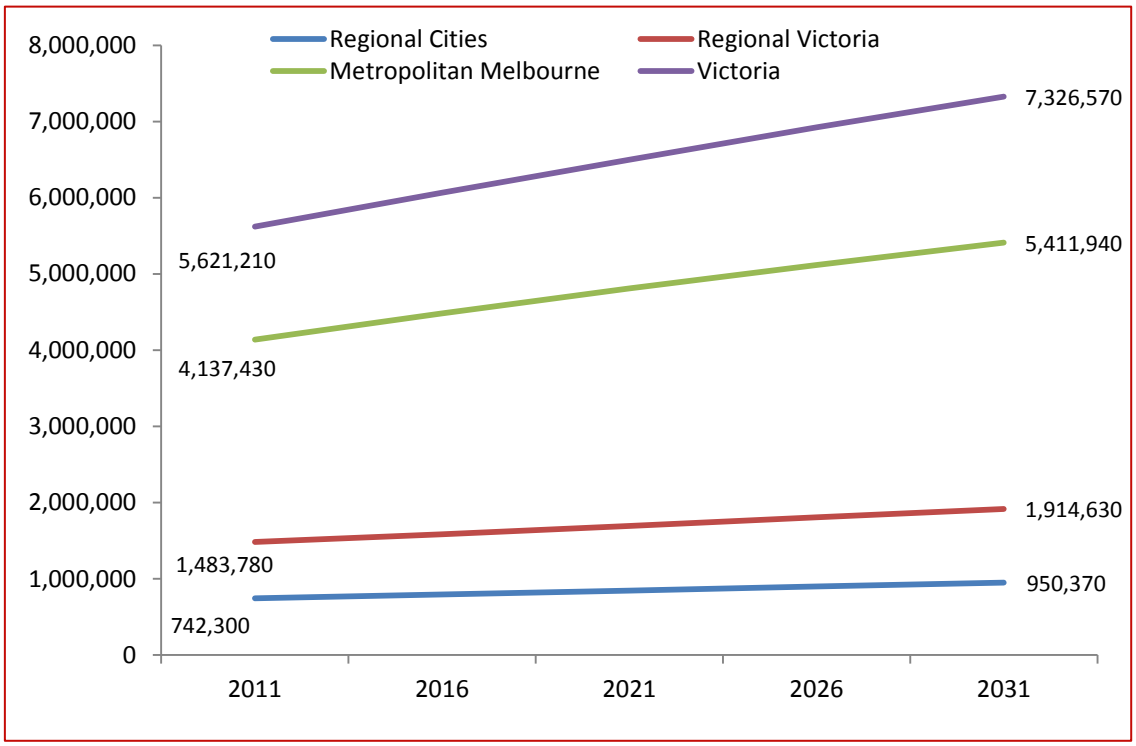
Table 1.3 and Figures 1.3 and 1.4 provide population outcomes included in VIF 2012. Under this scenario, over the period 2011 to 2031 regional Victoria secures approximately 25% of State population growth (431,000 additional persons), and this includes the Regional Cities which contribute approximately 12% of State growth (208,000 additional persons).

Table 1.3: Base Case Scenario Victoria in Future 2012 Projections, Selected Locations 2011-2031

	2011	2016	2021	2026	2031	2011-2031
Population (No.)						
Regional Cities	742,300	793,540	846,860	900,220	950,370	208,070
Regional Victoria	1,483,780	1,584,100	1,691,820	1,805,690	1,914,630	430,850
Metropolitan Melbourne	4,137,430	4,483,600	4,808,840	5,118,450	5,411,940	1,274,510
Victoria	*5,621,210*	*6,067,700*	*6,500,660*	*6,924,140*	*7,326,570*	*1,705,360*
Average Annual Growth (No.)						
Regional Cities	-	10,250	10,660	10,670	10,030	10,400
Regional Victoria	-	20,060	21,540	22,770	21,790	21,540
Metropolitan Melbourne	-	69,230	65,050	61,920	58,700	63,730
Victoria	-	*89,300*	*86,590*	*84,700*	*80,490*	*85,270*
Average Annual Growth (%)						
Regional Cities	-	1.3%	1.3%	1.2%	1.1%	1.2%
Regional Victoria	-	1.3%	1.3%	1.3%	1.2%	1.3%
Metropolitan Melbourne	-	1.6%	1.4%	1.3%	1.1%	1.4%
Victoria	-	*1.5%*	*1.4%*	*1.3%*	*1.1%*	*1.3%*

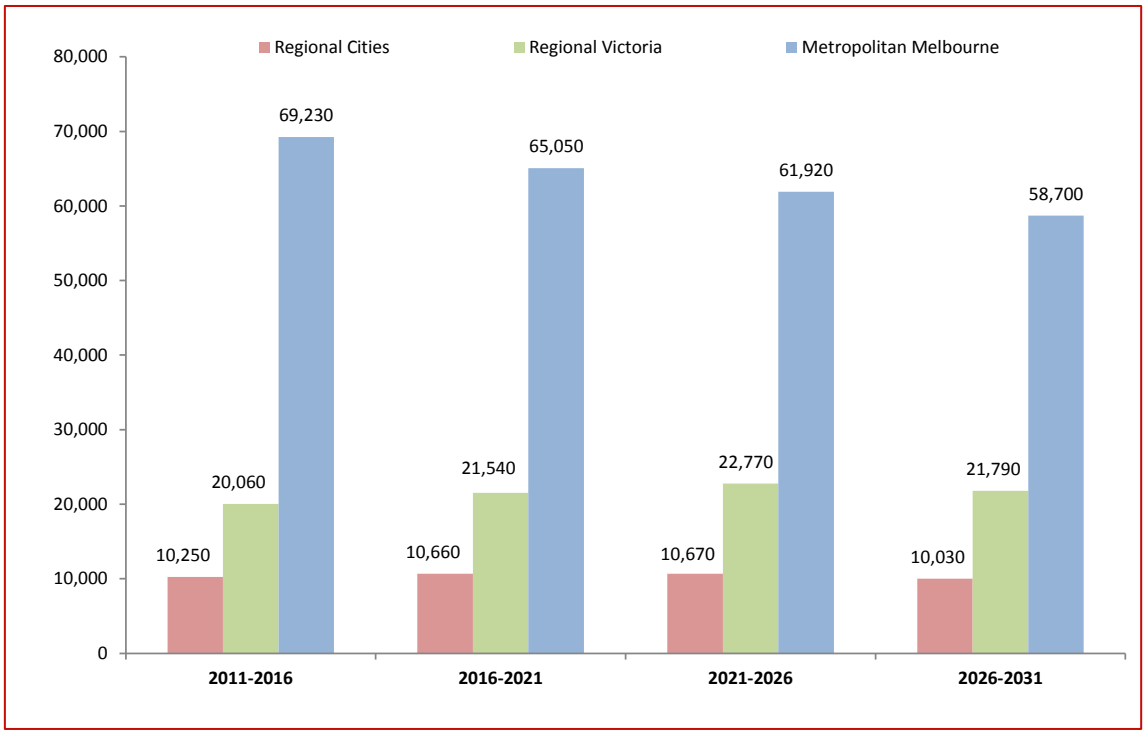
Source: Department of Planning and Community Development, *Victoria in Future 2012* and Essential Economics
Note: Figures rounded

Figure 1.3: Base Case Scenario (VIF 2012) Population Estimates, Selected Locations, 2011-2031



Source: Department of Planning and Community Development, *Victoria in Future 2012* and Essential Economics

Figure 1.4: Base Case Scenario (VIF 2012) Average Annual Growth (No.), Selected Locations, 2011-2031



Source: Department of Planning and Community Development, *Victoria in Future 2012* and Essential Economics

Medium Growth Scenario – 30% of Victorian Population Growth between 2011 and 2031

In order to accommodate a 30% share of forecast population growth for regional Victoria, the following methodology has been applied to the VIF 2012 population projections (Base Case Scenario):

1 Over the period to 2031, an additional 5% of forecast State population growth has been redistributed to regional Victoria away from metropolitan Melbourne. This represents an additional 80,750 persons residing in regional Victoria (with a similar reduction in metropolitan Melbourne resident numbers).

2 This additional growth in regional Victoria has been apportioned over five-year interval periods, so that the for each five-year interval, the share of growth relative to total growth over the entire period, is consistent with VIF projections . This means that over the period to 2031, the share of growth directed to regional Victoria is forecast to occur at an increasing rate, as shown in Table 1.4.

Table 1.4: Regional Victorian Share of Forecast Growth, Victoria, 2011-2031

	2011-16	2016-21	2021-26	2026-31	Total, 2011-31
Regional Victoria Share of Total Growth	**26.7%**	**29.5%**	**31.9%**	**32.1%**	**30.0%**

Source: Department of Planning and Community Development, *Victoria in Future 2012* and Essential Economics

3 For each period, additional regional growth is allocated to the Statistical Districts (SDs) which comprise regional Victoria. This has been achieved by maintaining the forecast SD shares of total regional population growth as outlined in VIF, and is shown in Table 1.5

Table 1.5: Regional Statistical District Growth Share of Forecast Regional Growth, Victoria, 2011-2031

Statistical District	2011-16	2016-21	2021-26	2026-31	2011-31
Central Highlands	13.3%	11.9%	11.3%	11.4%	11.9%
Loddon	13.7%	12.5%	12.0%	12.2%	12.6%
Barwon	24.0%	25.3%	24.9%	24.3%	24.6%
Goulburn	18.8%	21.7%	24.2%	24.4%	22.4%
Wimmera	0.64%	0.04%	0.01%	0.01%	0.17%
Gippsland	12.7%	13.2%	13.2%	13.4%	13.1%
Mallee	4.1%	2.5%	2.1%	1.8%	2.6%
Ovens-Murray	4.1%	4.3%	3.9%	3.5%	3.9%
Western District	5.0%	4.0%	3.7%	3.7%	4.1%
East Gippsland	3.7%	4.5%	4.6%	5.2%	4.5%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Source: Department of Planning and Community Development, *Victoria in Future 2012* and Essential Economics

4 For each period, a share of this additional growth redistributed to the regional SDs is allocated to the Regional Cities, based on each city's forecast share of the overall SD growth for which they are located in and as outlined in VIF. These shares of growth are shown in Table 1.6.

Table 1.6: Regional Cities Share of Forecast Regional SD Growth, Victoria, 2011-2031

Local Government Area	2011-16	2016-21	2021-26	2026-31	2011-31
Ballart (C) % of Central Highlands SD	58.3%	61.4%	60.9%	60.7%	60.3%
Greater Bendigo (C) % of Loddon SD	61.0%	64.1%	63.8%	63.6%	63.1%
Greater Geelong (C) % of Barwon SD	74.5%	74.7%	75.1%	74.7%	74.8%
Greater Shepparton (C) % of Goulburn SD*	20.4%	15.3%	11.8%	12.2%	14.5%
Horsham (RC) % of Wimmera SD**	97.1%	1302.6%	3122.0%	3475.4%	304.7%
Latrobe (C) % of Gippsland SD	25.5%	25.5%	24.0%	24.7%	24.9%
Mildura (RC) % of Mallee SD	79.9%	89.1%	89.3%	89.3%	85.8%
Wangaratta (RC) % of Ovens-Murray SD	13.9%	15.4%	15.6%	15.0%	15.0%
Warrnambool (C) % of Western District SD	55.4%	56.5%	55.0%	54.6%	55.4%
Wodonga (RC) % of Ovens-Murray SD	68.8%	67.4%	65.7%	65.3%	66.8%

Source: Department of Planning and Community Development, *Victoria in Future 2012* and Essential Economics
* The decline in Greater Shepparton (C) share of Goulburn SD population is heavily influenced by strong population expansion projected for the southern part of Mitchell Shire which forms part of Melbourne's Growth Area
** Horsham's high percentage growth reflects the significant forecast decline in rural and remote populations in Wimmera SD relative to Horsham's projected growth.
Note: No Regional Cities are located in East Gippsland (SD)

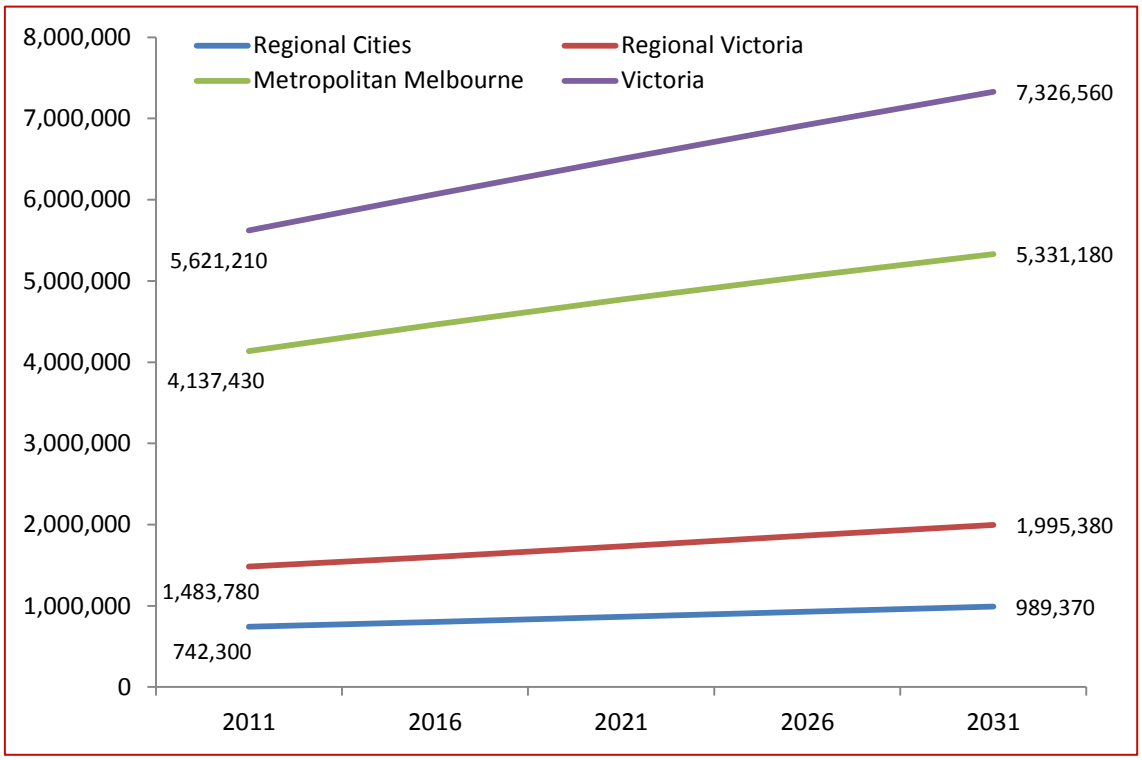
Table 1.7 and Figures 1.5 and 1.6 provide population outcomes included in VIF 2012. Under this scenario, over the 2011 to 2031 period regional Victoria secures approximately 30% of State population growth (512,000 additional persons), and this includes the Regional Cities which contribute approximately 14% of State growth (247,000 additional persons).

Table 1.7: 30% Growth Scenario Projections, Selected Locations, 2011-2031

	2011	2016	2021	2026	2031	2011-2031
Population (No.)						
Regional Cities	742,300	803,150	866,460	929,820	989,370	247,070
Regional Victoria	1,483,780	1,602,900	1,730,810	1,866,030	1,995,380	511,600
Metropolitan Melbourne	4,137,430	4,464,800	4,769,840	5,058,110	5,331,180	1,193,750
Victoria	*5,621,210*	*6,067,700*	*6,500,650*	*6,924,140*	*7,326,560*	*1,705,350*
Average Annual Growth (No.)						
Regional Cities	-	12,170	12,660	12,670	11,910	12,350
Regional Victoria	-	23,820	25,580	27,040	25,870	25,580
Metropolitan Melbourne	-	65,470	61,010	57,650	54,610	59,690
Victoria	-	*89,300*	*86,590*	*84,700*	*80,480*	*85,270*
Average Annual Growth (%)						
Regional Cities	-	1.6%	1.5%	1.4%	1.2%	1.4%
Regional Victoria	-	1.6%	1.5%	1.5%	1.3%	1.5%
Metropolitan Melbourne	-	1.5%	1.3%	1.2%	1.1%	1.3%
Victoria	-	*1.5%*	*1.4%*	*1.3%*	*1.1%*	*1.3%*

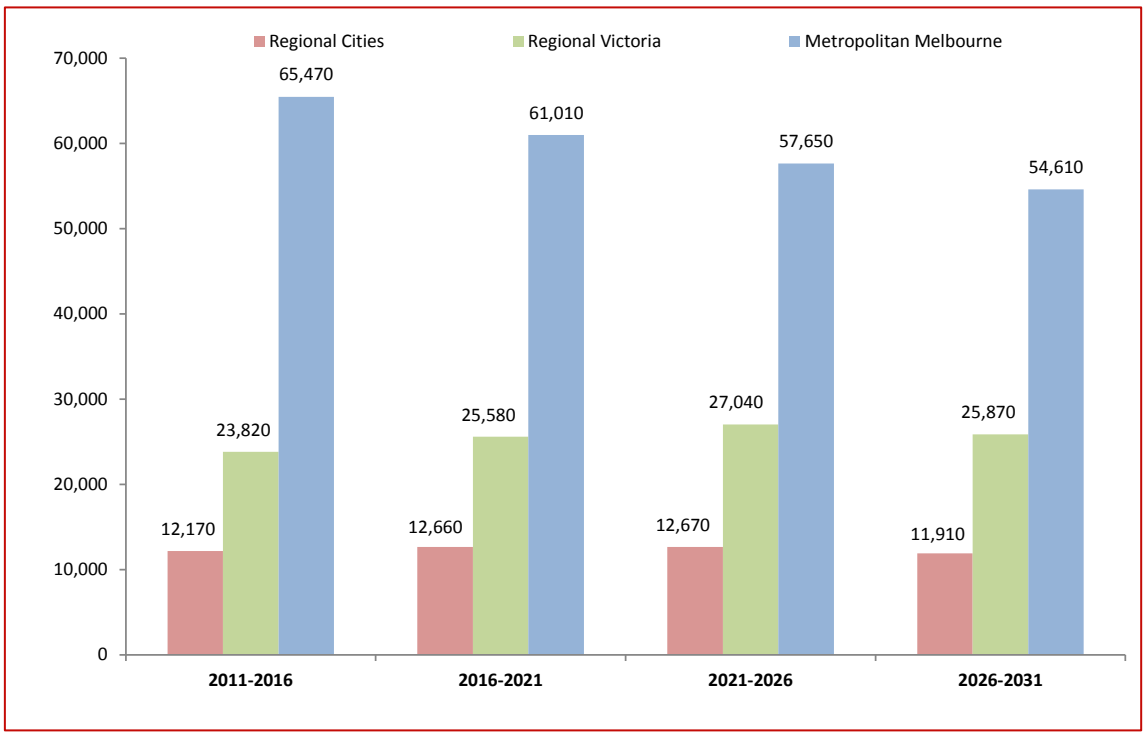
Source: Department of Planning and Community Development, *Victoria in Future 2012* and Essential Economics
Note: Figures rounded

Figure 1.5: Medium Growth Scenario Population Estimates, Selected Locations, 2011-2031



Source: Department of Planning and Community Development, *Victoria in Future 2012* and Essential Economics

Figure 1.6: Medium Growth Scenario Population Estimates, Selected Locations, 2011-2031



Source: Department of Planning and Community Development, *Victoria in Future 2012* and Essential Economics

High Growth Scenario – 35% of Victorian Population Growth between 2011 and 2031

In order to accommodate a 35% share of forecast population growth for regional Victoria, the following methodology has been applied to the VIF 2012 population projections (Base Case Scenario):

1 Over the period to 2031, an additional 10% of forecast State population growth has been redistributed to regional Victoria away from metropolitan Melbourne. This represents an additional 166,030 persons residing in regional Victoria (with a similar reduction in metropolitan Melbourne numbers).

2 This additional growth has been apportioned over five-year interval periods, so that the for each five year interval, the share of growth relative to total growth over the entire period is consistent with VIF projections . This means that over the period to 2031, the share of growth directed to regional Victoria is forecast to occur at an increasing rate, as shown in Table 1.8.

Table 1.8: Regional Victorian Share of Forecast Growth, Victoria

	2011-16	2016-21	2021-26	2026-31	Total, 2011-31
Regional Victoria Share of Total Growth	**31.1%**	**34.5%**	**37.3%**	**37.5%**	**35.0%**

Source: Department of Planning and Community Development, *Victoria in Future 2012* and Essential Economics

3 For each period, additional regional growth is allocated to the Statistical Districts (SD's) which makeup regional Victoria. This has been done by maintaining the forecast SD shares of total regional population growth as outlined in VIF, and is shown in Table 1.9.

Table 1.9: Regional Statistical District Growth Share of Forecast Regional Growth, Victoria, 2011-2031

Statistical District (SD)	2011-16	2016-21	2021-26	2026-31	Total, 2011-31
Central Highlands	13.3%	11.9%	11.3%	11.4%	11.9%
Loddon	13.7%	12.5%	12.0%	12.2%	12.6%
Barwon	24.0%	25.3%	24.9%	24.3%	24.6%
Goulburn	18.8%	21.7%	24.2%	24.4%	22.4%
Wimmera	0.64%	0.04%	0.01%	0.01%	0.17%
Gippsland	12.7%	13.2%	13.2%	13.4%	13.1%
Mallee	4.1%	2.5%	2.1%	1.8%	2.6%
Ovens-Murray	4.1%	4.3%	3.9%	3.5%	3.9%
Western District	5.0%	4.0%	3.7%	3.7%	4.1%
East Gippsland	3.7%	4.5%	4.6%	5.2%	4.5%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Source: Department of Planning and Community Development, *Victoria in Future 2012* and Essential Economics

4 For each period, a share of this additional growth redistributed to the regional SD's is allocated to the Regional Cities based on each city's forecast share of the overall SD growth for which they are located in, and as outlined in VIF. These shares of growth are shown in Table 1.10.

Table 1.10: Regional City's Share of Forecast Regional SD Growth, Victoria

Local Government Area	2011-16	2016-21	2021-26	2026-31	Total, 2011-31
Ballart (C) % of Central Highlands SD	58.3%	61.4%	60.9%	60.7%	60.3%
Greater Bendigo (C) % of Loddon SD	61.0%	64.1%	63.8%	63.6%	63.1%
Greater Geelong (C) % of Barwon SD	74.5%	74.7%	75.1%	74.7%	74.8%
Greater Shepparton (C) % of Goulburn SD*	20.4%	15.3%	11.8%	12.2%	14.5%
Horsham (RC) % of Wimmera SD**	97.1%	1302.6%	3122.0%	3475.4%	304.7%
Latrobe (C) % of Gippsland SD	25.5%	25.5%	24.0%	24.7%	24.9%
Mildura (RC) % of Mallee SD	79.9%	89.1%	89.3%	89.3%	85.8%
Wangaratta (RC) % of Ovens-Murray SD	13.9%	15.4%	15.6%	15.0%	15.0%
Warrnambool (C) % of Western District SD	55.4%	56.5%	55.0%	54.6%	55.4%
Wodonga (RC) % of Ovens-Murray SD	68.8%	67.4%	65.7%	65.3%	66.8%

Source: Department of Planning and Community Development, *Victoria in Future 2012* and Essential Economics
* The decline in Greater Shepparton (C) share of Goulburn SD population is heavily influenced by strong population expansion projected for the southern part of Mitchell Shire which forms part of Melbourne's Growth Area
** Horsham's high percentage growth reflects the significant forecast decline in rural and remote populations in Wimmera SD relative to Horsham's projected growth.

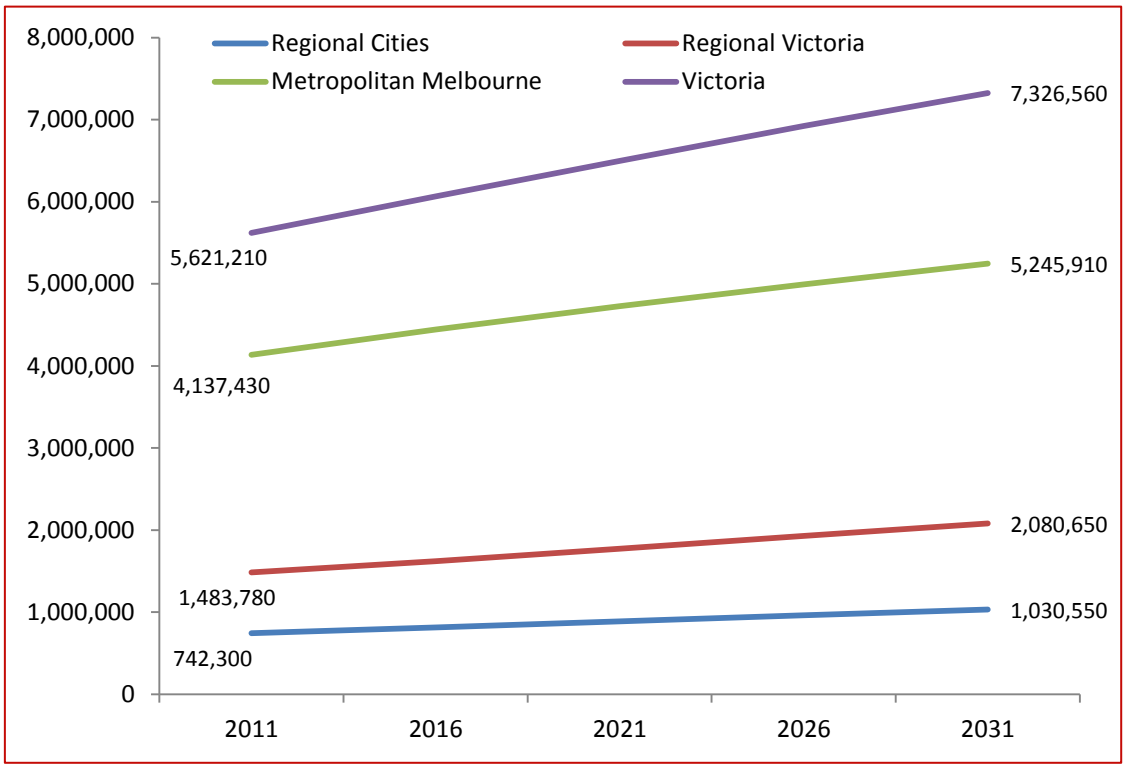
Table 1.11 and figures 1.7 and 1.8 provide population outcomes included in VIF 2012. Under this scenario, over the 2011 to 2031 period regional Victoria secures approximately 35% of State population growth (597,000 additional persons), with the Regional Cities contributing approximately 17% of this growth (288,000 additional persons).

Table 1.11: High Growth Scenario Projections, Selected Locations 2011-2031

	2011	2016	2021	2026	2031	2011-2031
Population (No.)						
Regional Cities	742,300	813,290	887,160	961,070	1,030,550	288,250
Regional Victoria	1,483,780	1,622,760	1,771,980	1,929,740	2,080,650	596,870
Metropolitan Melbourne	4,137,430	4,444,950	4,728,670	4,994,400	5,245,910	1,108,480
Victoria	5,621,210	6,067,700	6,500,650	6,924,140	7,326,560	1,705,350
Average Annual Growth (No.)						
Regional Cities	-	14,200	14,770	14,780	13,900	14,410
Regional Victoria	-	27,800	29,840	31,550	30,180	29,840
Metropolitan Melbourne	-	61,500	56,740	53,150	50,300	55,420
Victoria	-	89,300	86,590	84,700	80,480	85,270
Average Annual Growth (%)						
Regional Cities	-	1.8%	1.8%	1.6%	1.4%	1.7%
Regional Victoria	-	1.8%	1.8%	1.7%	1.5%	1.7%
Metropolitan Melbourne	-	1.4%	1.2%	1.1%	1.0%	1.2%
Victoria	-	1.5%	1.4%	1.3%	1.1%	1.3%

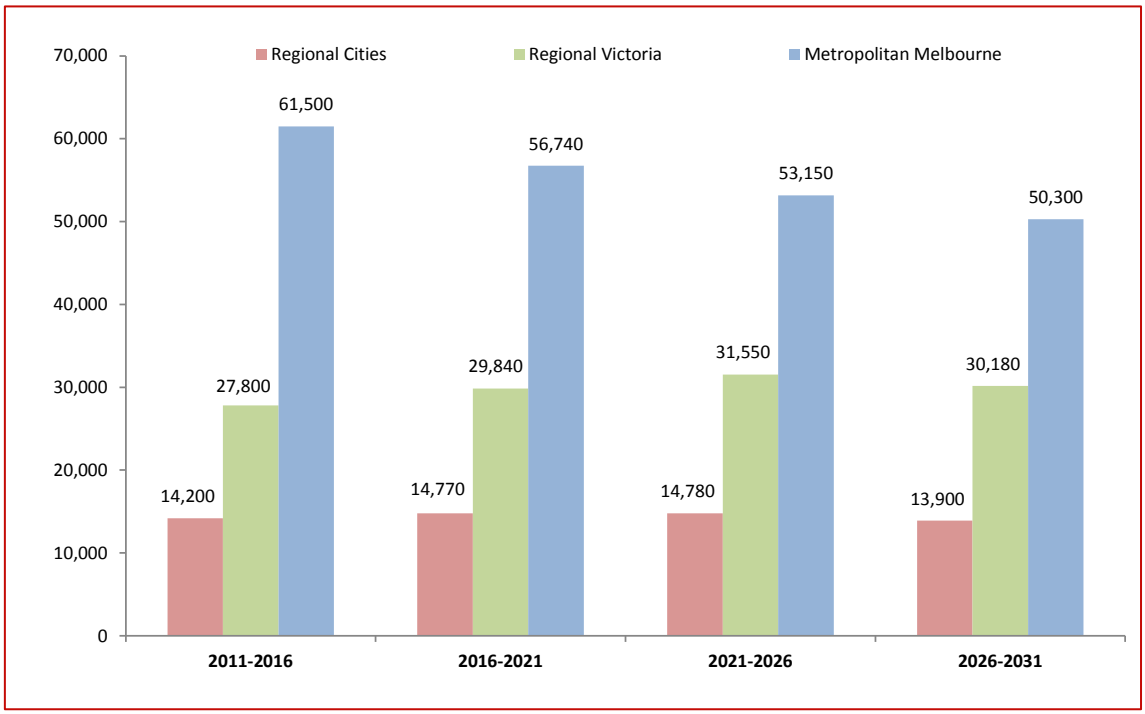
Source: Department of Planning and Community Development, *Victoria in Future 2012* and Essential Economics
Note: Figures rounded

Figure 1.7: High Growth Scenario Population Estimates, Selected Locations, 2011-2031



Source: Department of Planning and Community Development, *Victoria in Future 2012* and Essential Economics

Figure 1.8: High Growth Scenario Population Estimates, Selected Locations, 2011-2031



Source: Department of Planning and Community Development, *Victoria in Future 2012* and Essential Economics

Comparison of Scenarios

When the three scenarios are compared for the 20-year period, regional Victoria's population growth ranges from 430,850 additional persons (Base Case Scenario) to 596,870 additional persons (High Growth Scenario). This represents a difference in outcomes of approximately +166,000 persons between the lowest and highest outcomes. Population growth in the Regional Cities ranges from 208,070 additional persons (Base Case Scenario) to 288,250 additional persons (High Growth Scenario). This represents a difference in outcomes of approximately 80,000 persons between the lowest and highest outcomes.

As growth shares increase in the regions under the medium and high scenarios, metropolitan Melbourne's' growth declines proportionally, while the State's overall growth remains constant.

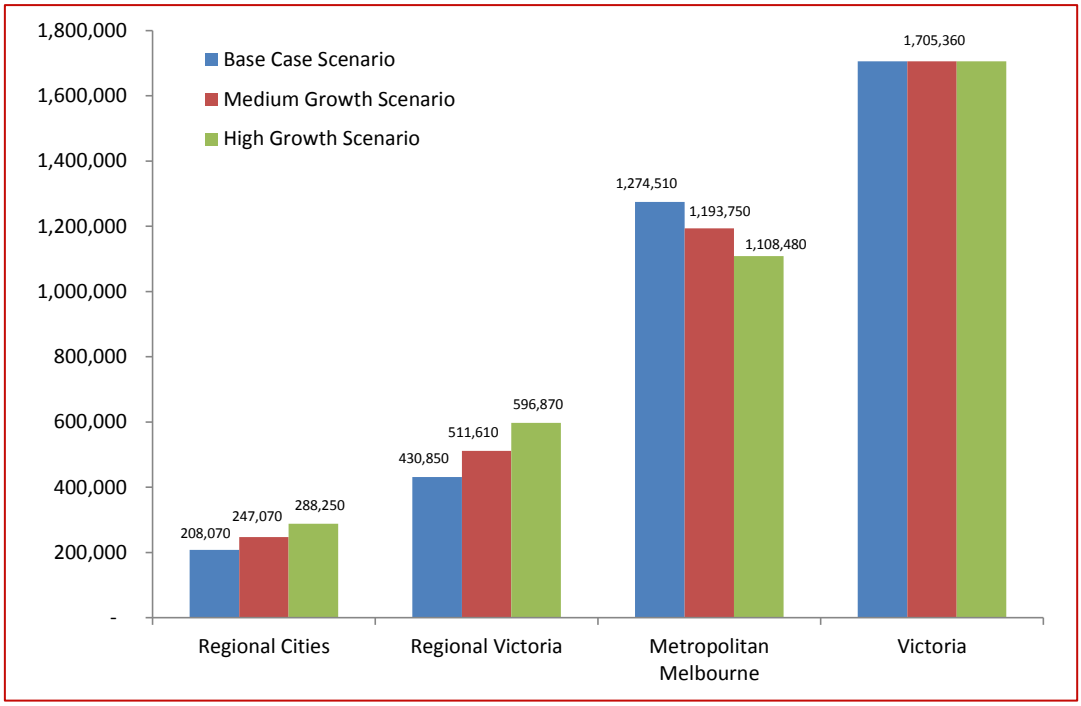
A comparison of population growth estimates under the three scenarios is included in Table 1.12 and Figure 1.9.

Table 1.12: Additional Population Under Each Growth Scenario, Selected Locations, 2011-2031

	Base Case Scenario	Medium Growth Scenario	High Growth Scenario
Regional Cities	+208,070	+247,070	+288,250
Regional Victoria	+430,850	+511,610	+596,870
Metropolitan Melbourne	+1,274,510	+1,193,750	+1,108,480
Victoria	+1,705,360	+1,705,350	+1,705,350

Source: Department of Planning and Community Development, *Victoria in Future 2012* and Essential Economics
Note: Figures rounded

Figure 1.9: Population Growth Outcomes Under Each Scenario, Selected Locations, 2011-2031



Source: Department of Planning and Community Development, *Victoria in Future 2012* and Essential Economics
Note: Figures rounded

1.3 Summary

Over recent decades, population growth rates in regional Victoria and the Regional Cities have generally lagged behind growth rates observed in metropolitan Melbourne. However, in recent years this gap has been diminishing.

In the case of the Regional Cities, annual growth rates have increased from 0.8% for the period 1991-2006 (compared to 1.1% pa for metropolitan Melbourne), to 1.6% for the period 2006-2011 (compared to 1.9% for metropolitan Melbourne).

In 2011, the population of the Regional Cities was estimated at 742,300 persons, representing an increase of 130,100 persons from 1991, with population expansion over the most recent 5-year period contributing over 40% (or 56,200 persons) of this growth.

State Government population projections (as detailed in *Victoria in Future 2012*), show that Regional Victoria is expected to secure 25% (or +430,850 persons) of Victoria's population growth between 2011 and 2031, with the Regional Cities accommodating approximately half this growth (+208,070 persons), and increasing their population levels from 742,300 persons to 950,370 persons.

For the purposes of this study the following three population growth scenarios have been prepared:

- Base Case Scenario – based on State Government population projections included in VIF 2012 as outlined above – Regional Cities population expands by +208,070 persons.
- Medium Growth Scenario – based on regional Victoria securing approximately 30% of Victoria's population growth over the period 2011-2031, with the Regional Cities population expanding by +247,070 persons over the period.
- High Growth Scenario – based on regional Victoria accommodating approximately 35% of Victoria's population growth over the period 2011-2031, with the Regional Cities population expanding by +288,250 persons over the period.

Estimates for infrastructure and service requirements and associated costs for the three population growth scenarios are detailed in the following Chapters of this report.

2 CAPACITY ASSESSMENT

This Chapter assesses the physical and economic capability of the Regional Cities to accommodate higher levels of population. Factors explored include residential and industrial land capacity, job creation performance, and economic output trends.

2.1 Residential Land Capacity

Approximately 87,400 zoned residential lots are available in the Regional Cities, according to data sourced from the Regional Urban Development Program, prepared by the DPCD. This amount of zoned lots could support an additional population of approximately 210,000 persons (based on an average household size of 2.4 persons per dwelling, which is consistent with DPCD VIF 2012 data). This existing zoned capacity would accommodate the full 20-year requirement identified under the Base Case Scenario, 85% of the land requirement identified under the Medium Growth Scenario, and 75% of the land requirement identified under the High Growth Scenario.

Importantly, the UDP also confirms significant amounts of additional unzoned residential supply which has been identified as having the potential to provide a further 90,000 lots over the coming years/decades (subject to planning approval).

When total lot supply is considered (approximately 178,00 lots), the Regional Cities clearly have considerable capacity to accommodate higher population levels, with the total lot yield capable of supporting an additional 425,000 persons (which is well above the 290,000 additional persons identified in the High Growth Scenario).

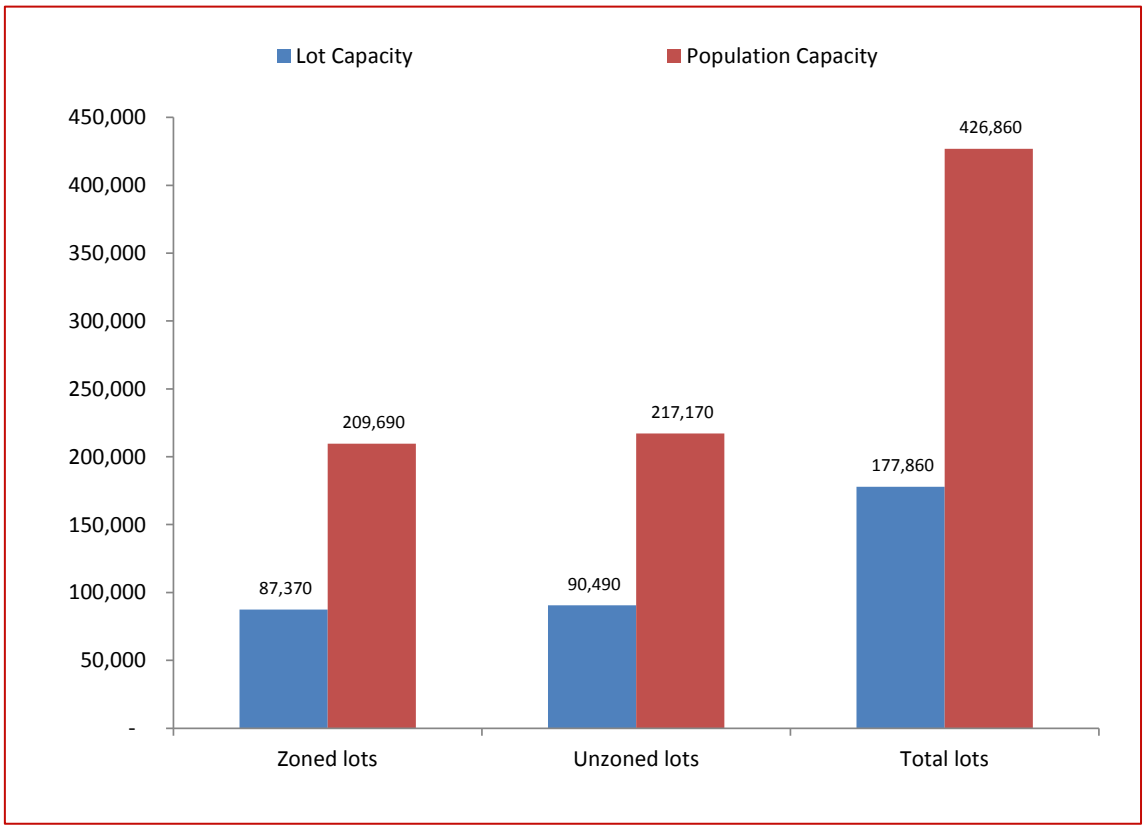
UDP data relating to residential land supply is shown in Table 2.1 and Figure 2.1.

Table 2.1: Number of Zoned and Unzoned Residential Lots Available and Estimated Population Yield, Regional Cities

	Zoned Land	Unzoned Land	Total Land
Residential Lot Capacity	87,370 lots	90,490 lots	177,860 lots
Population Capacity	+209,690 persons	+217,170 persons	+426,860 persons

Source: Department of Planning and Community Development, Regional Urban Development Program; Essential Economics
Note: Figures rounded

Figure 2.1: Residential Lot and Population Capacity, Regional Cities



Source: Department of Planning and Community Development, Regional Urban Development Program; Essential Economics
Note: Figures rounded

2.2 Industrial Land Capacity

The Regional Cities have approximately 9,650ha of industrial zoned land, of which approximately 3,000ha (or 31%) are vacant, according to UDP data. This level of zoned vacant supply could support additional employment of 120,000 persons (assuming a ratio of 40 jobs per ha). This existing zoned vacant capacity would provide for a considerable proportion of required additional employment stimulated by population expansion. For example, based on a 'crude participation' rate of 50% (that is, one in every two additional persons forms part of the labour force), then the following number of jobs would be required in the Regional Cities coming 20 years:

- Base Case Scenario: +105,000 jobs
- Medium Growth Scenario: +125,000 jobs
- High Growth Scenario: +145,000 jobs

Additionally, the UDP confirms considerable amounts of unzoned industrial supply exist which has been identified as having the potential to provide a further 1,700ha over the coming years/decades (subject to planning approval).

When total lot supply is considered (approximately 4,700ha), the Regional Cities have significant capacity to accommodate higher employment levels, with the total industrial supply capable of supporting an additional 190,000 jobs (which is well above the 145,000 additional jobs identified in the High Growth Scenario).

Importantly, the above analysis relates to industrial land supply only with significant additional employment generated in the Regional Cities through town centre activities (retail, accommodation, cafes/restaurants, entertainment, business services etc), health, education and community services, recreational and arts activities, and so on.

The proposed changes to Victoria's planning zones are likely to permit a wider variety of uses on industrial land in the future (particularly under new 'Commercial Zones'). The types of development that might be accommodated in these new zones include bulky goods retailing and commercial office activities. In general, the new commercial zone provisions are may stimulate higher employment densities on industrial land in the future (although this outcome could mean lesser growth in jobs in activity centres).

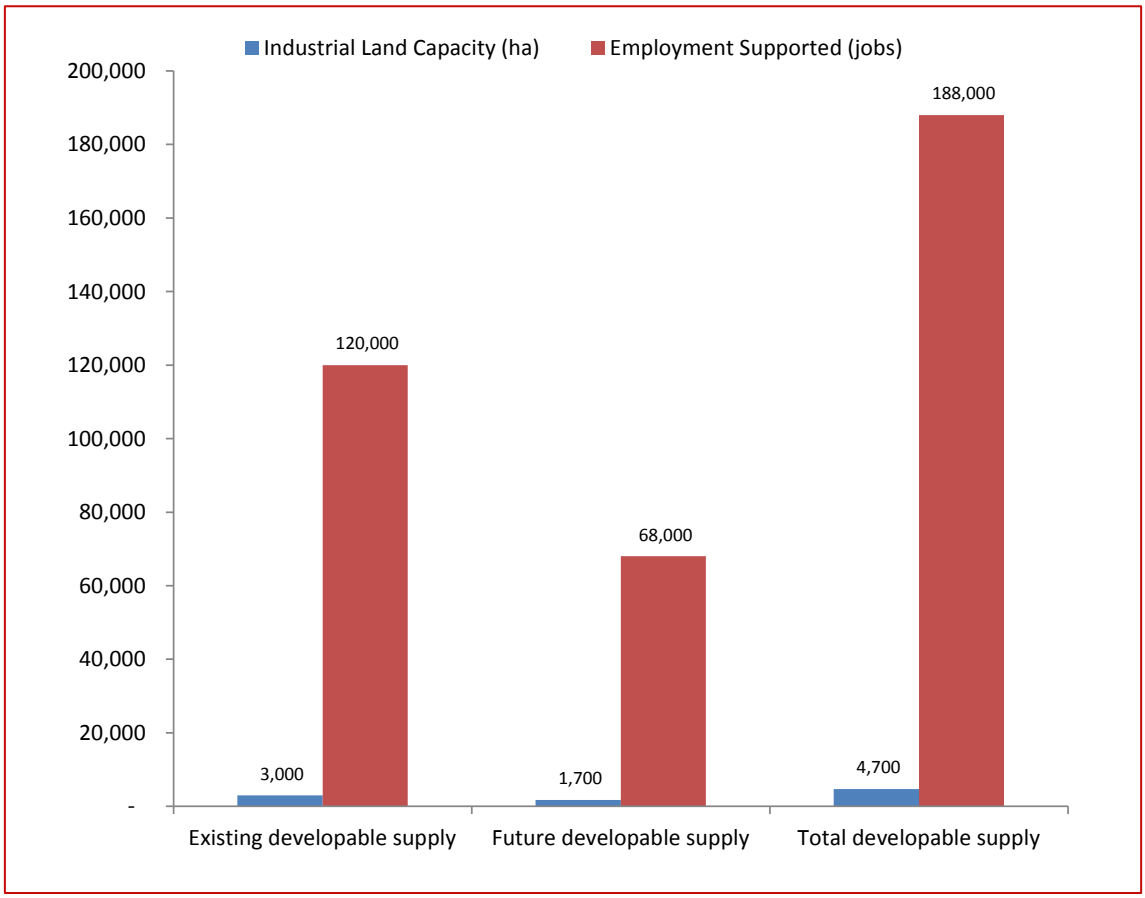
UDP data relating to industrial land supply is shown in Table 2.2 and Figure 2.2.

Table 2.2: Hectares of Zoned and Unzoned Industrial Land Available and Estimated Employment Yield, Regional Cities

	Zoned Land	Unzoned Land	Total Land
Industrial Lot Capacity	3,000ha	1,700ha	4,700ha
Employment Capacity	120,000 jobs	68,000 jobs	188,000 jobs

Source: Department of Planning and Community Development, Regional Urban Development Program; Essential Economics
Note: Figures rounded

Figure 2.2: Industrial Land and Employment Capacity, Regional Cities



Source: Department of Planning and Community Development, Regional Urban Development Program; Essential Economics
Note: Figures rounded

Specific analysis of land requirements for industrial activities in the Regional Cities is detailed in Chapter 4. This analysis shows that over the period 2011 to 2031, approximately 1,440ha of additional industrial land will be required to accommodate industrial-related activities under the High Growth Scenario. This requirement represents less than 50% of the zoned industrial land currently available in the Regional Cities, or just 30% of total supply when unzoned industrial land is factored in.

In this regard, it is clear that the Regional Cities have an ample long-term supply of industrial land to support considerably higher population levels (even in excess of the High Growth Scenario outlined in this report).

Estimates of land supply required to support industrial-related activities in the Regional Cities is included in Table 2.3.

Table 2.3: Estimated Additional Serviced Industrial Land Required, Regional Cities 2011-2031

Scenario		2011-2031
Existing Situation	**Total vacant zoned supply 3,000ha** **Total vacant zoned and unzoned supply 4,700ha**	
Base Case Scenario	Estimated requirement	1,330ha
Medium Growth Scenario	Estimated requirement	1,390ha
High Growth Scenario	Estimated requirement	1,440ha

Source: Department of Planning and Community Development, Urban Development Program (various); Tables 1.3, 1.4 and 1.5; Essential Economics

2.3 Job Creation Capacity

One of the major concerns for policy makers is that higher regional population growth rates will increase pressure on the regional job markets, possibly leading to higher regional unemployment rates.

A review of Department of Employment and Workplace Relations labour force statistics data shows that over the period 2006-2011, the Regional Cities added approximately 1 job for every additional new participant entering the labour force. Over the five years, a period characterised by a significant uplift in population growth in regional areas, 37,380 new jobs were created to cater for 37,790 new labour force participants. Consequently, overall unemployment only increased marginally (410 persons) and these factors led to a notable decline in the Regional Cities' unemployment rate from 7.4% in 2006 to 6.7% in 2011. In summary, the economies of the Regional Cities appear to be supporting population growth in a sustainable manner by generating sufficient new jobs to support expanding labour markets. Labour force data is included in Table 2.4 and Figure 2.3.

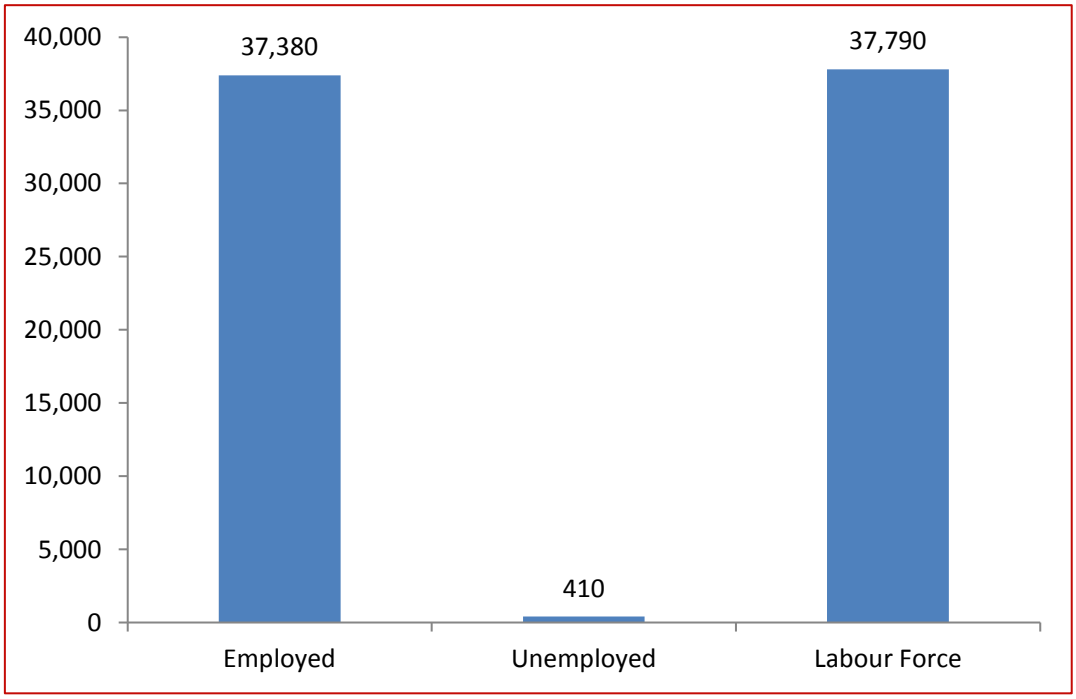
While ABS Census Journey to Work data for 2011 was not available at the time of preparing this report, it will be important to examine the composition of the additional employment generated in the Regional Cities between 2006 and2011 once the data is released.

Table 2.4: Labour Force Statistics, Regional Cities 2006 to 2011

	Employed	Unemployed	Labour Force	Unemployment Rate
2006	319,980	25,440	345,420	7.4%
2011	357,360	25,850	383,210	6.7%
Change 2006-2011	+37,380	+410	+37,790	-0.6%
AAGR	+2.2%	+0.3%	+2.1%	-1.7%

Source: Department of Employment and Workplace Relations, Small Area Labour Markets (various)
Notes: Figures rounded
AAGR = Annual Average Growth Rate

Figure 2.3: Employment, Unemployment and Labour Force Growth in the Regional Cities, 2006 to 2011



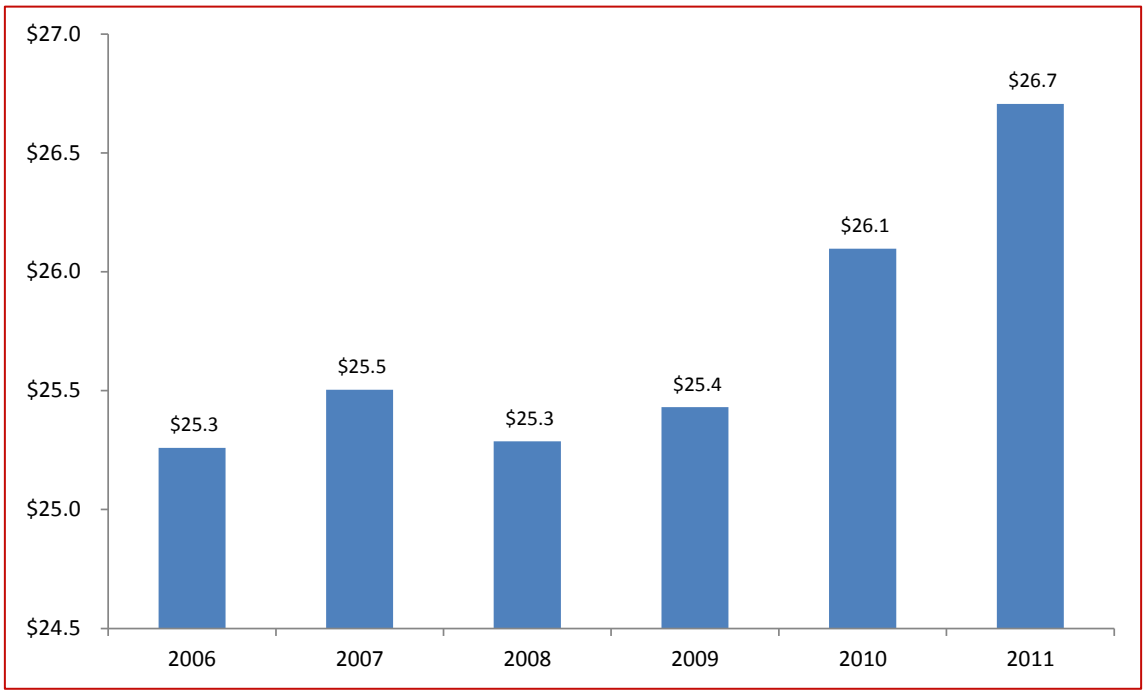
Source: Department of Employment and Workplace Relations, Small Area Labour Markets (various)

2.4 Economic Output

The Regional Cities have recorded steady economic growth over the past five years. Data provided by RDV, prepared by National Economics, shows that economic output in the Regional Cities (as measured by Gross Value Added or GVA) increased from $25.3 billion in 2006 to $26.1 billion in 2011 (based on constant 2008 prices). While this represents relatively modest annual growth of approximately 0.6% pa, this period coincided with the Global Financial Crisis (GFC) downturn. The Regional Cities' annual share of State GVA remained between 10% and 11% over the period.

GVA trends are shown in Figure 2.3.

Figure 2.3: Economic Output (Gross Value Added) in the Regional Cities ($Billions), 2006 to 2011



Source: National Economics (unpublished) – based on constant 2008 prices.

2.5 Conclusions

In terms of capacity, the Regional Cities are well placed to accommodate significantly higher population levels over and above Base Case / VIF 2012 projections.

The analysis shows:

- Residential capacity of 178,860 lots (zoned and unzoned), which could accommodate +425,000 persons (with the High Growth Scenario increasing population levels by approximately +290,000)
- Industrial capacity of 4,700 ha (zoned and unzoned), which could accommodate 190,000 jobs (with the High Growth Scenario requiring approximately +145,000 new jobs to be generated).
- Additional employment generating capacity on non-industrial land, such as in town centres, schools, hospital etc.

In economic terms, the Regional Cities have performed well in terms of job creation and economic output over the most recent period of strong population expansion (2006-2011). The analysis shows:

- One job has been created for every new labour force participant (+37,300 additional jobs)
- Economic output has continued to increase from $25.3 billion in 2006, to $26.7 billion in 2011 despite the negative impacts of the GFC occurring during this period.

3 INFRASTRUCTURE AND RESOURCES SURVEY

This Chapter describes the infrastructure and resources survey that was undertaken for this project, and which identifies the existing infrastructure and resource situation in each municipality. A discussion of survey data quality is also provided.

3.1 Methodology

A data collection survey (*Regional Cities Victoria Infrastructure and Resources Survey*) was compiled and circulated by the consultant to each of the 10 participating municipalities. The aim of the survey was to collect current local data on a range of variables for use in assessing future infrastructure and resource needs. This updated data will also provide the basis to compare changes in infrastructure and service provision over the two reporting periods (2008 and 2012).

A range of additional information was sourced by the consultants to assist the data collection process including information from State government departments, energy and water providers and rail operators.

Data categories were grouped under the following 10 broad categories:

1. Water
2. Public transport
3. Energy
4. Communications
5. Land supply
6. Health
7. Education
8. Social infrastructure
9. Recreation
10. Waste management

Under theses broad categories a number of sub-categories were developed to provide a range of benchmarks to be used in the analysis.

These sub- categories are shown in Table 3.1.

Table 3.1: Regional Cities Victoria, Infrastructure Survey – Categories and Measures

Category	Measures
1. Water	
Household usage	Litres per person per day
2. Public Transport	
Bus services	Number of daily bus routes operating within the municipality
Rail services	No. of regular weekly train/coach passenger services to and from Metropolitan Melbourne
3. Energy	
Household electricity consumption	Kilo Watt hours (KWh) per annum per household
Household gas consumption	Giga joules (GJ) per annum per household
4. Communications	
Broadband access	Estimated broadband coverage across municipality
5. Land supply	
Total dwellings	Number of occupied and unoccupied dwellings
Residential land supply	Estimated amount of serviced residential land available (vacant)
Industrial land supply	Estimated amount of serviced industrial land available (vacant)
6. Health	
Hospitals	No. of public and private hospitals located in municipality
Hospital beds	No. of private and public beds located in municipality
Hospital emergency department presentations	No. of emergency patients attended to each year (admitted and non-admitted)
No of GPs	No. of GPs located in municipality
7. Education	
Primary schools	No. of public and private primary schools located in municipality
Primary schools places	No. of public and private primary school places located in municipality
Secondary schools	No. of public and private secondary schools located in municipality
Secondary schools places	No. of public and private secondary school places located in municipality
Tertiary establishments	No. of tertiary establishments located in municipality
Tertiary places (TAFE, university etc)	No. of tertiary places located in municipality
8. Social Infrastructure	
Library branches	No. of library branches located in municipality
Library floorspace	Amount of public access library floorspace (m2) located in municipality
Kindergartens	No. of kindergarten's located in municipality
Kindergarten places	No. of kindergarten places located in municipality
Childcare centres	No. of childcare centres located in municipality
Childcare places	No. of childcare places located in municipality
Aged care facilities	No. of aged care facilities located in municipality
Aged care	Estimated number of aged care beds located in municipality
9. Recreation	
Arts and cultural facilities	No. of major arts centres, museums, galleries located in the municipality
Sports facilities	No. of major council operated indoor and outdoor sports centres/stadiums/located in municipality
10. Waste Management	
Municipal waste	Amount of Kerbside municipal waste (tonnes pa)

3.2 Summary

An infrastructure and resources survey was developed and circulated to each of the 10 regional cities. The survey requested information regarding a range of resource areas including water, public transport, energy, communications, land supply, health, education, social infrastructure, recreation and waste management.

The survey information (together with additional data sourced by the consultant) has assisted in developing indicators to assess future infrastructure and resource requirements in the Regional Cities under the three population growth scenarios. These indicators are described in detail the following Chapter.

4 FUTURE REQUIREMENTS

4.1 Indicators

This Chapter describes 20-year requirements in the Regional Cities for 23 infrastructure and resource indicators under the three population growth scenarios.

The analysis of future requirements is based principally on survey data compiled by the 10 Councils which form the RCV Group. While each participating Council is individually responsible for the quality and consistency of their data between surveys, where possible, the consultants have verified data with Council officers.

4.2 Indicators

Using selected data provided from the surveys and other data sourced by the consultants, 23 indicators have been developed to assess future infrastructure and resource requirements for regional cities.

Projections for each indicator are provided for the years 2021 and 2031 and are based on the following three scenarios

- Base Case Scenario (VIF 2012): Regional Victoria secures 25% of State population growth between 2011-2031, as per *Victoria in Future 2012* projections.
- Medium Growth Scenario: Regional Victoria secures 30% of State population growth between 2011--2031 (ie +5% share compared to *Victoria in Future 2012* projections).
- High Growth Scenario: Regional Victoria secures 35% of State population growth between 2011-2031, (ie +10% share compared to *Victoria in Future 2012* projections).

The indicators developed are described as follows:

Water

1. Additional household water requirements

Transport

2. Additional number of bus routes required
3. Additional number of rail/coach services required

Energy

4. Additional household electricity required
5. Additional household gas required

Communications

6. Additional broadband coverage required

Land Supply

7. Additional number of dwellings required
8. Additional residential land required

9. Additional industrial land required

Health

10. Additional hospital beds required
11. Additional hospital emergency department presentations
12. Additional GPs required

Education

13. Additional primary school places required
14. Additional secondary school places required
15. Additional university places required
16. Additional TAFE places required

Social Infrastructure

17. Additional library floorspace required
18. Additional kindergarten places required
19. Additional childcare places required
20. Additional aged care beds required

Recreation

21. Additional arts and cultural facilities required
22. Additional recreational indoor facilities

Waste Management

23. Additional kerbside household municipal waste generated

The following sections provide detailed analysis of each indicator at an aggregated Regional Cities level, while information for each the 10 regional cities are included in Appendix 2.

4.3 Water Requirements

Households in the Regional Cities currently consume approximately 48.1 billion litres of water per year. This estimate is based on applying average annual domestic per capita consumption rates for water businesses (Essential Services Commission *Water Performance Report 2011*) to the existing population residing in the Regional Cities. These estimates therefore take into account different levels of water usage across each of the 10 municipalities, which vary considerably.

Current levels of domestic water consumption reflect a small decline in usage compared with 2008 when total consumption totalled 50.9 billion litres. This decline is consistent with recent State Government policies aimed at reducing domestic water usage (such water restrictions, the Target 155 Campaign etc).

Based on the assumption that existing domestic water consumption rates continue, estimates of future consumption have been prepared for the Regional Cities for the periods 2011-2021 and 2021-2031.

By 2021, water consumption in the Regional Cities is estimated to increase to between 54.6 billion litres pa (Base Case Scenario) and 57.2 billion litres pa (High Growth Scenario). This represents an overall increase of between +6.5 billion litres (Base Case Scenario) and +9.0 billion litres (High Growth Scenario) over the existing consumption level.

By 2031, water consumption in the Regional Cities is estimated to reach between 61.0 billion litres pa (Base Case Scenario) and 65.9 billion litres pa (High Growth Scenario) representing an overall increase of between +12.9 billion litres (Base Case Scenario) and +17.8 billion litres (High Growth Scenario) over the 20-year period.

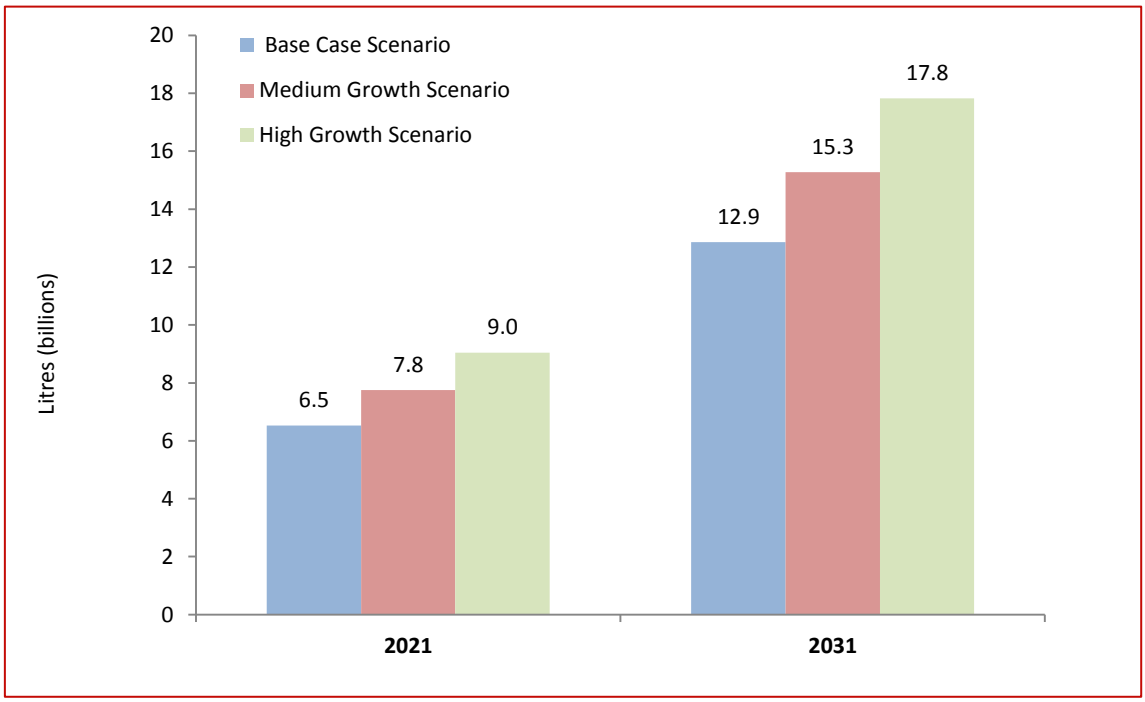
Data relating to water consumption forecasts is contained in Table 4.1 and Figure 4.1.

Table 4.1: Estimated Household Water Requirements, Regional Cities at 2021 and 2031

2008 Situation	**50.9 (billion litres)**		
Existing Situation	**48.1 (billion litres)**		
Change from 2008	**-2.8 (billion litres)**		
Scenario		**2021**	**2031**
		Litres (billions)	
Base Case Scenario	Estimated Requirement	54.6	61.0
	Change from existing situation	*6.5*	*12.9*
Medium Growth Scenario	Estimated Requirement	55.9	63.4
	Change from existing situation	*7.8*	*15.3*
High Growth Scenario	Estimated Requirement	57.2	65.9
	Change from existing situation	*9.0*	*17.8*

Source: Essential Services Commission Water Performance Report 2011; and Essential Economics

Figure 4.1: Additional Household Water Requirements, Regional Cities at 2021 and 2031



Source: Essential Services Commission Water Performance Report 2011; and Essential Economics

4.4 Public Transport Requirements

Bus Services

Currently, 174 public bus routes operate in the Regional Cities, according to data provided by each municipality. This represents an increase of 28 new bus services over the period 2008 to 2012.

Using 'existing population to bus route' ratios for each municipality, estimates of future requirements have been derived for the Regional Cities for the periods 2011-2021 and 2021-2031.

By 2021, the number of bus routes required in the Regional Cities is estimated to increase to between 195 routes (Base Case Scenario) and 204 routes (High Growth Scenario). This represents an annual increase of between +21 routes (Base Case Scenario) and +25 routes (High Growth Scenario) over the period 2011-2021.

By 2031, the number of bus routes required in the Regional Cities is estimated to reach between 216 routes (Base Case Scenario) and 233 routes (High Growth Scenario), representing an increase of between +42 routes (Base Case Scenario) and +59 routes (High Growth Scenario) over the 20-year period.

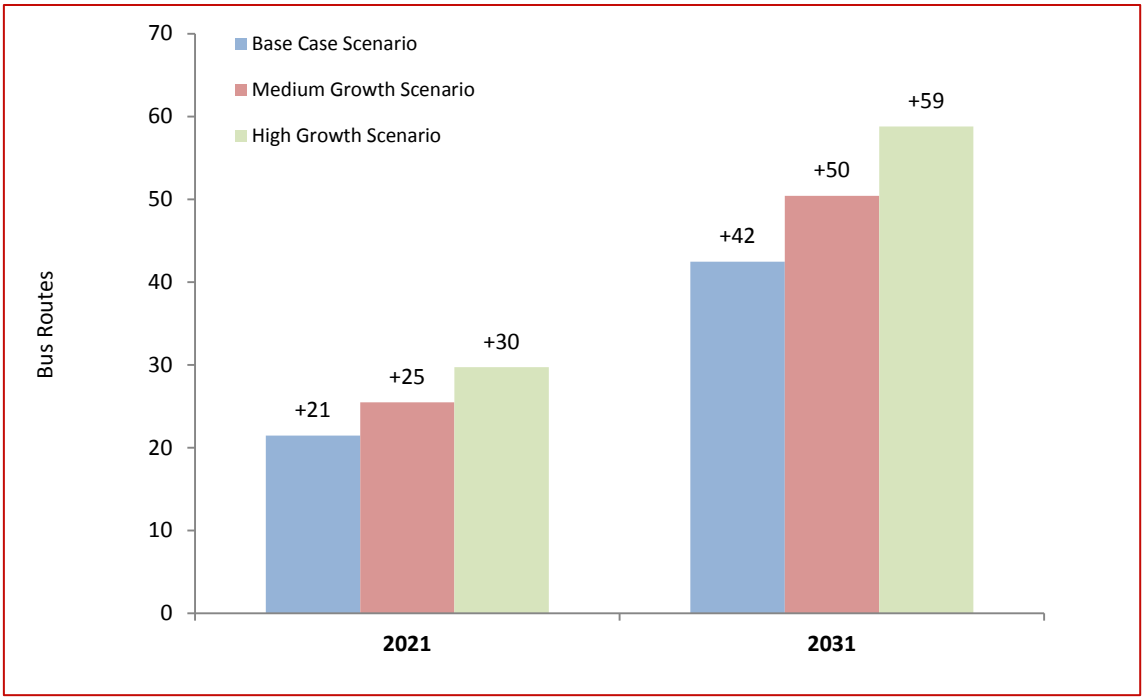
Data relating to future bus route requirements are contained in Table 4.2 and Figure 4.2.

Table 4.2: Estimated Bus Route Requirements, Regional Cities at 2021 and 2031

2008 Situation	**146 public bus routes**		
Existing Situation	**174 public bus routes**		
Change from 2008	**+28 public bus routes**		
Scenario		**2021**	**2031**
		No. of Bus Routes	
Base Case Scenario	Estimated Requirement	195	216
	Change from existing situation	*+21*	*+42*
Medium Growth Scenario	Estimated Requirement	199	224
	Change from existing situation	*+25*	*+50*
High Growth Scenario	Estimated Requirement	204	233
	Change from existing situation	*+30*	*+59*

Source*:* RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5

Figure 4.2: Estimated Bus Route Requirements, Regional Cities at 2021 and 2031



Source: RCV Infrastructure and Resources Survey; Tables 1.3, 1.4 and 1.5; Essential Economics

Rail Services

Currently, 1,500 rail/coach services operate in the Regional Cities, according to data sourced from V/Line. This represents an increase of 310 rail/coach services over the period 2008 to 2012.

Using 'existing population to rail/coach service' ratios for each municipality, estimates of future requirements have been derived for the Regional Cities for the periods 2011-2021 and 2021-2031.

By 2021, the number of rail/coach services required in the Regional Cities is estimated to increase to between 1,710 services (Base Case Scenario) and 1,790 services (High Growth Scenario). This represents an annual increase of between +210 services (Base Case Scenario) and +290services (High Growth Scenario) over the existing situation.

By 2031, the number of rail/coach services required in the Regional Cities is estimated to reach between 1,920 services (Base Case Scenario) and 2,080 services (High Growth Scenario) representing an increase

of between +420 services (Base Case Scenario) and +580 services (High Growth Scenario) over the 20-year period.

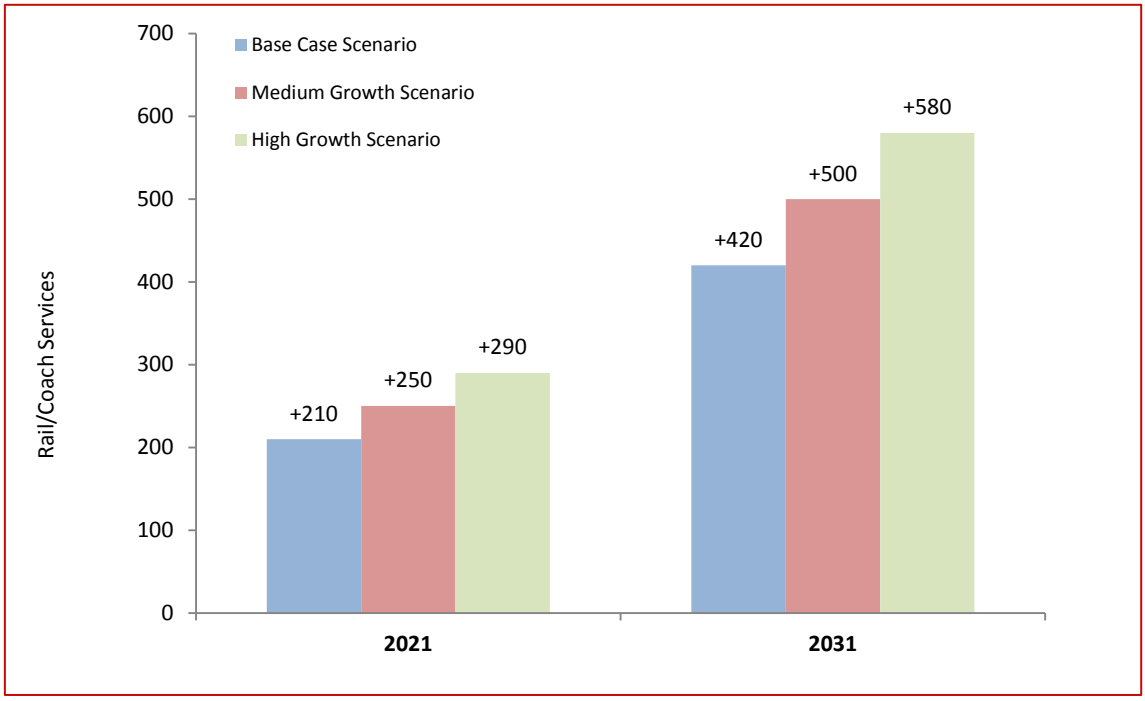
Data relating to future rail/coach service requirements are contained in Table 4.3 and Figure 4.3.

Table 4.3: Estimated Rail/Coach Service Requirements, Regional Cities at 2021 and 2031

2008 Situation	**1,190 rail/coach services to and from metropolitan Melbourne**		
Existing Situation	**1,500 rail/coach services to and from metropolitan Melbourne**		
Change from 2008	**+310 rail/coach services to and from metropolitan Melbourne**		
Scenario		**2021**	**2031**
		No. of Rail Coach Services	
Base Case Scenario	Estimated Requirement	1,710	1,920
	Change from existing situation	*+210*	*+420*
Medium Growth Scenario	Estimated Requirement	1,750	2,000
	Change from existing situation	*+250*	*+500*
High Growth Scenario	Estimated Requirement	1,790	2,080
	Change from existing situation	*+290*	*+580*

Source*:* V/Line; Essential Economics Tables 1.3, 1.4 and 1.5Note: 2008 totals include direct services only.

Figure 4.3: Estimated Rail/Coach Requirements, Regional Cities at 2021 and 2031



Source*:* V/Line; Essential Economics Tables 1.3, 1.4 and 1.5Energy Requirements

Household Electricity

Households in the Regional Cities consume approximately 1.73 billion KWh of electricity per year. This estimate is based on applying the Victoria average annual consumption rate of 5,950 KWh per household (Essential Supply Association of Australia) to the existing number of dwellings located in the Regional Cities. Current levels of electricity consumption reflect a small decline in usage compared with 2008 when total consumption was estimated to be 1.85 billion KWh, with average annual consumption per household estimated at 6,500 KWh per household. This decline is consistent with generally declining household consumption rates observed nationally and which are associated with factors such as higher electricity process, more effective energy saving measures, introduction of carbon pricing etc.

Based on the assumption that the existing per household consumption rate continues, estimates future consumption have been prepared for the Regional Cities for the periods 2021-2031 and 2021-2031.

By 2021, household electricity consumption in the Regional Cities is estimated to increase to between 2.04 billion KWh (Base Case Scenario) and 2.14 billion KWh (High Growth Scenario). This represents an annual increase of between +0.31 billion KWh (Base Case Scenario) and + 0.41 billion KWh (High Growth Scenario) over the existing level.

By 2031, household electricity consumption in the Regional Cities is estimated to reach between 2.35 billion KWh (Base Case Scenario) and 2.55 billion KWh (High Growth Scenario), representing an increase of between +0.62 billion KWh (Base Case Scenario) and +0.82 billion KWh (High Growth Scenario) over the 20-year period.

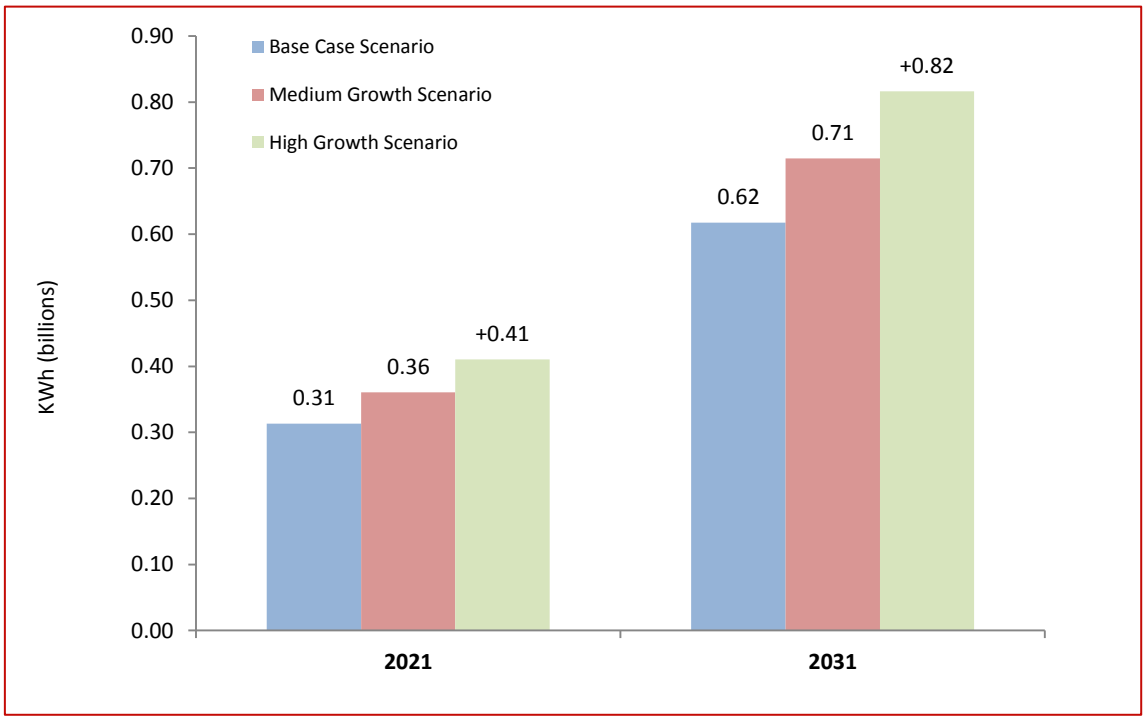
Data relating to future household electricity consumption is contained in Table 4.4 and Figure 4.4.

Table 4.4: Estimated Household Electricity Requirements, Regional Cities at 2021 and 2031

2008 Situation	**1.85 billion KWh**		
Existing Situation	**1.73 billion KWh**		
Change from 2008	**-0.12 billion KWh**		
Scenario		**2021**	**2031**
		KWh (billions)	
Base Case Scenario	Estimated Requirement	2.04	2.35
	Change from existing situation	*0.31*	*0.62*
Medium Growth Scenario	Estimated Requirement	2.09	2.45
	Change from existing situation	*0.36*	*0.71*
High Growth Scenario	Estimated Requirement	2.14	2.55
	Change from existing situation	*+0.41*	*+0.82*

Source: Energy Supply Association of Australia; Essential Economics Tables 1.3, 1.4 and 1.5

Figure 4.4: Additional Household Electricity Required, Regional Cities at 2021 and 2031



Source: Energy Supply Association of Australia; Essential Economics Tables 1.3, 1.4 and 1.5

Household Gas

Households in the Regional Cities consume approximately 17.03 million gigajoules (GJ) of gas per year. This estimate is based on applying the Victoria average annual consumption rate of 57.23 GJ per household (Essential Supply Association of Australia) to the existing number of dwellings located in the Regional Cities. Current levels of electricity consumption reflect a small decline in usage compared with 2008 when total consumption was estimated to be 16.67 million GJ, with average annual consumption per household estimated at 60 GJ per household. This decline is consistent with generally declining household consumption rates observed nationally, associated with energy saving measures and price increases.

Based on the assumption that the existing per household consumption rate continues, estimates future consumption have been prepared for the Regional Cities for the periods 2021-2031 and 2021-2031.

By 2021, household gas consumption in the Regional Cities is estimated to increase to between 19.68 million GJ Base Case Scenario) and 20.62 million GJ (High Growth Scenario). This represents an annual increase of between +3.02 million GJ (Base Case Scenario) and +3.95 million GJ (High Growth Scenario) over the existing level.

By 2031, household gas consumption in the Regional Cities is estimated to reach between 22.61 million GJ (Base Case Scenario) and 24.53 million GJ (High Growth Scenario), representing an increase of between +5.95 million GJ (Base Case Scenario) and +7.86 million GJ (High Growth Scenario) over the 20-year period.

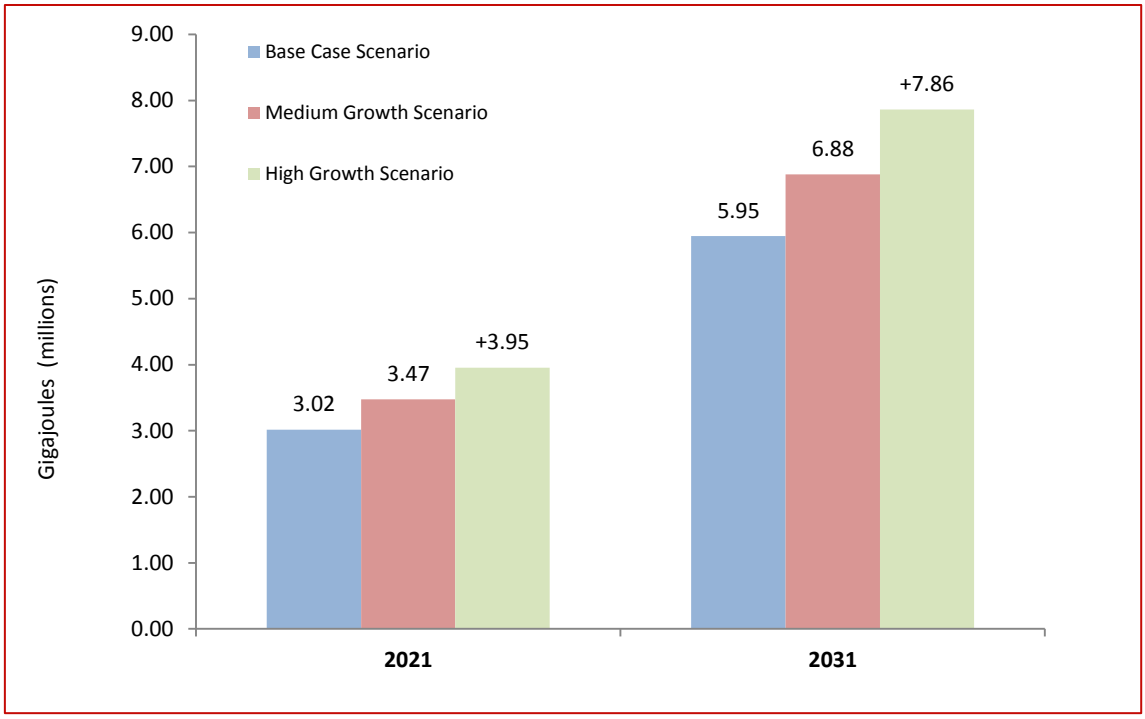
Data relating to future household electricity consumption is contained in Table 4.5 and Figure 4.5.

Table 4.5: Estimated Household Gas Requirements, Regional Cities at 2021 and 2031

2008 Situation	**17.03 million gigajoules**		
Existing Situation	**16.67million gigajoules**		
Change from 2008	**-0.37 million gigajoules**		
Scenario		**2021**	**2031**
		GJs (millions)	
Base Case Scenario	Estimated Requirement	19.68	22.61
	Change from existing situation	*+3.02*	*+5.95*
Medium Growth Scenario	Estimated Requirement	20.14	23.55
	Change from existing situation	*+3.47*	*+6.88*
High Growth Scenario	Estimated Requirement	20.62	24.53
	Change from existing situation	*+3.95*	*+7.86*

Source: Energy Supply Association of Australia; Essential Economics Tables 1.3, 1.4 and 1.5

Figure 4.5: Additional Household Gas Requirements, Regional Cities at 2021 and 2031



Source: Energy Supply Association of Australia; Essential Economics Tables 1.3, 1.4 and 1.5

Broadband Requirements

Since 2009, ongoing broadband infrastructure development has meant that almost all areas of the State can access fixed broadband with speeds of at least 256Kbps (first wave fixed broadband). Over recent years, the key challenge for Regional Cities has been accessing faster services, with speeds of 256Kbps to 50Mbps (second wave fixed broadband).

Coverage for services above 50Mbps (third wave fixed broadband) remains low as the rollout of the NBN, which is the primary source of third wave fixed broadband services, has experienced significant delays. Access to seconded wave broadband will therefore be critical over the period to 2021 and beyond.

Data sourced from Department of Business and Innovation's *2012 Telecommunications Spend and Demand in Victoria* publication indicates that second wave fixed broadband service coverage extends to

approximately 93% of households and business in the Regional Cities that demand access to these services.

Since 2008, this represents an increase in broadband coverage of 20% to households and businesses which goes beyond the increase in first wave coverage to include access to second wave services.

Based on the assumption that by 2021 half the current unmet demand for second wave fixed broadband services in the Regional Cities will be met by access to these services, and that by 2031 all the current unmet demand for these services will have been met, estimates of future coverage have been prepared for the Regional Cities for the periods 2011-2021 and 2021-2031.

Therefore, by 2021, second wave fixed broadband service coverage is estimated to increase to approximately 96% of households and business in the Regional Cities, and to 100% of households and businesses by 2031.

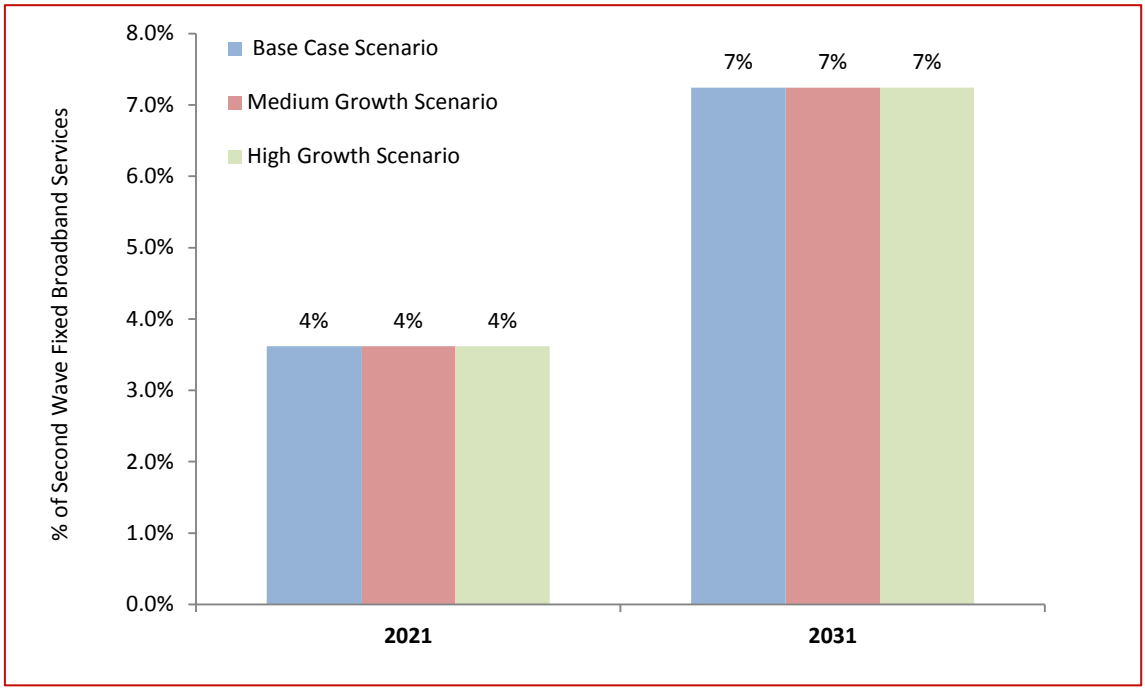
Data relating to future second wave broadband coverage is shown in Table 4.6 and Figure 4.6

Table 4.6: Broadband Access Requirements, Regional Cities at 2021 and 2031

2008 Situation	**72% of population with first wave fixed broadband coverage**		
Existing Situation	**93% of population with second wave fixed broadband coverage**		
Change from 2008	**+20% of population with broadband coverage**		
Scenario		**2021**	**2031**
		% Broadband Coverage	
25% Scenario (VIF)	Estimated Requirement	96%	100%
	Change from existing situation	*+4%*	*+7%*
30% Scenario	Estimated Requirement	96%	100%
	Change from existing situation	*+4%*	*+7%*
35% Scenario	Estimated Requirement	96%	100%
	Change from existing situation	*+4%*	*+7%*

Source: Department of Business and Innovation *2012 Telecommunications Spend and Demand in Victoria*
Source: DBI 2012 Telecommunications Spend and Demand in Victoria

Figure 4.6: Additional Second Wave Fixed Broadband Coverage Requirements, Regional Cities at 2021 and 2031



Source: Department of Business and Innovation *2012 Telecommunications Spend and Demand in Victoria*

4.5 Land Supply Requirements

Estimated Additional Dwellings

Regional Cities contain approximately 312,320 private dwellings (ABS Census 2011). This represents an increase of 28,840 dwellings compared to the 2006 Census figure of 283,870 dwellings.

Based on applying DPCD VIF average household size estimates to future population levels for each municipality, estimates of future required dwellings have been prepared the Regional Cities for the periods 2011-2021 and 2021-2031.

By 2021, the number of dwellings required in the Regional Cities is estimated to be between 352,080 dwellings (Base Case Scenario) and 368,840 dwellings (High Growth Scenario). This represents an increase of between +42,370 dwellings (Base Case Scenario) and +59,130 dwellings (High Growth Scenario) over the existing level.

By 2031, the number of dwellings required in the Regional Cities is estimated to reach between 406,390 dwellings (Base Case Scenario) and 440,700 dwellings (High Growth Scenario), representing an increase of between +96,680 dwellings (Base Case Scenario) and + 130,990 dwellings (High Growth Scenario) over the 20-year period.

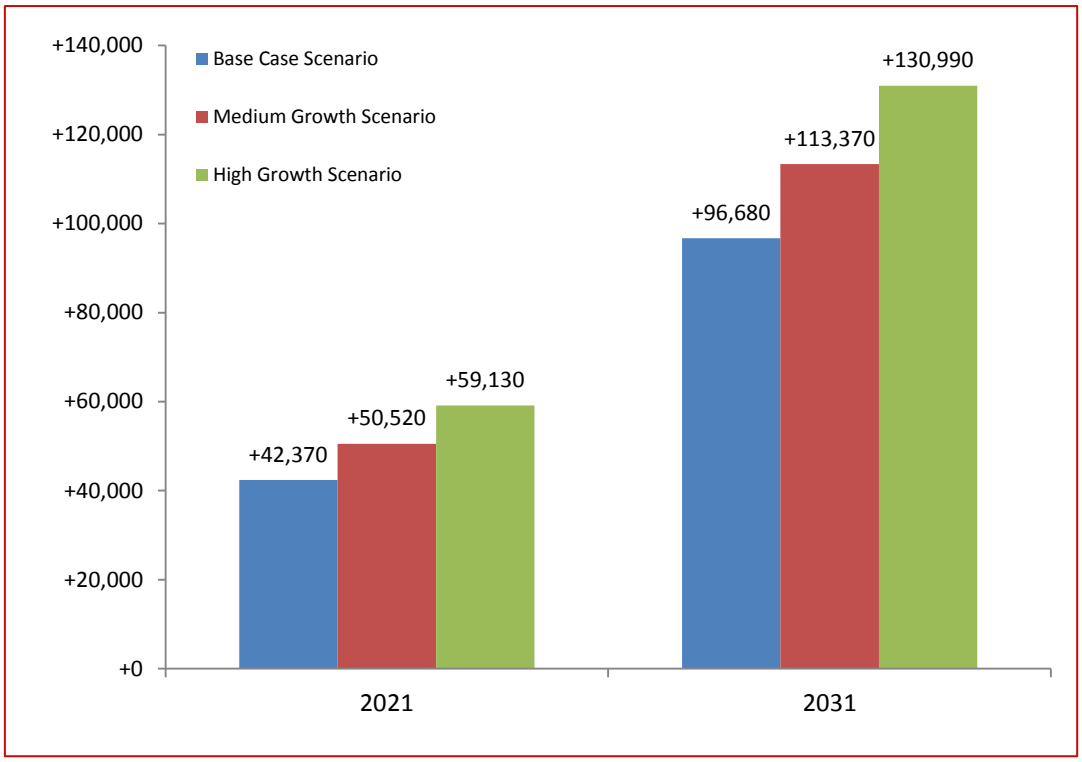
Data relating to future dwelling requirements is included in Table 4.7 and Figure 4.7.

Table 4.7: Estimated Additional Dwellings Requirements (No.) Regional Cities at 2021 and 2031

2008 Situation	**283,870 dwellings**		
Existing Situation	**309,710 dwellings**		
Change from 2008	**25,840 dwellings**		
Scenario		**2021**	**2031**
		Additional Dwellings	
Base Case Scenario	Estimated Requirement	352,080	406,390
	Change from existing situation	*+42,370*	*+96,680*
Medium Growth Scenario	Estimated Requirement	360,230	423,080
	Change from existing situation	*+50,520*	*+113,370*
High Growth Scenario	Estimated Requirement	368,840	440,700
	Change from existing situation	*+59,130*	*+130,990*

Source: ABS Census of Population and Housing 2011; DPCD Victoria in Future 2012; Essential Economics Tables 1.3, 1.4 and 1.5

Figure 4.7: Additional Dwelling Requirements (No.), Regional Cities at 2021 and 2031



Source: ABS Census of Population and Housing 2011; DPCD Victoria in Future 2012; Essential Economics Tables 1.3, 1.4 and 1.5

Estimated Additional Residential Land Required

Based on the additional dwelling requirements outlined above, and assuming an average development yield of 10 dwellings per gross ha, land requirement estimates have been prepared for 2021 and 2031.

By 2021 it is estimated that between +4,240ha (Base Case Scenario) and +5,910ha (High Growth Scenario) of additional serviced residential land will be required in the Regional Cities.

By 2031, the additional serviced residential land requirement is estimated to be between +9,670ha (Base Case Scenario) and +13,100ha (High Growth Scenario).

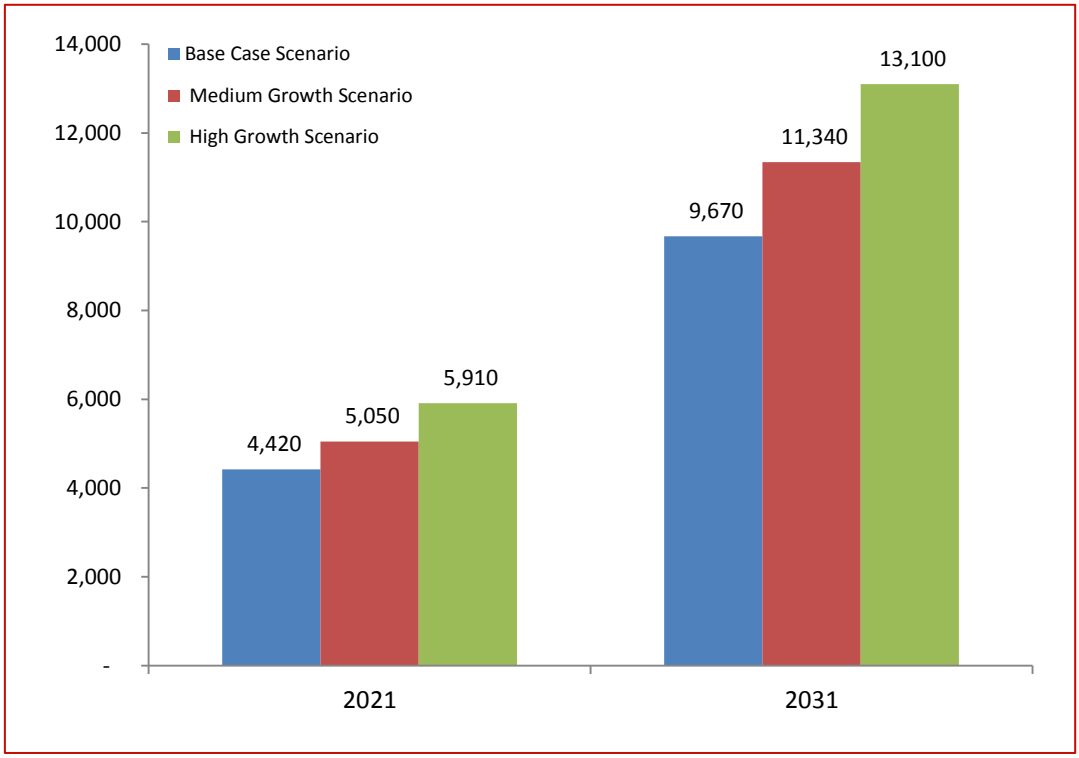
Future residential land requirement data is included in Table 4.8 and Figure 4.8.

Table 4.8: Estimated Additional Residential Land Required (in Hectares), Regional Cities at 2015 and 2036

Scenario		2021	2031
Existing Situation	**No data available**	**Additional Residential Land**	
Base Case Scenario	Estimated requirement	+4,420ha	+9,670ha
Medium Growth Scenario	Estimated requirement	+5,050ha	+11,340ha
High Growth Scenario	Estimated requirement	+5,910ha	+13,100ha

Source: ABS Census of Population and Housing 2011; DPCD Victoria in Future 2012; Essential Economics Tables 1.3, 1.4 and 1.5

Figure 4.8: Additional Residential Land Required (in Hectares), Regional Cities at 2021 and 2031



Source: ABS Census of Population and Housing 2011; DPCD Victoria in Future 2012; Essential Economics Tables 1.3, 1.4 and 1.5

Estimated Additional Industrial Land Required

As described in Chapter 2, the Regional Cities currently contain approximately 3,000ha of vacant zoned industrial land (Regional Urban Development Program). This land will be important in the Regional Cities in the future to support industrial-related activities and employment. Data derived from UDP shows the long-term average industrial land consumption rate in the Regional Cities is approximately 52ha pa, which equates to 1ha of consumption per 14,275 persons. Using this ratio land requirement, estimates have been prepared for 2021 and 2031. Using this approach, average annual consumption rates increase with population growth.

By 2021 it is estimated that between +590ha (Base Case Scenario) and +620ha (High Growth Scenario) of additional vacant serviced industrial land will be required.

By 2031, the additional vacant serviced industrial land requirement is estimated to be between +1,330ha (Base Case Scenario) and +1,440ha (High Growth scenario).

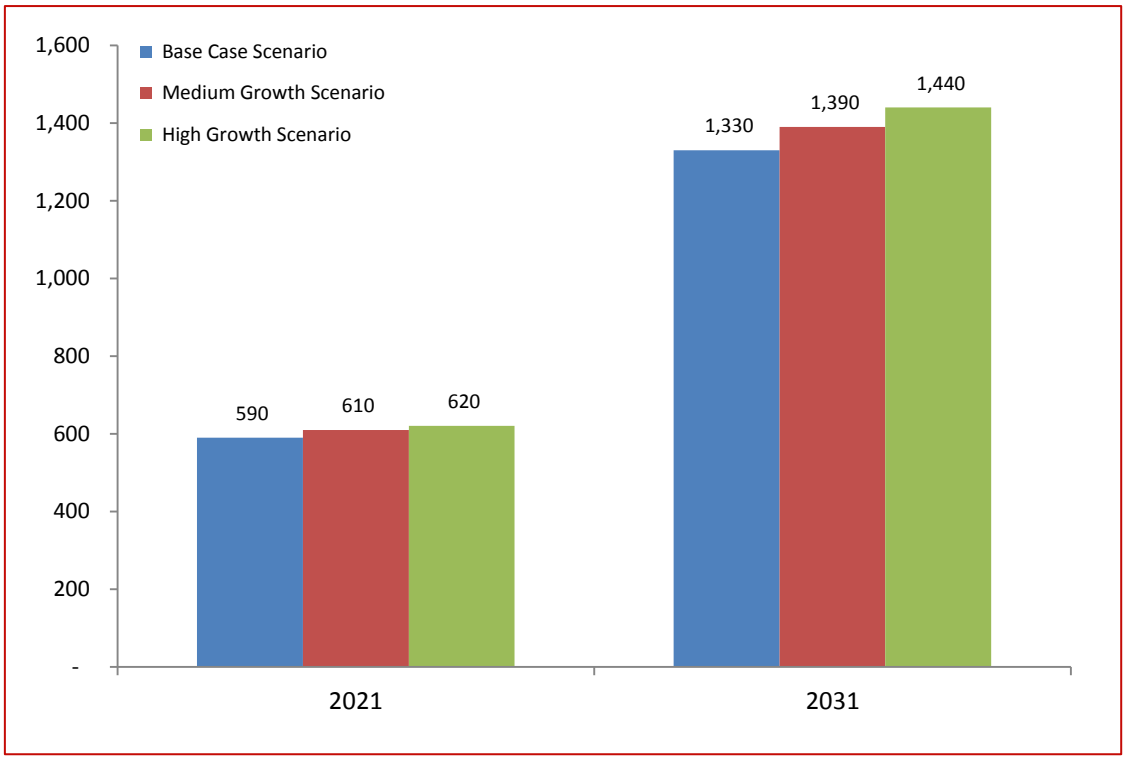
Future industrial land requirement data is included in Table 4.9 and Figure 4.9.

Table 4.9: Estimated Additional Serviced Industrial Land Required, Regional Cities at 2015 and 2036

Scenario		2021	2031
Existing Situation	**Total zoned stocks 9,650 (ha)** **Total vacant zoned stock 3,000 (ha)**	**Additional Industrial Land**	
Base Case Scenario	Estimated requirement	590ha	1,330ha
Medium Growth Scenario	Estimated requirement	610ha	1,390ha
High Growth Scenario	Estimated requirement	620ha	1,440ha

Source: Department of Planning and Community Development, Urban Development Program (various); Essential Economics Tables 1.3, 1.4 and 1.5

Figure 4.9: Additional Residential Land Required (in Hectares), Regional Cities at 2021 and 2031



Source: Department of Planning and Community Development, Urban Development Program (various); Essential Economics Tables 1.3, 1.4 and 1.5

4.6 Health Requirements

Hospital Beds

Regional Cities currently have approximately 4,280 hospital beds (public and private) according to data provided by each municipality. This provision represents an increase of 470 hospital beds since 2008.

Using 'existing population to hospital bed provision' ratios for each municipality, estimates of future requirements have been derived for the Regional Cities for the periods 2011-2021 and 2021-2031.

By 2021, the number of hospital beds required in the Regional Cities is estimated to be between 4,890 beds (Base Case Scenario) and 5,120 beds (High Growth Scenario). This represents an increase of between +610 beds (Base Case Scenario) and +840 beds (High Growth Scenario) over the existing level.

By 2031, the number of beds required in the Regional Cities is estimated to reach between 5,490 beds (Base Case Scenario) and 5,960 beds (High Growth Scenario), representing an increase of between +1,210 beds (Base Case Scenario) and +1,680 beds (High Growth Scenario) over the 20-year period.

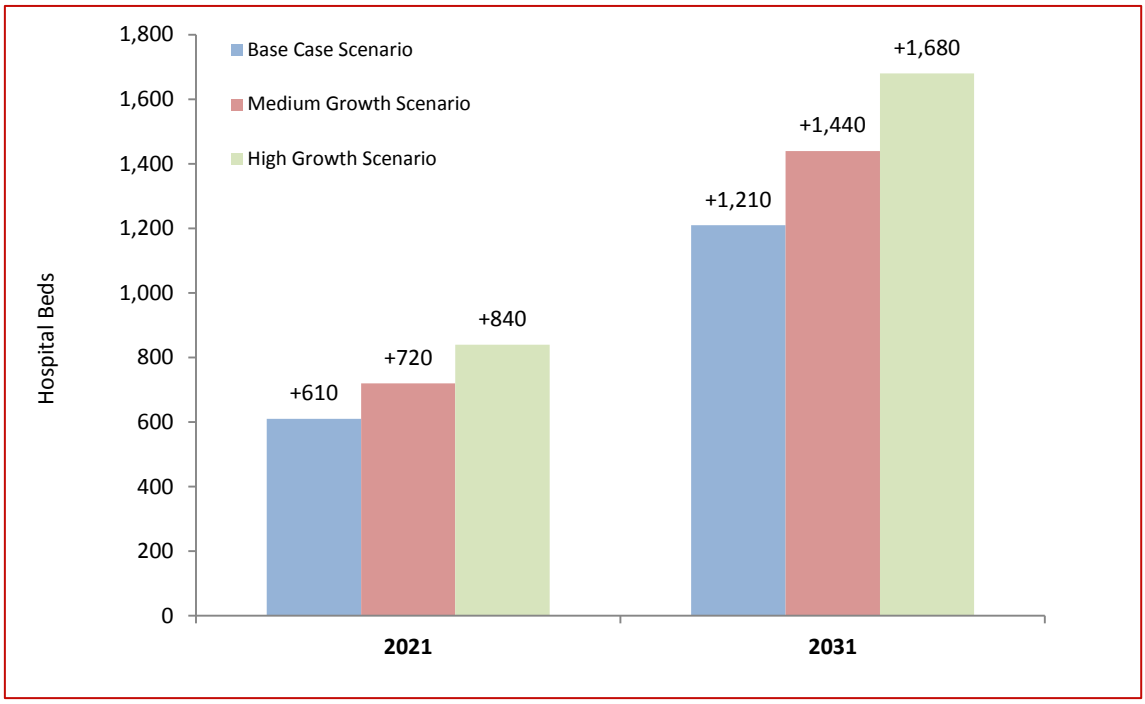
Data relating to future hospital bed requirements is included in Table 4.10 and Figure 4.10.

Table 4.10: Estimated Hospital Bed Requirements, Regional Cities at 2021 and 2031

2008 Situation	**3,810 public and private hospital beds**		
Existing Situation	**4,280 public and private hospital beds**		
Change from 2008	**+470 public and private hospital beds**		
Scenario		**2021**	**2031**
		No. of Hospital Beds	
Base Case Scenario (VIF)	Estimated Requirement	4,890	5,490
	Change from existing situation	*+610*	*+1,210*
Medium Growth Scenario	Estimated Requirement	5,000	5,720
	Change from existing situation	*+720*	*+1,440*
High Growth Scenario	Estimated Requirement	5,120	5,960
	Change from existing situation	*+840*	*+1,680*

Source: RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5

Figure 4.10: Additional Hospital Beds Required, Regional Cities at 2021 and 2031



Source: RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5

Hospital Emergency Department Presentations

Currently, approximately 356,360 presentations to Regional Cities emergency departments are made on an annual basis. This represents an increase of 35,880 hospital emergency department presentations pa since 2008.

Using 'existing population to emergency hospital presentation' ratios for each municipality, estimates of future demand on emergency departments have been prepared for the Regional Cities for the periods 2011-2021 and 2011-2031.

By 2021, the number of hospital emergency department presentations in the Regional Cities is estimated to be between 404,730 presentations (Base Case Scenario) and 423,410 presentations (High Growth Scenario). This represents an increase of between +48,490 presentations (Base Case Scenario) and +67,170 presentations (High Growth Scenario) over the existing level.

By 2031, the number of hospital emergency department presentations in the Regional Cities is estimated to reach between 451,530 presentations (Base Case Scenario) and 488,240 presentations (High Growth Scenario), representing an increase of between +95,290 presentations (Base Case Scenario) and +132,000 presentations (High Growth Scenario) over the 20-year period.

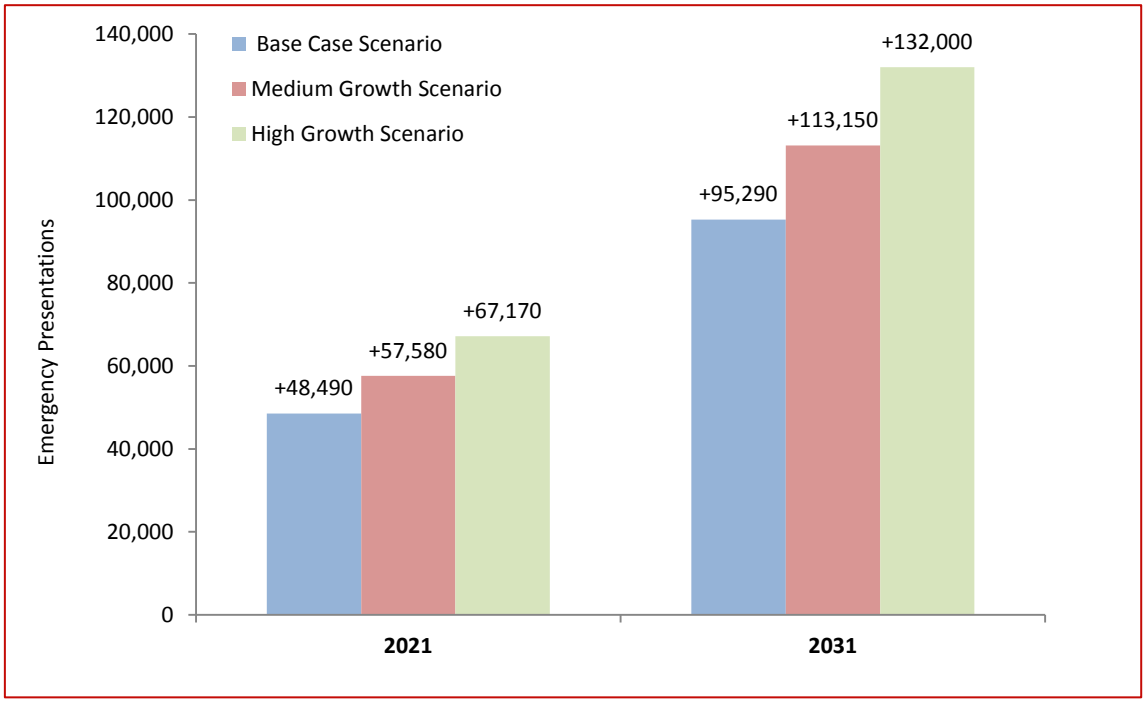
Data relating to hospital emergency department presentations is included Table 4.11 and Figure 4.11.

Table 4.11: Estimated Hospital Emergency Department Presentations, Regional Cities at 2021 and 2031

2008 Situation	**320,360 emergency department presentations**		
Existing Situation	**356,240 emergency department presentations**		
Change from 2008	**+35,880 emergency department presentations**		
Scenario		**2021**	**2031**
		No. of Emergency Department Presentations	
Base Case Scenario	Estimated Requirement	404,730	451,530
	Change from existing situation	*+48,490*	*+95,290*
Medium Growth Scenario	Estimated Requirement	413,820	469,390
	Change from existing situation	*+57,580*	*+113,150*
High Growth Scenario	Estimated Requirement	423,410	488,240
	Change from existing situation	*+67,170*	*+132,000*

Source: RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5

Figure 4.11: Additional Hospital Emergency Department Presentations (No.), Regional Cities at 2021 and 2031



Source: RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5

General Practitioners

Regional Cities currently have approximately 940 General Practitioners (GPs), according to data provided by each municipality. This represents an increase of 105 GPs since 2008.

Using 'existing population to GP provision' ratios for each municipality, estimates of future requirements have been derived for the Regional Cities for the periods 2011-2021 and 2021-2031.

By 2021, the number of GPs required in the Regional Cities is estimated to be between 1,080 (Base Case Scenario) and 1,130 (High Growth Scenario). This represents an increase of between +140 GPs (Base Case Scenario) and +190 GPs (High Growth Scenario) over the existing number.

By 2031, the number of GPs required in the Regional Cities is estimated to reach between 1,210 (Base Case Scenario) and 1,320 (High Growth Scenario), representing an increase of between +270 GPs (Base Case Scenario) and +380 GPs (High Growth Scenario) over the 20-year period.

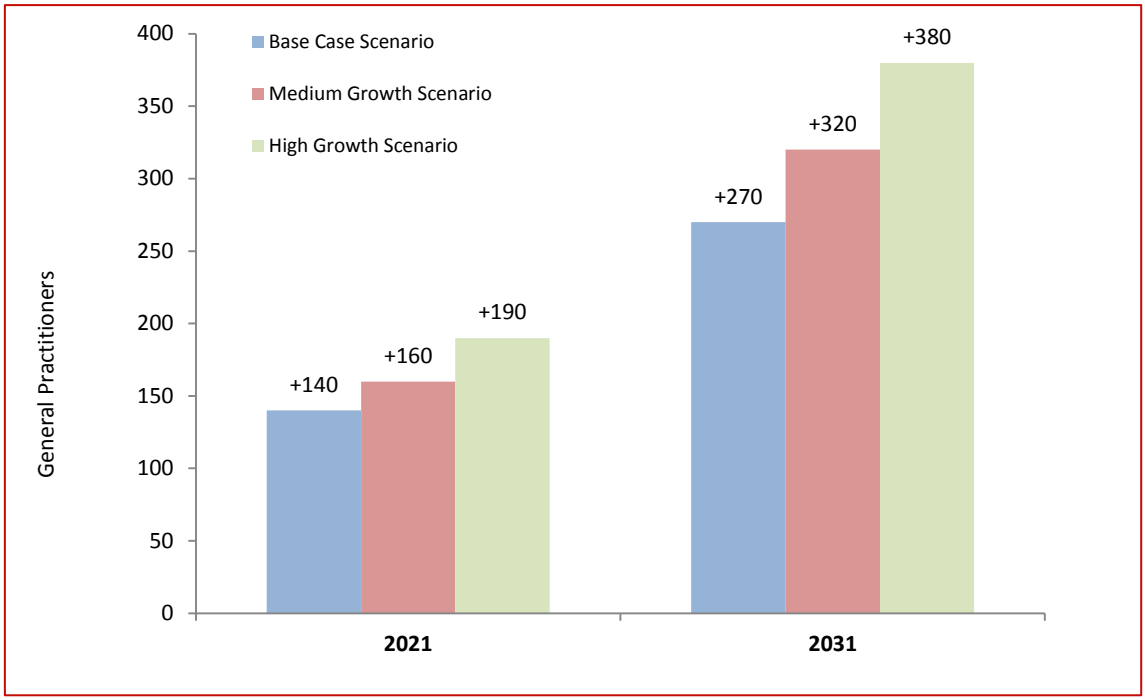
Data relating to future GP requirements is included in Table 4.12 and Figure 4.12.

Table 4.12: Estimated General Practitioner Requirements, Regional Cities at 2021 and 2031

2008 Situation	**835 general practitioners**		
Existing Situation	**940 general practitioners**		
Change from 2008	**+105 general practitioners**		
Scenario		**2021**	**2031**
		No. of General Practitioners	
Base Case Scenario (VIF)	Estimated Requirement	1,080	1,210
	Change from existing situation	*+140*	*+270*
Medium Growth Scenario	Estimated Requirement	1,100	1,260
	Change from existing situation	*+160*	*+320*
High Growth Scenario	Estimated Requirement	1,130	1,320
	Change from existing situation	*+190*	*+380*

Source: RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5

Figure 4.12: Additional General Practitioners Required (No.), Regional Cities at 2021 and 2031



Source: RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5

4.7 Education Requirements

Primary School Places

Approximately 64,460 primary school places are located in the Regional Cities. This represents an increase of 1,670 primary school places since 2008.

Estimates for future primary school place requirements have been derived for the Regional Cities (for the periods 2011-2021 and 2021-2031), by using 'existing population to place' ratios as a base and then adjusting these ratios to reflect demographic change (recognising long-term fluctuations in the proportion of the school aged population). Demographic adjustments have been made on the basis of available aged-based projections data contained in VIF 2012.

By 2021, the number of primary school places required in the Regional Cities is estimated to be between 68,700 places (Base Case Scenario) and 71,960 places (High Growth Scenario). This represents an increase of between +4,240 places (Base Case Scenario) and +7,500 places (High Growth Scenario) over the existing number.

By 2031, the number of primary school places required in the Regional Cities is estimated to reach between 75,300 places (Base Case Scenario) and 81,650 places (High Growth Scenario), representing an increase of between +10,840 places (Base Case Scenario) and +17,190 (High Growth Scenario) over the 20-year period.

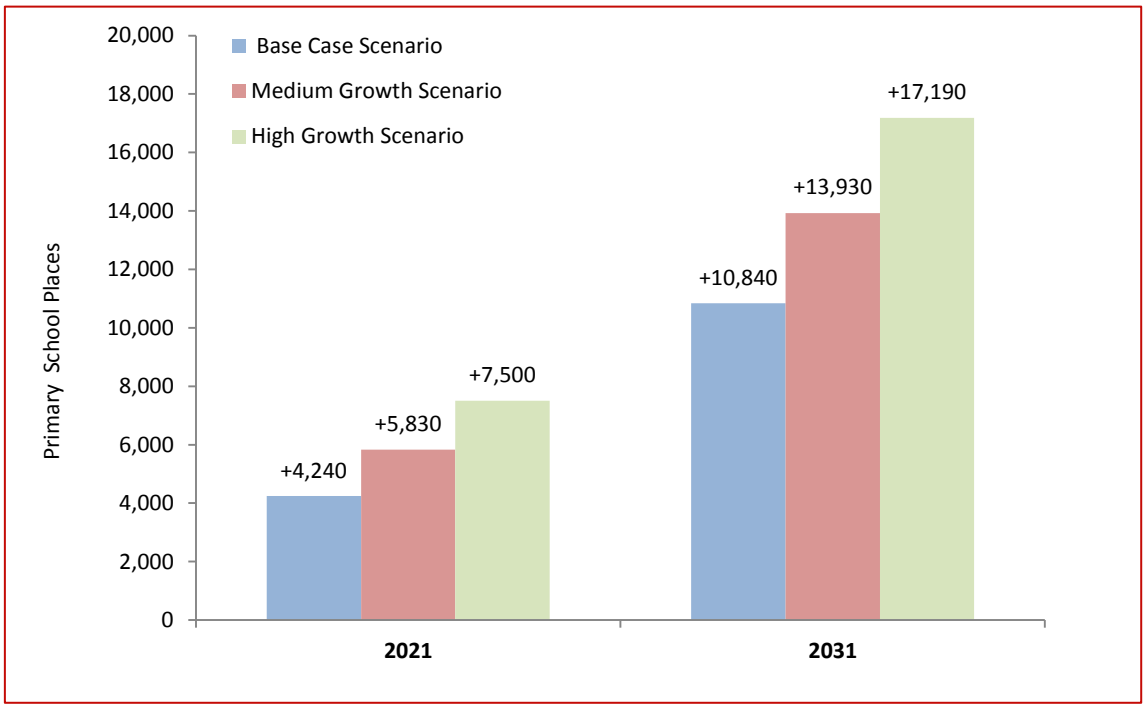
Data relating to future primary school place requirements is included Table 4.13 and Figure 4.13.

Table 4.13: Estimated Primary School Places Required, Regional Cities at 2021 and 2031

2008 Situation	**62,790 primary school places**		
Existing Situation	**64,460 primary school places**		
Change from 2008	**+1,670 primary school places**		
Scenario		**2021**	**2031**
		No. of Primary School Places	
Base Case Scenario	Estimated Requirement	68,700	75,300
	Change from existing situation	*+4,240*	*+10,840*
Medium Growth Scenario	Estimated Requirement	70,290	78,390
	Change from existing situation	*+5,830*	*+13,930*
High Growth Scenario	Estimated Requirement	71,960	81,650
	Change from existing situation	*+7,500*	*+17,190*

Source: RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5

Figure 4.13: Additional Primary School Places Required, Regional Cities at 2015 and 2036



Source: RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5

Secondary School Places

Approximately 57,810 secondary school places are located in the Regional Cities. This represents an increase of 2,420 secondary school places since 2008.

Estimates for future secondary school place requirements have been derived for the Regional Cities (for the periods 2011-2021 and 2011-2031), by using 'existing population to place' ratios as a base and then adjusting these ratios to reflect demographic change (recognising long-term fluctuations in the proportion of the school aged population). Demographic adjustments have been made on the basis of available aged-based projections data contained in VIF 2012.

By 2021, the number of secondary school places required in the Regional Cities is estimated to be between 61,790 places (Base Case Scenario) and 64,740 places (High Growth Scenario). This represents an increase of between +3,980 places (Base Case scenario) and +6,930 places (High Growth Scenario) over the existing number.

By 2031, the number of secondary school places required in the Regional Cities is estimated to reach between 67,750 places (Base Case Scenario) and 73,490 places (High Growth Scenario), representing an increase of between +9,940 places (Base Case Scenario) and +15,690 (High Growth Scenario) over the 20-year period.

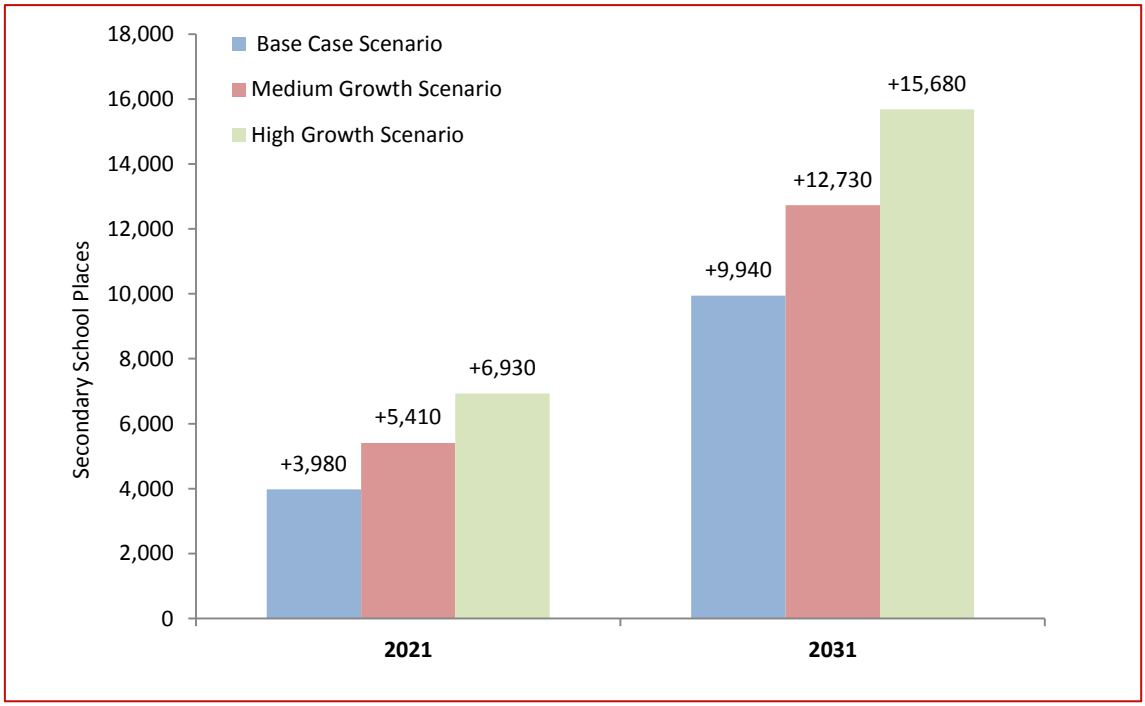
Data relating to future secondary school place requirements is included Table 4.14 and Figure 4.14.

Table 4.14: Estimated Secondary School Places Required, Regional Cities at 2021 and 2031

2008 Situation	**55,390 secondary school places**		
Existing Situation	**57,810 secondary school places**		
Change from 2008	**+2,420 secondary school places**		
Scenario		**2021**	**2031**
		No. of Secondary School Places	
Base Case Scenario	Estimated Requirement	61,790	67,750
	Change from existing situation	*+3,980*	*+9,940*
Medium Growth Scenario	Estimated Requirement	63,220	70,540
	Change from existing situation	*+5,410*	*+12,730*
High Growth Scenario	Estimated Requirement	64,740	73,490
	Change from existing situation	*+6,930*	*+15,680*

Source: RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5

Figure 4.14: Additional Secondary School Places Required, Regional Cities at 2021 and 2031



Source: RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5

University Places

Approximately 32,720 university places are located in the Regional Cities, representing an increase of 4,110 university places since 2008.

This provision represents approximately 4,400 regional university places per 100,000 population. Estimates of future university place requirements have been derived for Regional Cities (for the periods 2011-2021 and 2011-2031) by applying this ratio into future periods. This would ensure the existing level of provision continues and should therefore be considered a minimum target only.

By 2021, the number of university places required in the Regional Cities is estimated to be between 37,860 and 39,780 places (Base Case Scenario) and 39,780 places (High Growth Scenario). This represents an increase of between +5,140 places (Base Case Scenario) and +7,060 places (High Growth Scenario) over the existing number of places.

By 2031, the number of university places required in the Regional Cities is estimated to reach between 42,870 places (Base Case Scenario) and 46, 720 places (High Growth Scenario), representing an increase of between +10,150 places (Base Case Scenario) and +14,000 places (High Growth Scenario) over the 20-year period.

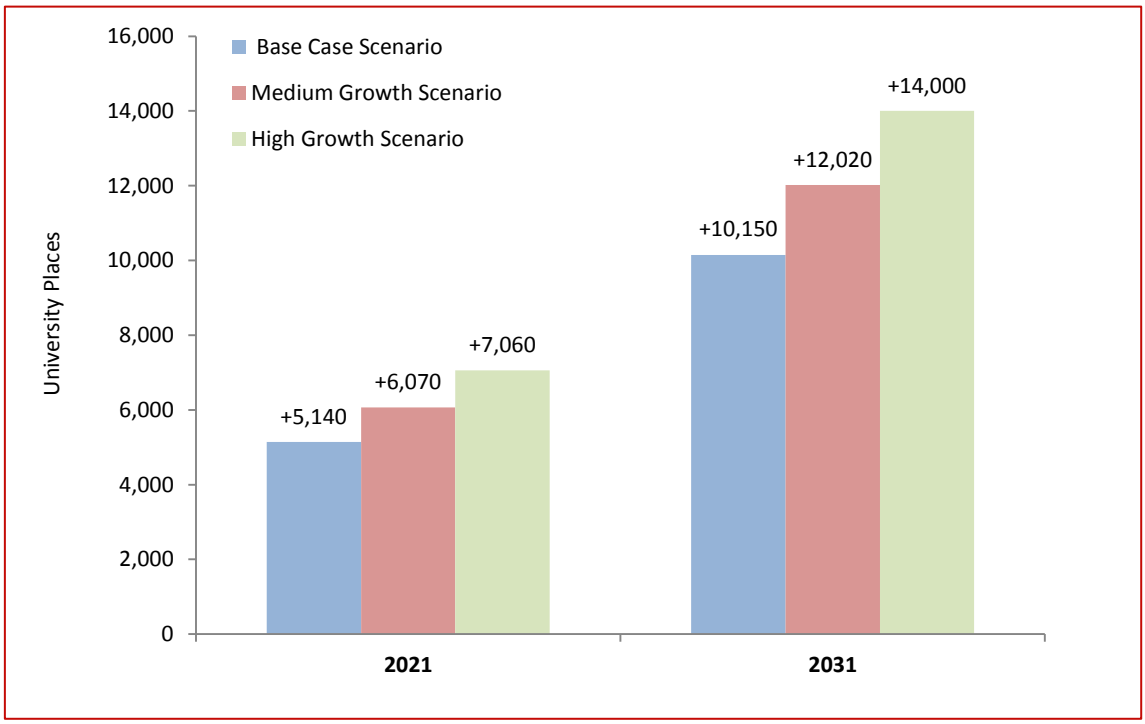
Data relating to future university place requirements is included Table 4.15 and Figure 4.15.

Table 4.15: Estimated University Places Required, Regional Cities at 2021 and 2031

2008 Situation	**28,610 university places**		
Existing Situation	**32,720 university places**		
Change from 2008	**+4,110 university places**		
Scenario		**2021**	**2031**
		No. of University Places	
Base Case Scenario	Estimated Requirement	37,860	42,870
	Change from existing situation	*+5,140*	*+10,150*
Medium Growth Scenario	Estimated Requirement	38,790	44,740
	Change from existing situation	*+6,070*	*+12,020*
High Growth Scenario	Estimated Requirement	39,780	46,720
	Change from existing situation	*+7,060*	*+14,000*

Source*:* RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5

Figure 4.15: Additional University Places Required, Regional Cities at 2021 and 2031



Source: RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5

TAFE Places

Approximately 95,570 TAFE places are located in the Regional Cities. This represents an increase of 9,910 TAFE places since 2008.

On average there are approximately 12,900 TAFE places per 100,000 population in the Regional Cities. Estimates for future TAFE requirements have been derived for Regional Cities (for the periods 2011-2021 and 2011-2031), by applying this ratio into the future.

By 2021, the number of TAFE places required in the Regional Cities is estimated to be between 109,210 places (Base Case Scenario) and 114,460 places (High Growth Scenario). This represents an increase of between +13,640 places (Base Case Scenario) and +18,890 places (High Growth Scenario) over the existing number of places.

By 2031, the number of TAFE places required in the Regional Cities is estimated to reach between 122,600 places (Base Case Scenario) and 133,020 places (High Growth Scenario), representing an increase of between +27,030 places (Base Case Scenario) and +37,450 (High Growth Scenario) over the 20-year period.

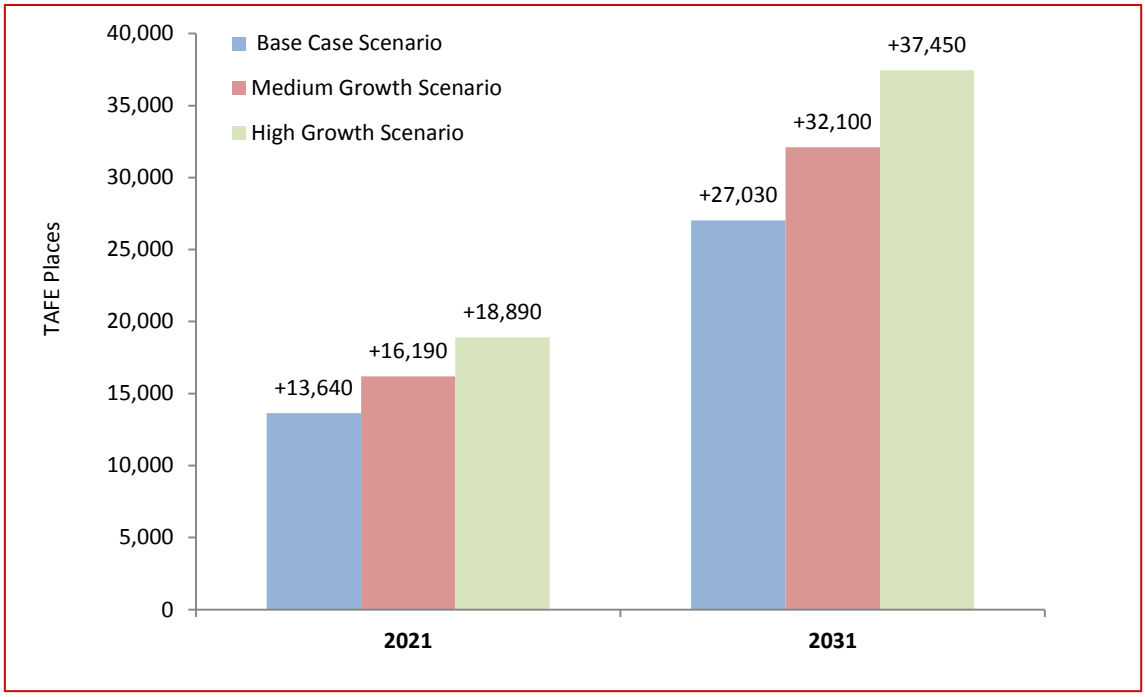
Data relating to future TAFE place requirements is included Table 4.16 and Figure 4.16.

Table 4.16: Estimated TAFE Places Required, Regional Cities at 2021 and 2031

2008 Situation	**85,660 TAFE places**		
Existing Situation	**95,570 TAFE places**		
Change from 2008	**+9,910 TAFE places**		
Scenario		**2021**	**2031**
		No. of TAFE Places	
Base Case Scenario	Estimated Requirement	109,210	122,600
	Change from existing situation	*+13,640*	*+27,030*
Medium Growth Scenario	Estimated Requirement	111,760	127,670
	Change from existing situation	*+16,190*	*+32,100*
High Growth Scenario	Estimated Requirement	114,460	133,020
	Change from existing situation	*+18,890*	*+37,450*

Source: RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5

Figure 4.16: Additional TAFE Places Required, Regional Cities at 2021 and 2031



Source: RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5

4.8 Social Infrastructure Requirements

Library Floorspace

The Regional Cities currently contain approximately 20,830m^2 of public access library floorspace. This represents an increase of 270m^2 from the 2008 provision of 20,560m^2. This data is sourced from the DPCD Annual Survey of Public Libraries.

Based on applying 'current population to floorspace' ratios for each municipality, estimates of future required library floorspace have been prepared the Regional Cities for the periods 2011-2021 and 2021-2031.

By 2021, the amount of library floorspace required in the Regional Cities is estimated to be between 23,690m^2 (Base Case Scenario) and 24,790m^2 (High Growth Scenario). This represents an increase of between 2,860m^2 (Base Case Scenario) and 3,960m^2 (High Growth Scenario) over the existing level.

By 2031, the amount of library floorspace required in the Regional Cities is estimated to reach between 26,530m^2 (Base Case Scenario) and 28,720m^2 (High Growth Scenario), representing an increase of between +5,700m^2 (Base Case Scenario) and +7,890m^2 (High Growth Scenario) over the 20-year period.

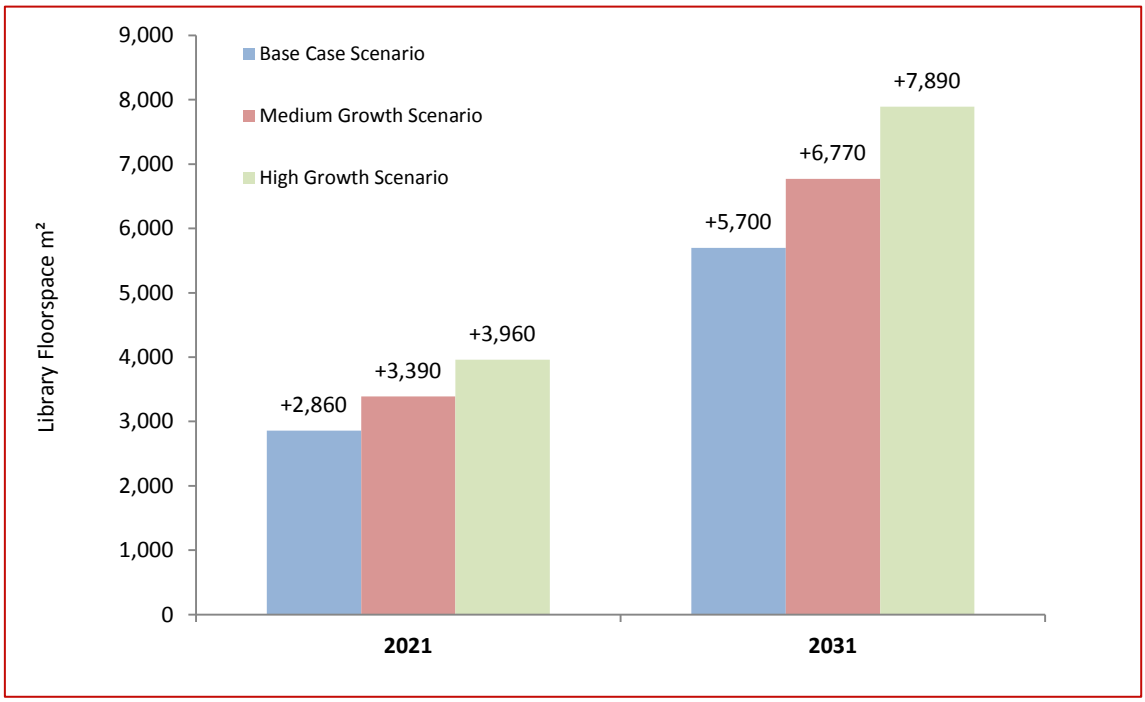
Data relating to future library floorspace requirements is included in Table 4.17 and Figure 4.17.

Table 4.17: Estimated Library Floorspace Required, Regional Cities at 2021 and 2031

2008 Situation	**20,560m² library floorspace**		
Existing Situation	**20,830m² library floorspace**		
Change from 2008	**+270m² library floorspace**		
Scenario		**2021**	**2031**
		Library Floorspace (m²)	
Base Case Scenario (VIF)	Estimated Requirement	23,690	26,530
	Change from existing situation	*+2,860*	*+5,700*
Medium Growth Scenario	Estimated Requirement	24,220	27,600
	Change from existing situation	*+3,390*	*+6,770*
High Growth Scenario	Estimated Requirement	24,790	28,720
	Change from existing situation	*+3,960*	*+7,890*

Source: DPCD Annual Survey of Public Libraries (various); Essential Economics Tables 1.3, 1.4 and 1.5

Figure 4.17: Additional Library Floorspace Required, Regional Cities at 2021 and 2031



Source: DPCD Annual Survey of Public Libraries (various); Essential Economics Tables 1.3, 1.4 and 1.5

Kindergarten Places

Approximately 11,360 kindergarten places are located in the Regional Cities. This represents an increase of +1,860 kindergarten places since 2008.

Estimates for future kindergarten places requirements have been derived for the Regional Cities (for the periods 2021-2031 and 2011-2031), by using 'existing population to place' ratios as a base and then adjusting these ratios to reflect demographic change (recognising a long-term decline in the pre-school aged population as the general population ages). Demographic adjustments have been made on the basis of available aged-based projections data contained in VIF 2012.

By 2021, the number of Kindergarten places required in the Regional Cities is estimated to be between 12,660 places (Base Case Scenario) and 13,280 places (High Growth Scenario). This represents an increase of between +1,300 places (Base Case Scenario) and +1,920 places (High Growth Scenario) over the existing number of places.

By 2031, the number of Kindergarten places required in the Regional Cities is estimated to reach between 13,070 places (Base Case Scenario) and 14,210 places (High Growth Scenario), representing an increase of between +1,710 places (Base Case Scenario) and +2,850 places (High Growth Scenario) over the 20-year period.

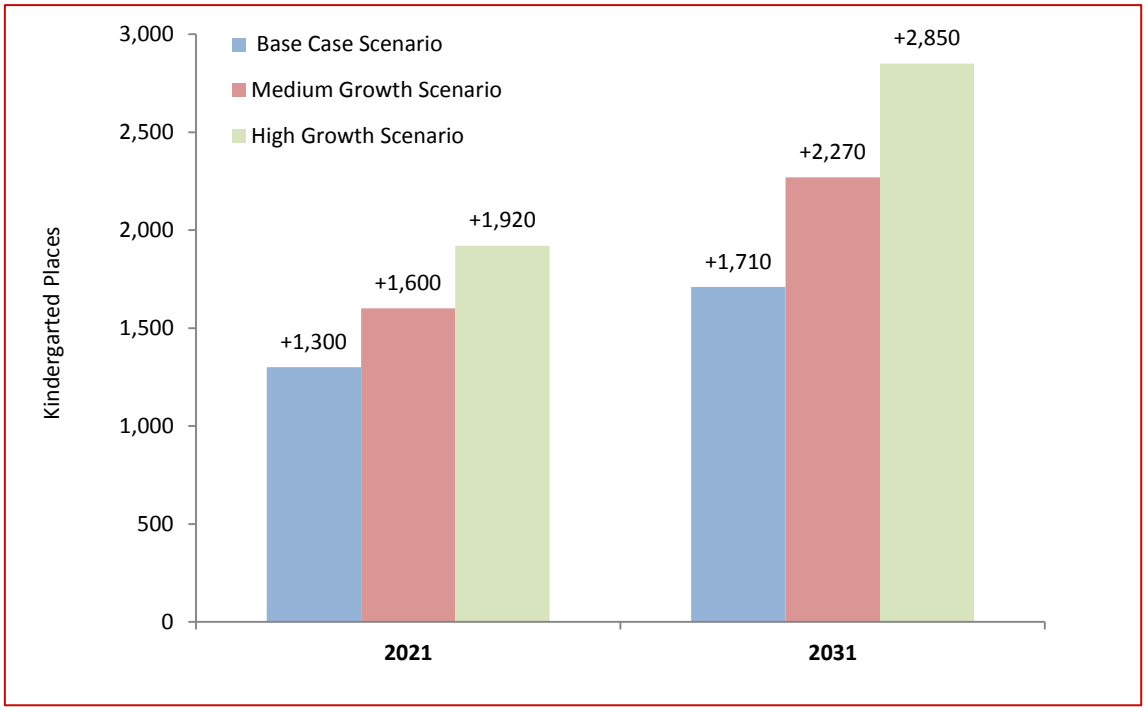
Data relating to future kindergarten place requirements is included Table 4.18 and Figure 4.18.

Table 4.18: Estimated Kindergarten Places Required, Regional Cities at 2021 and 2031

2008 Situation	**9,500 kindergarten places**		
Existing Situation	**11,360 kindergarten places**		
Change from 2008	**+1,860 kindergarten places**		
Scenario		**2021**	**2031**
		No. of Kindergarten Places	
Base Case Scenario	Estimated Requirement	12,660	13,070
	Change from existing situation	*+1,300*	*+1,710*
Medium Growth Scenario	Estimated Requirement	12,960	13,630
	Change from existing situation	*+1,600*	*+2,270*
High Growth Scenario	Estimated Requirement	13,280	14,210
	Change from existing situation	*+1,920*	*+2,850*

Source: RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5

Figure 4.18: Additional Kindergarten Places Required, Regional Cities at 2021 and 2031



Source: RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5

Childcare Places

Approximately 11,350 childcare places are located in the Regional Cities. This represents an increase of 3,030 childcare places since 2008.

Estimates for future childcare places requirements have been derived for the Regional Cities (for the periods 2011-2021 and 2011-2031), by using 'existing population to place ratios' as a base and then adjusting these ratios to reflect demographic change (recognising a long-term decline in the pre-school aged population as the general population ages). Demographic adjustments have been made on the basis of available aged-based projections data contained in VIF 2012.

By 2021, the number of childcare places required in the Regional Cities is estimated to be between 12,490 places (Base Case Scenario) and 13,080 places (High Growth Scenario). This represents an

increase of between +1,140 places (Base Case Scenario) and +1,730 places (High Growth scenario) over the existing number.

By 2031, the number of childcare places required in the Regional Cities is estimated to reach between 12,840 places (Base Case Scenario) and 13,910 places (High Growth Scenario), representing an increase of between +1,490 places (Base Case Scenario) and +2,560 (High Growth Scenario) over the 20-year period.

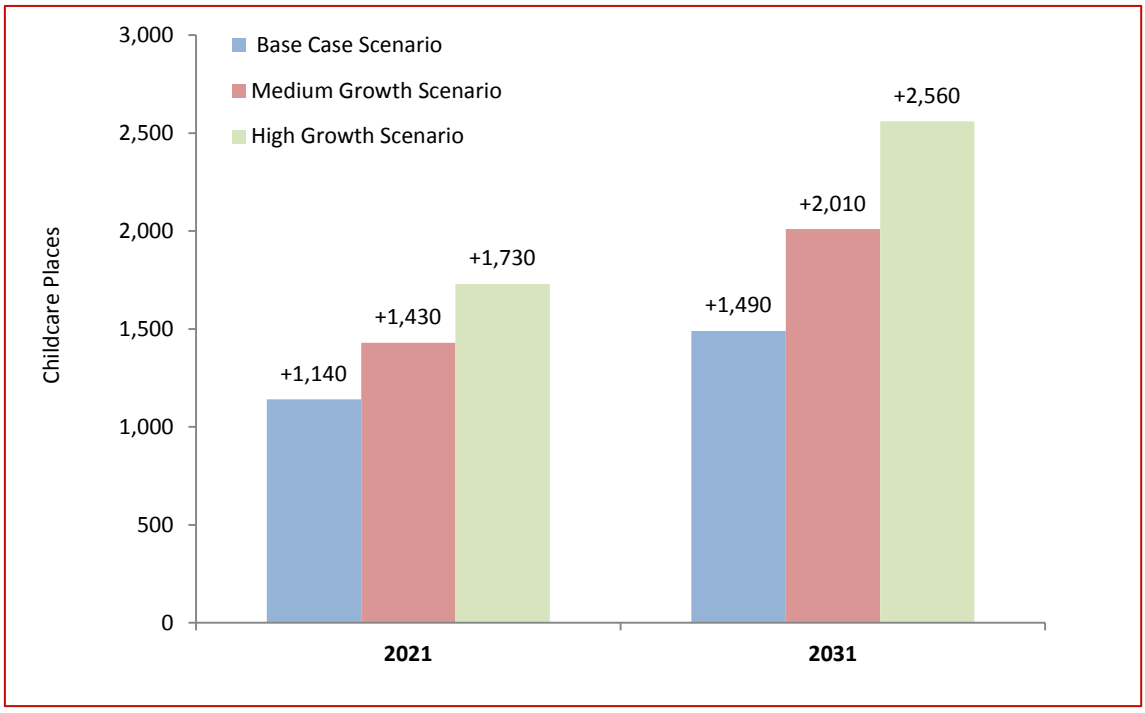
Data relating to future childcare place requirements is included Table 4.19 and Figure 4.19.

Table 4.19: Estimated Childcare Places Required, Regional Cities at 2021 and 2031

2008 Situation	**8,320 childcare places**		
Existing Situation	**11,350 childcare places**		
Change from 2008	**+3,030 childcare places**		
Scenario		**2021**	**2031**
		No. of Childcare Places	
Base Case Scenario	Estimated Requirement	12,490	12,840
	Change from existing situation	*+1,140*	*+1,490*
Medium Growth Scenario	Estimated Requirement	12,780	13,360
	Change from existing situation	*+1,430*	*+2,010*
High Growth Scenario	Estimated Requirement	13,080	13,910
	Change from existing situation	*+1,730*	*+2,560*

Source: RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5

Figure 4.19: Additional Childcare Places Required, Regional Cities at 2021 and 2031



Source: RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5

Aged Care

Approximately 7,990 aged care places are located in the Regional Cities. This represents an increase of 1,430 aged care places since 2008.

Estimates for future aged care beds have been derived for the Regional Cities (for the periods 2011-2021 and 2011-2031), by using 'existing population to place' ratios as a base and then adjusting these ratios to reflect demographic change (recognising a significant long-term increase in the 70+ aged population across Victoria). Demographic adjustments have been made on the basis of available aged-based projections data contained in VIF 2012. The estimates prepared broadly reflect the Federal Government's target of providing 88 aged care places per 1,000 residents aged 70 years and above.

By 2021, the number of aged care places required in the Regional Cities is estimated to be between 11,430 places (Base Case Scenario) and 11,960 places (High Growth Scenario). This represents an increase of between +3,440 places (Base Case Scenario) and +3,970 places (High Growth Scenario) over the existing provision.

By 2031, the number of aged care places required in the Regional Cities is estimated to reach between 15,890 places (Base Case Scenario) and 17,190 places (High Growth Scenario), representing an increase of between +7,900 places (Base Case Scenario) and +9,200 (High Growth Scenario) over the 20-year period.

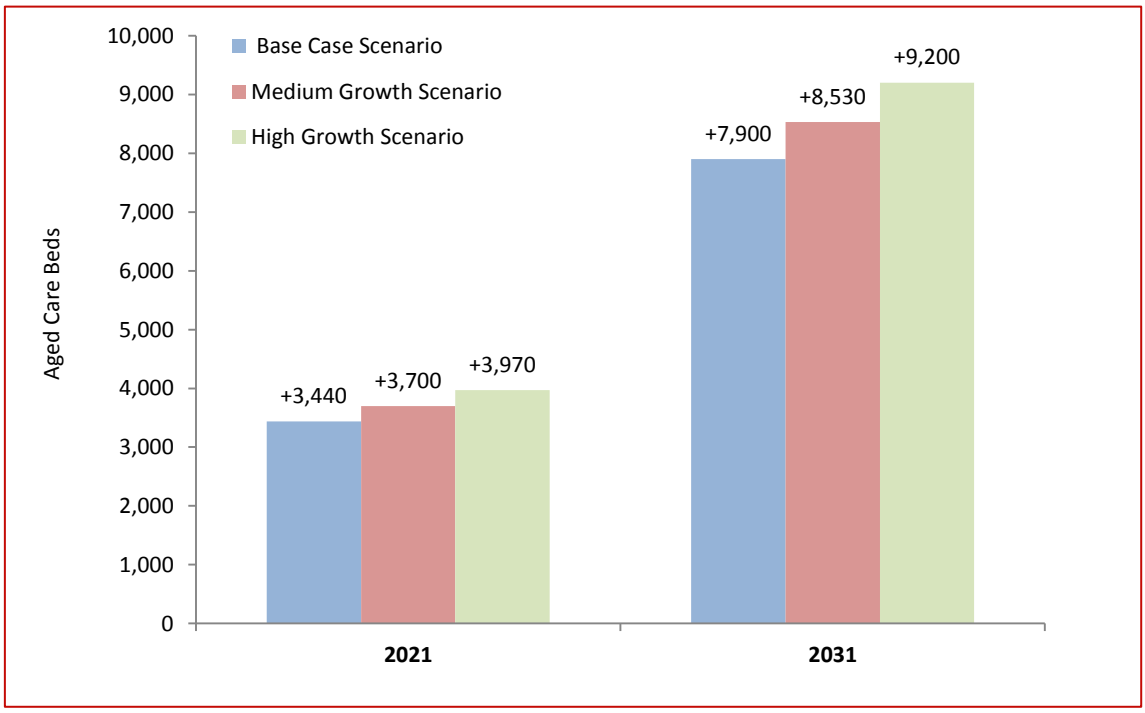
Data relating to future aged care place requirements is included Table 4.20 and Figure 4.20.

Table 4.20: Estimated Aged Care Beds Required, Regional Cities at 2021 and 2031

2008 Situation	**6,560 aged care beds**		
Existing Situation	**7,990 aged care beds**		
Change from 2008	**+1,430 aged care beds**		
Scenario		**2021**	**2031**
		No. of Childcare Places	
Base Case Scenario	Estimated Requirement	11,430	15,890
	Change from existing situation	*+3,440*	*+7,900*
Medium Growth Scenario	Estimated Requirement	11,690	16,520
	Change from existing situation	*+3,700*	*+8,530*
High Growth Scenario	Estimated Requirement	11,960	17,190
	Change from existing situation	*+3,970*	*+9,200*

Source: RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5

Figure 4.20: Estimated Aged Care Beds Required, Regional Cities at 2021 and 2031



Source: RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5

4.9 Recreation Requirements

Arts and Cultural Facilities

Approximately 61 major arts and cultural facilities (museums, galleries etc) are located in the Regional Cities. This is an increase of 2 major facilities compared with the 2008 figure (59 major facilities).

Estimates of future requirements have been derived for the Regional Cities for the periods 2011-2021 and 2021-2031, using 'existing population to major arts and cultural facilities' ratios for each municipality.

By 2021, the number of major arts and cultural facilities required in the Regional Cities is estimated to be between 68 facilities (Base Case Scenario) and 71 facilities (High Growth Scenario). This represents an increase of between +7 facilities (Base Case Scenario) and +10 facilities (High Growth Scenario) over the existing provision.

By 2031, the number of major arts and cultural facilities required in the Regional Cities is estimated to reach between 75 facilities (Base Case Scenario) and 81 facilities (High Growth Scenario) representing an increase of between +14 facilities (Base Case Scenario) and +20 facilities (High Growth Scenario) over the 20-year period.

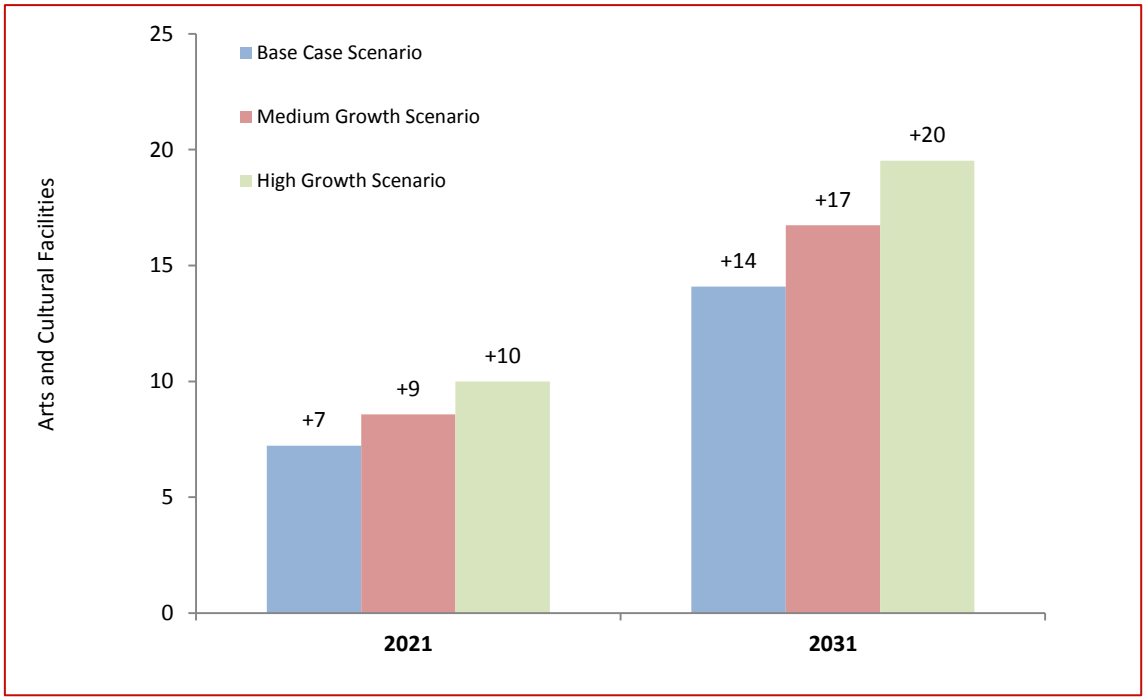
Data relating to future major arts and cultural facilities requirements is included in Table 4.21 and Figure 4.21.

Table 4.21: Estimated No. of Arts and Cultural Facilities Required, Regional Cities at 2021 and 2031

2008 Situation	**59 arts and cultural facilities**		
Existing Situation	**61 arts and cultural facilities**		
Change from 2008	**+2 arts and cultural facilities**		
Scenario		**2021**	**2031**
		No. of Arts and Cultural Facilities	
Base Case Scenario (VIF)	Estimated Requirement	68	75
	Change from existing situation	*+7*	*+14*
Medium Growth Scenario	Estimated Requirement	70	78
	Change from existing situation	*+9*	*+17*
High Growth Scenario	Estimated Requirement	71	81
	Change from existing situation	*+10*	*+20*

Source: RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5

Figure 4.21: Additional Arts and Cultural Facilities Required, Regional Cities at 2021 and 2031



Source: RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5

Major Recreational Council-Operated Facilities

Approximately 65 major council-operated major recreational facilities (indoor and outdoor sports stadiums and swimming pools etc) are located in the Regional Cities. A comparison with 2008 is not possible as this data was not collected in the same format.

Using 'existing population to major recreational facilities' ratios for each municipality, estimates of future requirements have been derived for the Regional Cities for the periods 2011-2021 and 2021-2031.

By 2021, the number of major recreational facilities required in the Regional Cities is estimated to be between 73 facilities (Base Case Scenario) and 76 facilities (High Growth Scenario). This represents an increase of between +8 facilities (Base Case Scenario) and +11 facilities (High Growth Scenario) over the existing provision.

By 2031, the number of major recreational facilities required in the Regional Cities is estimated to reach between 80 facilities (Base Case Scenario) and 86 facilities (High Growth Scenario), representing an increase of between +15 facilities (Base Case Scenario) and +21 facilities (High Growth Scenario) over the 20-year period.

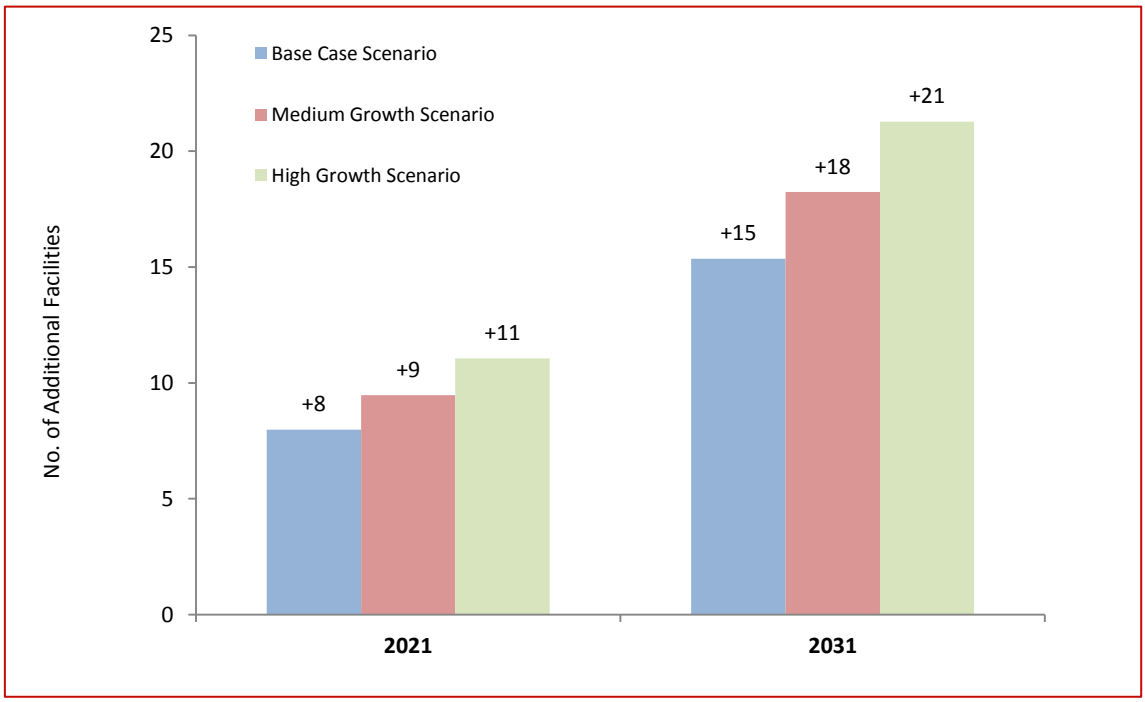
Data relating to future major recreational facilities requirements is included in Table 4.22 and Figure 4.22.

Table 4.22: Estimated No. of Major Recreational Facilities Required, Regional Cities at 2021 and 2031

2008 Situation	**No Data Available**		
Existing Situation	**65 major recreational facilities (Council operated)**		
Change from 2008	**N/A**		
Scenario		**2021**	**2031**
		No. of Major Recreational Facilities (Council Operated)	
Base Case Scenario (VIF)	Estimated Requirement	73	80
	Change from existing situation	*+8*	*+15*
Medium Growth Scenario	Estimated Requirement	74	83
	Change from existing situation	*+9*	*+18*
High Growth Scenario	Estimated Requirement	76	86
	Change from existing situation	*+11*	*+21*

Source: RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5

Figure 4.22: Additional Major Recreational Facilities Required, Regional Cities at 2021 and 2031



Source: RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5

4.10 Waste Management Requirements

According to Sustainability Victoria data, approximately 219,000 tonnes of waste is collected through kerbside services in the Region Cities each year. This equates to approximately 735 kg of waste per household each year, of which approximately one-third is recycled after collection. Compared to the 2008 figure of 210,000 tonnes, this represents an increase of 9,000 tonnes pa in waste collection.

Estimates for future kerbside household waste collection have been derived for the Regional Cities (for the periods 2011-2021 and 2021-2031), by using this ratio.

By 2021, the amount of kerbside household waste to be collected in the Regional Cities is estimated to be between 258,000 tonnes (Base Case Scenario) and 270,000 tonnes (High Growth Scenario). This represents an increase of between +39,000 tonnes (Base Case Scenario) and +51,000 tonnes (High Growth Scenario) over the existing level.

By 2031, the amount of kerbside household waste to be collected in the Regional Cities is estimated to reach between 296,000 tonnes (Base Case Scenario) and 321,000 tonnes (High Growth Scenario), representing an increase of between +77,000 tonnes (Base Case Scenario) and +102,000 tonnes (High Growth Scenario) over the 20-year period.

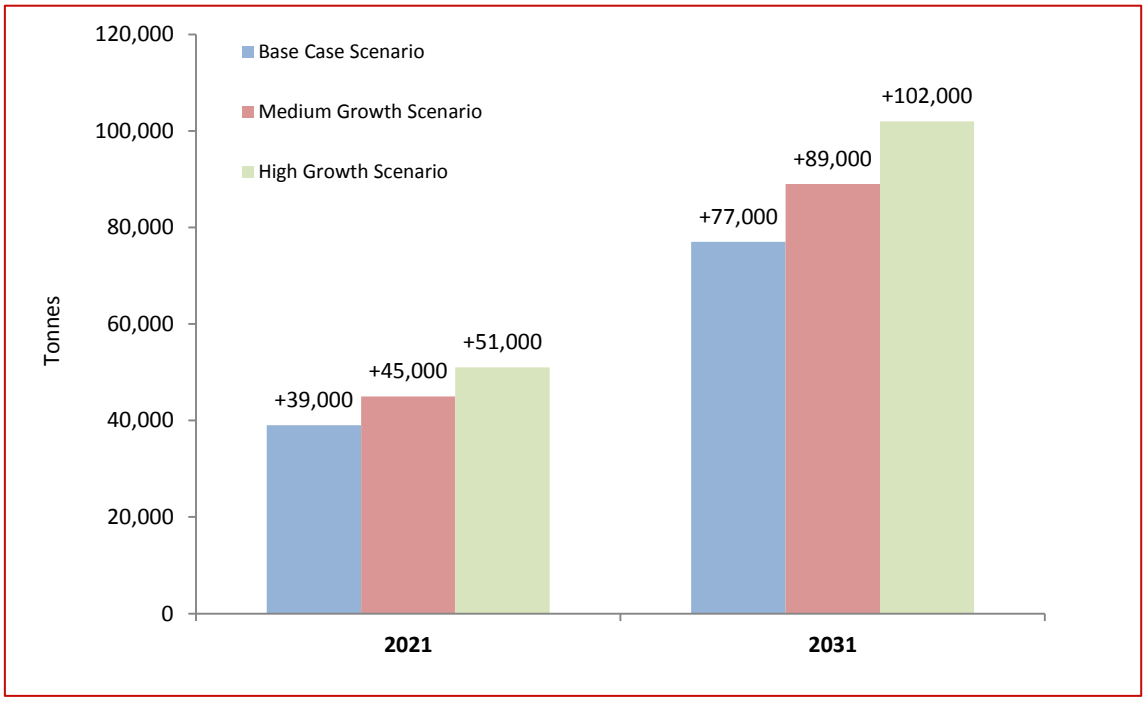
Data relating to future kerbside household waste collection requirements is included in Table 4.23 and Figure 4.23.

Table 4.23: Estimated No. of Major Recreational Facilities Required, Regional Cities at 2021 and 2031

2008 Situation	**210,000 tonnes pa**		
Existing Situation	**219,000 tonnes pa**		
Change from 2008	**+9,000 tonnes pa**		
Scenario		**2021**	**2031**
		Kerbside Household Waste (tonnes)	
Base Case Scenario (VIF)	Estimated Requirement	258,000	296,000
	Change from existing situation	*+39,000*	*+77,000*
Medium Growth Scenario	Estimated Requirement	264,000	308,000
	Change from existing situation	*+45,000*	*+89,000*
High Growth Scenario	Estimated Requirement	270,000	321,000
	Change from existing situation	*+51,000*	*+102,000*

Source: Victorian Local Government Annual Survey, Sustainability Victoria (various); Essential Economics Tables 1.3, 1.4 and 1.5

Figure 4.23: Additional Arts and Cultural Facilities Required, Regional Cities at 2021 and 2031



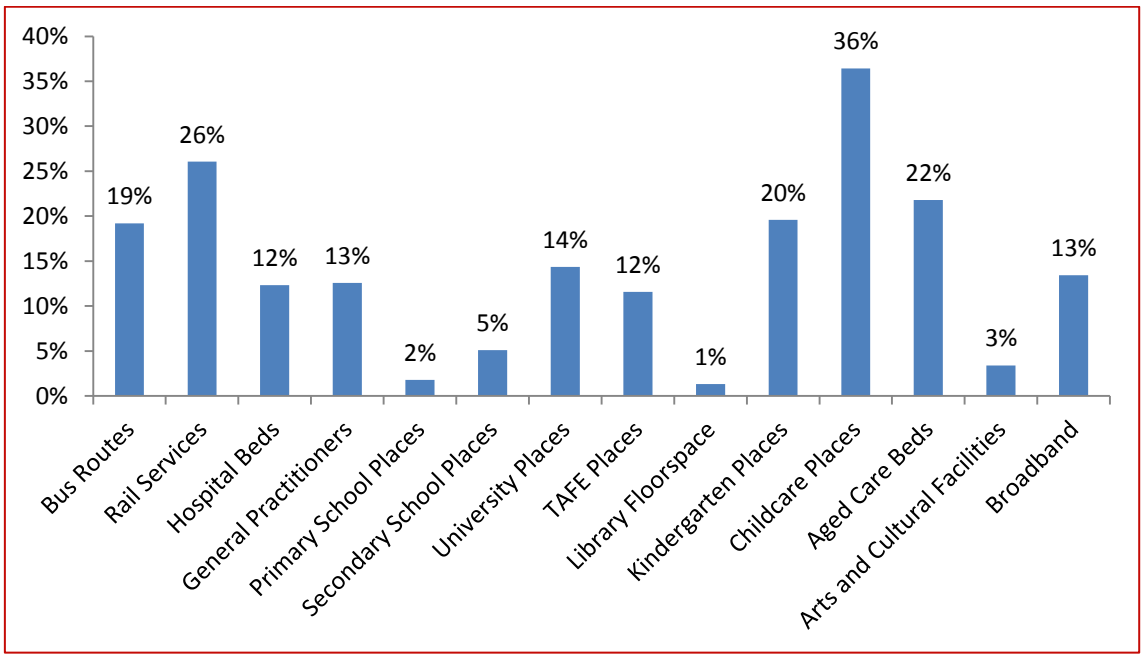
Source: Victorian Local Government Annual Survey, Sustainability Victoria (various); Essential Economics Tables 1.3, 1.4 and 1.5

4.11 Growth in Infrastructure and Service Provision Between 2008 and 2012

The data outlined in this Chapter shows that growth in infrastructure and services provision has occurred across all categories between the two reporting periods of 2008 and 2012. The most pronounced growth has been in the areas of childcare places (+36%), rail services (+ 26%), aged care beds (+22%) and kindergarten places (+20%). More modest growth has occurred in the provision of primary and secondary school places (+2% and +5% respectively, but noting that school provision is demand-driven), and in the provision of arts and cultural facilities (+3%) and library floorspace (+1%).

Data relating to the changes in infrastructure and service provision in the Regional Cities over the four-year period is shown in Figure 4.24.

Figure 4.24: Changes in Infrastructure and Service Provision, Regional Cities 2008-2012



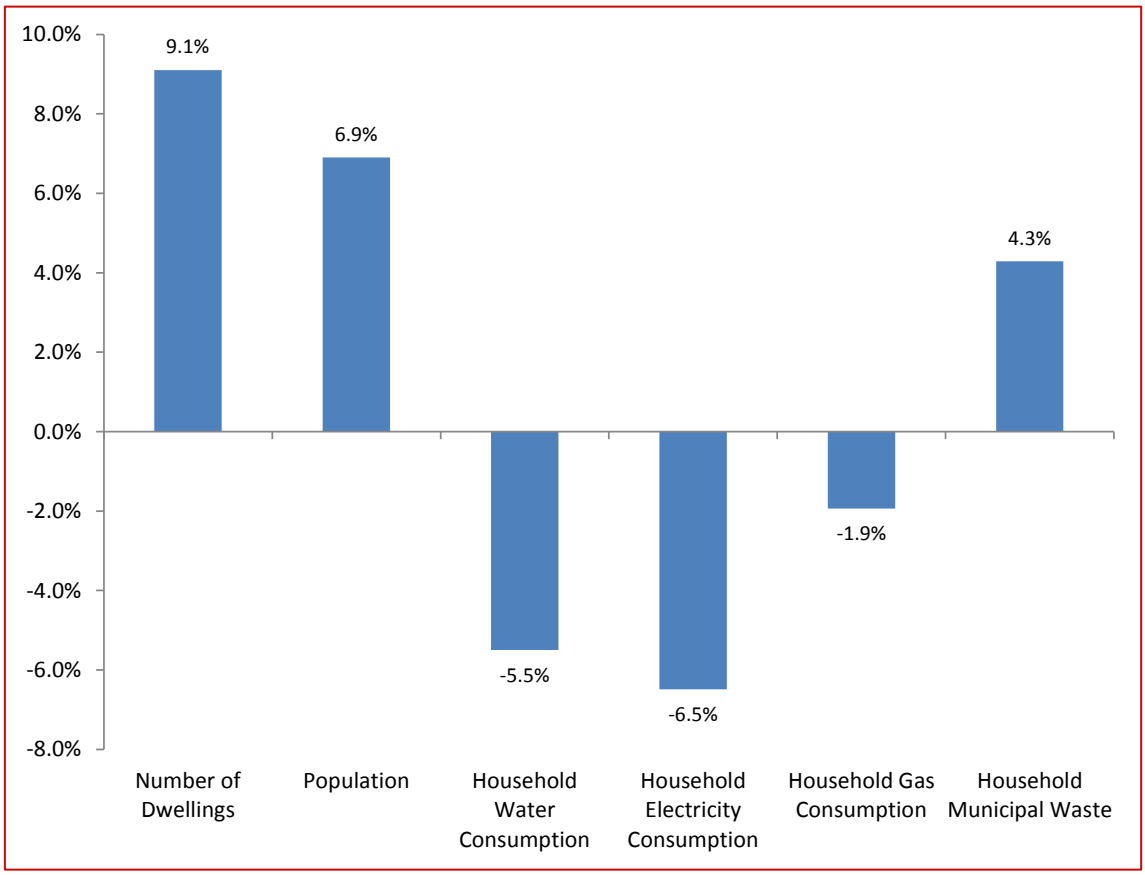
Source: Essential Economics Tables 4.2 to 4.24

4.12 Sustainability Outcomes 2008 to 2012

The expansion of population numbers and dwelling development in the Regional Cities between 2008 and 2012 benchmarks well against sustainability indicators. For example, while population has increased by over this period by 6.9% and the number of dwellings by 9.1%, household electricity consumption has declined by 6.5%, household water consumption has fallen by 5.5%, and household gas consumption has declined by 1.9%. Although total household municipal waste increased by 4.3% over this period, this increase is well below growth rates for population and dwelling expansion.

This information is included in Figure 4.25

Figure 4.25: Sustainability Indicators, Regional Cities 2008 to 2012



Source: Essential Economics Tables 4.2 to 4.24

4.13 Conclusions

1. Progress in Provision 2008-2012

The data included in the analysis also allows for a comparison of infrastructure and service provision between 2008 and 2012. The analysis in the following Table 4.24 shows strong growth in the provision of key infrastructure and services across most areas, with significant growth experienced for most categories, with the exception of primary and secondary school places, arts and cultural facilities and library floorspace.

Table 4.24: Percentage Change in Infrastructure and Services Provision, Regional Cities, 2008 to 2012

Indicator	Childcare Places	Rail Services	Aged Care Beds	Kindergarten Places	Bus Routes	University Places	Broadband Coverage	GPs	Hospital Beds	TAFE Places	Primary School Places	Secondary School Places	Library Floorspace	Arts and Cultural Facilities
% change 2008-2012	36%	26%	22%	20%	19%	14%	13%	13%	12%	12%	2%	5%	1%	3%

2. Sustainability

The expansion of population in the Regional Cities measures well against sustainability indicators, with a decline in consumption in evidence over the period for total household consumption of water (-5.5%), electricity (-6.5%) and gas (-1.9%) , and with household waste generation (+4.3%) increasing at a lower rate than dwelling expansion (+9.1%).

3. Future Requirements

Significant additional infrastructure and resources are required to support population expansion in the Regional Cities over the coming 20 years. Table 4.26 on the following page provides a summary of these requirements, with the Base Case Scenario representing minimum requirements in line with State Government VIF 2012 population projections.

Cost estimates for key items under each scenario are provided in the following Chapter.

Table 4.25: Summary of Potential Infrastructure and Services Requirements in Regional Cities, 2011 to 2031

		Existing Situation	2021			2031		
	Indicator		**Base Case Scenario (VIF)**	**Medium Growth Scenario**	**High Growth Scenario**	**Base Case Scenario (VIF)**	**Medium Growth Scenario**	**High Growth Scenario**
1	Household water (billion litres)	48.1 billion litres pa	+6.5	+7.8	+9.0	+12.9	+15.3	+17.8
2	Bus routes	174 routes	+21	+25	+30	+42	+50	+59
3	Rail/coach services	1,500 services	+210	+250	+290	+420	+500	+580
4	Household electricity (billion KWh)	1.73 billion KWh pa	+0.31	+0.36	+0.41	+0.62	+0.71	+0.82
5	Household gas (million GJ)	16.67 million GJ pa	+3.02	+3.47	+3.95	+5.95	+6.88	+7.86
6	Broadband Coverage (% of demand met)	93% met demand	96%	96%	96%	100%	100%	100%
7	Dwellings	309,710 dwellings	+42,370	+50,520	+59,130	+96,680	+113,370	+130,990
8	Residential land (ha)	n/a	+4,420	+5050	+5,910	+9,670	+11,340	+13,100
9	Industrial land (ha)	9,560 ha	+590	+610	+620	+1,330	+1,390	+1,440
10	Hospital beds	4,280 beds	+610	+720	+840	+1,120	+1,440	+1,680
11	Hospital Emergency Department Presentations	356,240 presentations pa	+48,490	+57,580	+67,170	+95,290	+113,150	+132,000
12	General practitioners	940 GPs	+140	+160	+190	+270	+320	+380
13	Primary school places	64,460 places	+4,240	+5,830	+7,500	+10,840	+13,930	+17,190
14	Secondary school places	57,810 places	+3,980	+5,410	+6,930	+9,940	+12,730	+15,680
15	University places	32,720 places	+5,140	+6,070	+7,060	+10,150	+12,020	+14,000
16	TAFE places	95,570 places	+13,640	+16,190	+18,890	+27,030	+32,100	+37,450
17	Library floorspace (m2)	20,830m2	+2,860	+3,390	+3,960	+5,700	+6,700	+7,890
18	Kindergarten places	11,360 places	+895	+1,125	+1,365	+1,115	+1,515	+1,945
19	Childcare places	11,350 places	+1,140	+1,430	+1,730	+1,490	+2,010	+2,560
20	Aged care beds	7,990 beds	+3,440	+3,700	+3,970	+7,900	+8,530	+9,200
21	Arts and cultural facilities	61 facilities	+7	+9	+10	+14	+17	+20
22	Recreational facilities (indoor)	65 facilities	+8	+9	+11	+15	+18	+21
23	Waste Management (tonnes pa)	219,000 tonnes pa	+39,000	+45,000	+51,000	+77,000	+89,000	+102,000

5 COST OF PROVIDING REQUIRED INFRASTRUCTURE AND RESOURCES

This Chapter provides broad cost estimates for identified future infrastructure and resource requirements in the Regional Cities, and covers three population growth scenarios relating to the years 2021 and 2031.

The following points are noted:

- It is important to recognise that all cost data included in this report should be considered as preliminary 'high-level' estimates, with further specialised infrastructure cost analysis and an assessment of locational characteristics recommended to confirm these costs. Methodologies, assumptions and sources used to estimate costs are included in the text and table notes.
- Data is unavailable for some of the indicators, while data is consolidated for a number of other indicators. Where possible, costs estimates have been split between infrastructure and on-going / operational costs; however, due to data limitations some estimates are presented as a combined value.
- Due to complex funding formulas for some categories (which allocate capital on a per capita basis annually), some costs have been expressed as both additional costs for a point in time (2021 and 2031) as well additional cumulative costs for the 20-year period from 2011-2031.
- Cumulative costs have also been calculated for recurrent operational expenditure for some items.
- All costs are expressed in constant 2012 dollars.

5.1 Water Infrastructure and Resource Costs

Water infrastructure and resource costs in Victoria are closely aligned with household water bills in that consumers pay for the cost of new infrastructure and on-going maintenance and water supply through their bills (ie cost recovery basis). The Victorian Essential Services Commission's (ESC) *2011 Water Performance Report* estimates average household water bills for Victorian water business for 2012-13, by applying approved price increases and assumed CPI, to current price levels.

Based on these estimates, the average household water bill In the Regional Cities is estimated at $990 per household. This value has been applied to the number of additional dwellings required in the Regional Cities at 2021 and 2031 to determine broad overall additional water infrastructure and resource costs.

By 2021, additional annual water infrastructure and resource costs in the Regional Cities are estimated to be between $42 million (Base Case Scenario) and $59 million (High Growth Scenario). By 2031, additional annual water infrastructure costs in the Regional Cities are estimated to be between $96million (Base Case Scenario) and $130 million (High Growth Scenario).

Twenty-year cumulative costs range from $950 million (Base Case Scenario) to $1,310 million (High Growth Scenario).

Estimated water infrastructure costs are shown in Table 5.1.

Table 5.1: Estimated Water Infrastructure Costs, at 2021 and 2031

	Additional Requirements		Estimated Additional Annual Costs		Estimated Additional Cumulative Costs (20-years)
	2021	2031	at 2021	at 2031	2011-2031
Base Case Scenario	+ 6.5 billion litres	+12.9 billion litres	$42 million	$96 million	$950 million
Medium Growth Scenario	+7.8 billion litres	+15.3 billion litres	$50 million	$112 million	$1,120 million
High Growth Scenario	+9.0 billion litres	+17.8 billion litres	$59 million	$130 million	$1,310 million

Source: Essential Services Commission Water Performance Report 2011; and Essential Economics
Note: Figures rounded. Constant 2012 prices.

5.2 Public Transport Infrastructure and Resource Costs

Bus services

As no State-based data relating to bus service infrastructure and operating costs is available, a 'proxy' for this indicator has been developed for the purposes of this study. It is assumed that each additional service will require one new bus and supporting infrastructure (bus shelters, lighting, signage, marketing/administration etc). The following assumptions are made:

- New modern air-conditioned 50 seat bus: $400,000
- Supporting infrastructure and operational costs: $100,000 per service

The estimated total cost of providing a new bus service in the Regional Cities will be approximately $500,000 per service, based on these assumptions. Using this estimated value, bus infrastructure costs are calculated for 2021 and 2031.

By 2021, additional bus infrastructure costs in the Regional Cities are estimated to be between $11 million (Base Case Scenario) and $15 million (High Growth Scenario). By 2031, these additional costs are estimated to be between $21 million (Base Case Scenario) and $30 million (High Growth Scenario).

Operational costs are assumed to be recouped on a user pays basis.

Estimated bus service infrastructure and resource cost data is shown in Table 5.2.

Table 5.2: Estimated Bus Services Infrastructure Costs, at 2015 and 2036

	Additional Requirements		Estimated Costs	
	2021	2031	2021	2031
Base Case Scenario	+21 services	+42 services	+$11 million	+$21 million
Medium Growth Scenario	+25 services	+50 services	+$13 million	+$25 million
High Growth Scenario	+30 services	+59 services	+$15 million	+$30 million

Source: Essential Economics Tables 1.3, 1.4 and 1.5
Note: Figures rounded. Constant 2012 prices.

Rail services

Capital

The analysis assumes that 1 new train carriage (and associated infrastructure) is required per 10 additional services, and the cost of providing this infrastructure is approximately $6 million per carriage (based on estimates included in the Victorian Transport Plan). Using these values, rail infrastructure costs have been estimated for the Regional Cities.

By 2021, additional rail infrastructure costs in the Regional Cities are estimated to be between $126 million (Base Case Scenario) and $174 million pa (High Growth Scenario). By 2031, these additional costs are estimated to be between $252 million (Base Case Scenario) and $348 million (High Growth Scenario).

Operational

Operational costs are calculated for rail services in recognition of the significant subsidy paid to V/Line to operate regional services. Some of the estimated cumulative costs would be recouped through user charges, and the additional services would provide a benefit to the whole state. The figures provided in Table 5.3 are therefore provided for information purposes only, and do not specifically reflect costs attributable to the Regional Cities.

The average cost of operating a rail service in regional Victoria is approximately $4,820 per service, according to data sourced from V/Line Annual Report 2011/12, and this includes maintenance and operating costs. Rail infrastructure and resource costs for future requirements in the Regional Cities have been derived from this average cost ratio.

Twenty-year cumulative costs range from $1,110 million (Base Case Scenario) to $1,530 million (High Growth Scenario).

Estimated rail service infrastructure and resource cost data is shown in Table 5.3.

Table 5.3: Estimated Rail Services Infrastructure Costs, at 2021 and 2031

	Additional Requirements		Estimated Cost	
	2021	**2031**	**2021**	**2031**
		Infrastructure Costs		
Base Case Scenario	+210 services	+420 services	$126 million	$252 million
Medium Growth Scenario	+250 services	+500 services	$150 million	$300 million
High Growth Scenario	+290 services	+580 services	$174 million	$348 million
		Operational Costs		
				Estimated Additional Cumulative Costs (20-years)
Base Case Scenario	+210 services	+420 services		$1,110 million
Medium Growth Scenario	+250 services	+500 services		$1,320 million
High Growth Scenario	+290 services	+580 services		$1,530 million

Source: V/line Annual Report 2010/11; Victorian Transport Plan 2009; Tables 1.3, 1.4 and 1.5; Essential Economics
Note: Figures rounded

5.3 Energy Infrastructure and Resource Costs

Electricity

Electricity infrastructure and resource costs in Victoria are generally associated with household electricity bills, in that consumers pay for the cost of new infrastructure, on-going maintenance and operational costs through their bills on a cost-recovery basis. The ESC monitors household electricity charges and sets pricing guidelines for electricity retailers which include an appraisal of costs associated with providing new infrastructure over the pricing period. The ESC indicates the current average household bill in Victoria is $1,430 pa. This represents an overall increase of approximately 50% from 2009 levels. This figure has been applied to the number of additional dwellings required in the Regional Cities at 2021 and 2031 to determine broad overall additional electricity infrastructure and resource costs.

By 2021, additional annual electricity infrastructure and resource costs in the Regional Cities are estimated to be between $61 million pa (Base Case Scenario) and $85 million pa (High Growth Scenario). By 2031, these additional costs are estimated to be between $138 million pa (Base Case Scenario) and $188 million pa (High Growth Scenario).

Twenty-year cumulative costs range from $1,370 million (Base Case Scenario) to $1,880 million (High Growth Scenario).

Estimated electricity infrastructure and resource costs are shown in Table 5.4.

Table 5.4: Estimated Electricity Infrastructure and Resource Costs, at 2021 and 2031

	Additional Requirements		Estimated Additional Annual Costs		Estimated Additional Cumulative Costs (20-years)
	2021	2031	@ 2021	@ 2031	2011-2031
Base Case Scenario	+0.31 billion KWh	+0.62 billion KWh	$61 million	$138 million	$1,370 million
Medium Growth Scenario	+0.36 billion KWh	+0.71 billion KWh	$72 million	$162 million	$1,610 million
High Growth Scenario	+0.41 billion KWh	+0.82 billion KWh	$85 million	$188 million	$1,880 million

Source: Essential Services Commission 2011 Energy Retailers Comparative Performance Report; Essential Economics Tables 1.3, 1.4 and 1.5;
Note: Figures rounded. Constant 2012 prices.

Gas

Gas infrastructure and resource costs in Victoria are closely associated with household gas bills (ie new infrastructure, on-going maintenance and operational costs are recovered through bills), as are electricity costs. The ESC monitors gas electricity charges and sets pricing guidelines for gas retailers which include an appraisal of costs associated with providing new infrastructure over the pricing period. The ESC indicates the current average household bill is $1,225 pa. This represents an overall increase of approximately 75% from 2009 levels. This figure has been applied to the number of additional dwellings required in the Regional Cities at 2021 and 2031 to determine broad overall additional gas infrastructure and resource costs.

By 2021, additional annual gas infrastructure and resource costs in the Regional Cities are estimated to be between $52 million pa (Base Case Scenario) and $72 million pa (High Growth Scenario). By 2031, these additional costs are estimated to be between $118 million pa (Base Case Scenario) and $160 million pa (High Growth Scenario).

Twenty-year cumulative costs range from $1,170 million (Base Case Scenario) to $1,600 million (High Growth Scenario).

Estimated gas infrastructure and resource costs are shown in Table 5.5.

Table 5.5: Estimated Gas Infrastructure and Resource Costs, at 2021 and 2031

	Additional Requirements		Estimated Additional Annual Costs		Estimated Additional Cumulative Costs (20-years)
	2021	2031	@ 2021	% 2031	2011-2031
Base Case Scenario	+3.02 million GJ	+5.95 million GJ	$52 million	$118 million	$1,170 million
Medium Growth Scenario	+3.47 million GJ	+6.88 million GJ	$62 million	$139 million	$1,380 million
High Growth Scenario	+3.95 million GJ	+7.86 million GJ	$72 million	$160 million	$1,600 million

Source: Essential Services Commission 2011, Energy Retailers Comparative Performance Report; Essential Economics Tables 1.3, 1.4 and 1.5
Note: Figures rounded. Constant 2012 prices.

5.4 Telecommunications Infrastructure and Resource Costs

On 7 April 2009, the Federal Government announced a $43 billion public/private initiative to provide high speed broadband access to all Australian households and businesses. The project is anticipated to be completed within seven to eight years, with roll-out of the network having commenced in 2010.

The fibre-optic network, providing speeds of up to 100 megabits per second, will cover 90% of the nation's population, while the remaining population will have access to a mix of wireless and satellite connections (which might include some remote areas located within the 10 regional municipalities).

In view of this investment, it is assumed that broadband infrastructure requirements outlined in this report will be met through this new infrastructure initiative; therefore, costs have not been calculated.

Table 5.6: Estimated Telecommunications Infrastructure and Resource Costs, at 2021 and 2031

	Population Growth		Estimated Additional Cost	
	2011-2021	2011-2031	2021	2031
Base Case Scenario	+79,410	+271,530	Covered by Federal Government Broadband Initiative	Covered by Federal Government Broadband Initiative
Medium Growth Scenario	+96,050	+323,240	Covered by Federal Government Broadband Initiative	Covered by Federal Government Broadband Initiative
High Growth Scenario	+116,830	+387,890	Covered by Federal Government Broadband Initiative	Covered by Federal Government Broadband Initiative

Source*:* Multi Media Victoria; Essential Economics.
Note: Figures rounded

5.5 Land Supply Infrastructure and Resource Costs

Residential land

The infrastructure and resources survey indicates that the Regional Cities have approximately 87,000 zoned residential lots land potentially available for development. Should all these lots eventuate to the market, it would be sufficient to accommodate anticipated residential growth to 2021 (under any of the scenarios). In the longer-term (by 2031) some additional unzoned lots will be required to meet residential demand (especially under the High Growth Scenario) and it is noted that the UDP has identified a further 90,000 unzoned lots in the Regional Cities which have the potential to be developed for residential purposes. However, costs associated with servicing undeveloped land can be prohibitive for investors, particularly in regard to vital core infrastructure such as roads, utilities,

telecommunications etc which generally supports a broader area in which a particular development site is situated.

A review of data contained in the *National Housing Infrastructure Costs Study* (Urbis JHD, 2006), indicates the average infrastructure charge per lot in metropolitan Melbourne at the time was approximately $8,000 (in 2006 dollars), or $9,500 per lot when expressed in 2012 dollars. This estimate is broadly in line with the State Government's current Growth Area Infrastructure Charge (GAIC) which levies between $85,000 per ha and $101,000 per ha (or $8,500 to $10,100 per lot – assuming a net yield of 10 lots per hectare), depending on when the land is introduced within the Urban Growth Boundary.

Lot servicing costs include direct infrastructure charges (such as sewerage, water etc) and indirect infrastructure costs which benefit the broader community (such as open space, parklands, streetscapes, roads etc). In general, infrastructure costs are shared between the private sector (eg development contributions) and the public sector (eg infrastructure grants).

A $9,500 lot service cost represents approximately 4.5% of the median vacant lot price ($210,000) in metropolitan Melbourne (based on 2011 Valuer General data).

By applying the same percentage (4.5%) to the median lot price in regional Victoria for 2011 ($125,000), the average lot servicing cost in the Regional Cities is estimated to be $5,625 per lot. This value has been used to estimate residential land supply infrastructure costs in the Regional Cities for 2021 and 2031.

By 2021, additional residential infrastructure costs in the Regional Cities are estimated to be between $238 million pa (Base Case Scenario) and $333 million pa (High Growth Scenario). By 2031, these additional costs are estimated to be between $544 million (Base Case Scenario) and $737 million (High Growth Scenario).

Data relating to estimated residential development infrastructure costs is shown in Table 5.7.

Table 5.7: Residential Land Supply Infrastructure Costs, at 2021 and 2031

	Additional Dwellings Required		Estimated Additional Cost	
	2021	**2031**	**2021**	**2031**
Base Case Scenario	+42,370	+96,680	+$238 million	+$544 million
Medium Growth Scenario	+50,520	+113,370	+$284 million	+$638 million
High Growth Scenario	+59,130	+130,990	+$333 million	+$737 million

Source: National Housing Infrastructure Costs Study, Urbis JHD (2006); A Guide to Property Values 2011, Valuer General; RCV Infrastructure and Resources Survey; Essential Economics Tables 1.3, 1.4 and 1.5.
Note: Figures rounded. Constant 2012 prices.

Industrial land

The Regional Cities have over 3,000ha of zoned industrial land available for development, according to the Urban Development Program 2012. Should this land eventuate to the market, it would be sufficient to accommodate anticipated industrial growth to 2031 (under any of the scenarios). Additionally, significant amounts of unzoned land exist which have potential to be developed for industrial purposes in the longer-term. Similar to the residential development situation, costs associated with servicing industrial land can be a deterrent to investors, particularly in regard to vital core infrastructure supporting industry activities (eg sewerage, road access, water supply, telecommunications, utilities etc).

Limited information is available regarding the servicing costs for industrial land; therefore, a value of $112,500 per ha has been used as a broad 'proxy' to determine infrastructure costs. This is based on information associated with recent regional industrial estates development (*Evaluation of Industrial Estate Development*, Impact Consulting Group 2008), updated to 2012 prices. Note that the level of

infrastructure required may vary considerably from location to location, and that the estimates provided assume all additional land required is currently unserviced.

By 2021, additional industrial land infrastructure costs in the Regional Cities are estimated to be between $66 million pa (Base Case Scenario) and $70 million pa (High Growth Scenario). By 2031, the additional costs are estimated to be between $150 million (Base Case Scenario) and $162 million (High Growth Scenario).

Costs associated with servicing industrial land are shown in Table 5.8.

Table 5.8: Industrial Land Supply Infrastructure Costs, at 2021 and 2031

	Demand		Estimated Cost	
	2021	**2031**	**2021**	**2031**
Base Case Scenario	590 ha	1,330 ha	$66 million	$150 million
Medium Growth Scenario	610 ha	1,390 ha	$69 million	$156 million
High Growth Scenario	620 ha	1,440 ha	$70 million	$162 million

Source: *Evaluation of Industrial Estate Development*, Impact Consulting Group 2008; Essential Economics.
Note: Figures rounded. Constant 2012 prices.

5.6 Health Infrastructure Costs

Infrastructure

Additional hospital infrastructure costs are calculated as follows:

- Floorspace requirements of 100m^2 per bed (derived from Department of Human Services, *Design Guidelines for Hospitals and Day Care Procedure Centres*, 2004)
- Construction costs of $3,780 per m^2 (derived from Davis Langdon Blue Book 2011)
- Land requirements which assumes floorspace accounts for 50% of site coverage at an average cost of $500,000 per ha
- 10% allocation applied to total construction and land costs to allow for carparking and external site works.

Using this methodology, the average cost of providing a hospital bed in the Regional Cities is estimated to be approximately $425,000 per bed. While this estimate is expressed in terms of 'beds', the costs include all infrastructure associated with public hospital facilities (consulting rooms, laboratories, theatres, waiting rooms, kitchens, staff areas, etc).

By 2021, additional hospital infrastructure costs in the Regional Cities are estimated to be between $260 million (Base Case Scenario) and $359 million pa (High Growth Scenario). By 2031, these additional costs are estimated to be between $516 million (Base Case Scenario) and $717 million (High Growth Scenario).

Hospital infrastructure cost estimates are shown in Table 5.9.

Table 5.9: Additional Hospital Infrastructure Costs, at 2021 and 2031

	Additional Hospital Beds Required		Estimated Additional Annual Costs	
	2021	2031	2021	2031
Base Case Scenario	+610	+1,210	+$260 million	+$516 million
Medium Growth Scenario	+720	+1,440	+$307 million	+$615 million
High Growth Scenario	+840	+1,680	+$359 million	+$717 million

Source: www.capital.dhs.vic.gov.au/capdev/ProjectProposals/Benchmarking/HospitalCapitalModule; Davis Langdon Blue Book 2011; RCV Infrastructure and Resources Survey; Tables 1.3, 1.4 and 1.5; Essential Economics.
Note: Figures rounded. Constant 2012 prices.

Recurrent Expenditure

The recurrent cost of public hospital provision in Victoria was $1,475 per capita in 2008/09 (Productivity Commission, Report on Government Services 2011, Table 10A.3). Using this benchmark as a proxy for all hospital provision (including private hospitals), estimates for recurrent hospital costs have been derived for the Regional Cities.

By 2021, additional annual recurrent hospital costs in the Regional Cities are estimated to be between $154 million pa (Base Case Scenario) and $214 million pa (High Growth Scenario). By 2031, these additional costs are estimated to be between $307 million pa (Base Case Scenario) and $425 million pa (High Growth Scenario).

Twenty-year cumulative costs range from $3,230 million (Base Case Scenario) to $4,480 million (High Growth Scenario).

Data relating to estimated additional recurrent hospital expenditure is provided in Table 5.10.

Table 5.10: Estimated Additional Hospital Recurrent Expenditure, at 2021 and 2031

	Population Growth		Estimated Additional Annual Costs		Estimated Additional Cumulative Costs (20-years)
	2011-2021	2011-2031	at 2021	at 2031	2011-2031
Base Case Scenario	+104,560 persons	+208,070 persons	+$154 million	+$307 million	+$3,230 million
Medium Growth Scenario	+124,160 persons	+247,070 persons	+$183 million	+$364 million	+$3,830 million
High Growth Scenario	+144,860 persons	+288,250 persons	+$214 million	+$425 million	+$4,480 million

Source: Productivity Commission, Report on Government Services 2011; Essential Economics Tables 1.3, 1.4 and 1.5.
Note: Figures rounded. Constant 2012 prices.

Hospital Emergency Services

Information included in the 2010/11 Victoria Department of Health Annual Report indicates that the State Government currently invests $267 per emergency presentation at hospitals with emergency departments. This investment relates to admitted and non-admitted patients. Using this estimated value, infrastructure and resource costs are calculated for hospital emergency department presentations for 2021 and 2031.

By 2021, additional annual emergency services costs in the Regional Cities are estimated to be between $13 million pa (Base Case Scenario) and $18 million pa (High Growth Scenario). By 2031, these additional costs are estimated to be between $25 million pa (Base Case Scenario) and $35 million pa (High Growth Scenario).

Twenty-year cumulative costs range from $270 million (Base Case Scenario) to $370 million (High Growth Scenario).

Hospital emergency services infrastructure and resource cost estimates are shown in Table 5.11.

Table 5.11: Additional Emergency Department Costs, at 2021 and 2031

	Additional Presentations		Estimated Additional Annual Costs		Estimated Additional Cumulative Costs (20-years)
	2011-2021	2011-2031	at 2021	at 2031	2011-2031
Base Case Scenario	+48,490	+95,290	+$13 million	+$25 million	+$270 million
Medium Growth Scenario	+57,580	+113,150	+$15 million	+$30 million	+$320 million
High Growth Scenario	+67,170	+132,000	+$18 million	+$35 million	+$370 million

Source: Victorian Department of Health Annual Report 2011/11; Tables 1.3, 1.4 and 1.5; Essential Economics.
Note: Figures rounded. Constant 2012 prices.

5.7 Education Infrastructure Costs

Schools

The cost of providing school infrastructure are estimated on the basis of the following assumptions.

- A ratio of 5m^2 per place (derived from *Growth Area Framework Plans: Activity Centre and Employment Planning*, Essential Economics 2010)
- Construction costs of $1,500 per m^2 (derived from Davis Langdon Blue Book 2011)
- Land costs of $500,000 per ha (which assumes school sites comprise 50% floorspace and 50% open space)
- 10% allocation applied to total construction and land costs to allow for carparking and external site works.

Using this methodology, the average cost of providing a school infrastructure is estimated to be approximately $8,800 per place.

By 2021, additional school infrastructure costs in the Regional Cities are estimated to be between $35 million pa (Base Case Scenario) and $61 million pa (High Growth Scenario). By 2031, these additional costs are estimated to be between $87 million pa (Base Case Scenario) and $138 million pa (High Growth Scenario).

School infrastructure and resource cost estimates are shown in Table 5.12.

Table 5.12: Additional School Infrastructure and Resource Costs (Primary and Secondary), at 2021 and 2031

	Additional Requirements		Estimated Additional Annual Costs	
	2021	2031	2021	2031
Base Case Scenario	+3,980 places	+9,940 places	+$35 million	+$87 million
Medium Growth Scenario	+5,410 places	+12,730 places	+$48 million	+$112 million
High Growth Scenario	+6,930 places	+15,680 places	+$61 million	+$138 million

Source: Department of Education and Early Childhood Development – Annual Report 2011; Department of Education and Early Childhood Development – Summary Statistics for Schools 2012. Essential Economics Tables 1.3, 1.4 and 1.5
Note: Figures rounded. Constant 2012 prices.

Universities

Infrastructure

No reliable infrastructure data exists for the university sector; therefore, the ratio for annual capital expenditure per student ($640) for the VET sector (see below) has been used to estimate university capital costs for the Regional Cities for 2021 and 2031.

By 2021, additional annual university infrastructure funding in the Regional Cities is estimated to be between $3 million pa (Base Case Scenario) and $5 million pa (High Growth Scenario). By 2031, these additional costs are estimated to be between $6 million pa (Base Case Scenario) and $9 million pa (High Growth Scenario).

Twenty-year cumulative costs range from $60 million (Base Case Scenario) to $100 million (High Growth Scenario).

Resources

According to data from the Department of Industry, Innovation, Science, and Research and Tertiary Education data from the Department of Education, Employment and Workplace Relations, on average each university place (Equivalent Full Time Student Load) receives a Commonwealth Government subsidy of $20,000. This subsidy is supplemented through student contributions (HECS) to meet the full cost of each course. Using this subsidy value, additional on-going funding costs are calculated for 2021 and 2031.

By 2021, additional annual university funding (to support student places) in the Regional Cities are estimated to be between $103 million pa (Base Case Scenario) and $141 million pa (High Growth Scenario). By 2031, this additional annual university funding is estimated to be between $203 million pa (Base Case Scenario) and $280 million pa (High Growth Scenario).

Twenty-year cumulative costs range from $2,150 million (Base Case Scenario) to $2,950 million (High Growth Scenario).

University infrastructure and resource cost estimates are shown in Table 5.13.

Table 5.13: University Infrastructure and Resource Costs, at 2021 and 2031

	Additional Requirements		Estimated Additional Annual Costs		Estimated Additional Cumulative Costs (20-years)
	2021	2031	at 2021	at 2031	2011-2031
University Infrastructure					
Base Case Scenario	+5,140	+10,150	+$3 million	+$6 million	+$60 million
Medium Growth Scenario	+6,070	+12,020	+$4 million	+$8 million	+$80 million
High Growth Scenario	+7,060	+14,000	+$5 million	+$9 million	+$100 million
University Resources					
Base Case Scenario	+5,140	+10,150	+$103 million	+$203 million	+$2,150 million
Medium Growth Scenario	+6,070	+12,020	+$121 million	+$240 million	+$2,530 million
High Growth Scenario	+7,060	+14,000	+$141 million	+$280 million	+$2,950 million

Source: Productivity Commission, Report on Government Services 2011; Department of Industry, Innovation, Science, Research and Tertiary Education; Essential Economics Tables 1.3, 1.4 and 1.5

Note: Figures rounded. Constant 2012 prices.

Vocational Education and Training (VET)

Infrastructure

According the Productivity Commission (*Report on Government Services* 2011), Government capital expenditure per VET student is approximately $640 pa in Victoria. This includes contributions from Federal and State Governments. Using this value, infrastructure costs have been developed for the Regional Cities for 2021 and 2031.

By 2021, additional annual VET infrastructure funding in the Regional Cities are estimated to be between $9 million pa (Base Case Scenario) and $12 million pa (High Growth Scenario). By 2031, these additional annual infrastructure costs are estimated to be between $17 million pa (Base Case Scenario) and $24 million pa (High Growth Scenario).

Twenty-year cumulative costs range from $180 million (Base Case Scenario) to $250 million (High Growth Scenario).

Resources

Productivity Commission data also shows that the average recurrent cost per VET student in Victoria is $3,775 pa in terms Federal and State funding (additional operational revenue is generated through student fees and other service charges etc). Using this value recurrent TAFE costs have been developed for the Regional Cities for 2021 and 2031.

By 2021, additional VET funding (to support student places) in the Regional Cities are estimated to be between $51 million pa (Base Case Scenario) and $71 million pa (High Growth Scenario). By 2031, this additional recurrent VET funding in the Regional Cities is estimated to be between $102 million pa (Base Case Scenario) and $141 million pa (High Growth Scenario).

Twenty-year cumulative costs range from $1,070 million (Base Case Scenario) to $1,490 million (High Growth Scenario).

VET infrastructure and resource cost estimates are shown in Table 5.14.

Table 5.14: VET Infrastructure and Resource Costs, at 2021 and 2031

	Additional Requirements		Estimated Additional Annual Costs		Estimated Additional Cumulative Costs (20-years)
	2021	2031	at 2021	at 2031	2011-2031
Base Case Scenario	+13,640	+27,030	+$9 million	+$17 million	+$180 million
Medium Growth Scenario	+16,190	+32,100	+$10 million	+$21 million	+$220 million
High Growth Scenario	+18,890	+37,450	+$12 million	+$24 million	+$250 million
Base Case Scenario	+13,640	+27,030	+$51 million	+$102 million	+$1,070 million
Medium Growth Scenario	+16,190	+32,100	+$61 million	+$121 million	+$1,280 million
High Growth Scenario	+18,890	+37,450	+$71 million	+$141 million	+$1,490 million

Source: Productivity Commission, Report on Government Services 2011; Essential Economics Tables 1.3, 1.4 and 1.5
Note: Figures rounded. Constant 2012 prices.

5.8 Social Infrastructure Costs

Public Library Infrastructure and Resources

Approximately $6.15 per capita is spent by the State Government on public libraries in Victoria each year according to Department of Planning and Community Development data (*Annual Survey of Public Library Services in Victoria* 2010/11). This per capita value includes building works and some materials, noting that Councils are the principal source of funding for libraries. This existing State per capita value is used to estimate future public library infrastructure and resource costs for the Regional Cities.

By 2021, additional annual library infrastructure and resource costs in the Regional Cities are estimated to be between $8 million pa (Base Case Scenario) and $12 million pa (High Growth Scenario). By 2031, these additional annual library costs are estimated to be between $17 million pa (Base Case Scenario) and $24 million pa (High Growth Scenario).

Twenty-year cumulative costs range from $170 million (Base Case Scenario) to $250 million (High Growth Scenario).

Public library infrastructure and resource cost estimates are shown in Table 5.15.

Table 5.15: Estimated Additional Public Library Capital Expenditure, at 2021 and 2031

	Population Growth		Estimated Additional Annual Costs		Estimated Additional Cumulative Costs (20-years)
	2011-2021	2011-2031	at 2021	at 2031	2011-2031
Base Case Scenario	+104,560 persons	+208,070 persons	+$0.6 million	+$1.3 million	+$10 million
Medium Growth Scenario	+124,160 persons	+247,070 persons	+$0.8 million	+$1.5 million	+$15 million
High Growth Scenario	+144,860 persons	+288,250 persons	+$0.9 million	+$1.8 million	+$20 million

Source: DPCD – Annual Survey of Public Library Services 2010/11;Essential Economics Tables 1.3, 1.4 and 1.5
Note: Figures rounded. Constant 2012 prices.

Kindergarten Places

Currently, State funding per kindergarten place in Victoria averages approximately $3,500 per child per year (Department of Education and Childhood Development Annual Report 2010/11). This includes per capita grants to kindergarten operators (for capital works, maintenance, operational costs etc) and subsidies to parents (who also contribute fees). A quarter of this existing per capita value (25%) has been assumed for infrastructure purposes which represents $875 per child per year. This value has been used to estimate additional future Kindergarten infrastructure costs the Regional Cities.

By 2021, additional Kindergarten capital funding in the Regional Cities is estimated to be between $1.1 million pa (Base Case Scenario) and $1.7 million (High Growth Scenario). By 2031, the additional funding is estimated to be between $1.5 million (Base Case Scenario) and $2.5 million (High Growth Scenario).

Twenty-year cumulative costs range from $20 million (Base Case Scenario) to $30 million (High Growth Scenario).

Kindergarten ongoing cost estimates are shown in Table 5.16.

Table 5.16: Kindergarten Infrastructure and Resource Costs, at 2021 and 2031

	Additional Requirements		Estimated Additional Annual Costs		Estimated Additional Cumulative Costs (20-years)
	2021	2031	at 2021	at 2031	2011-2031
Base Case Scenario	+1,300 places	+1,710 places	+$1.1 million	+$1.5 million	+$20 million
Medium Growth Scenario	+1,600 places	+2,270 places	+$1.4 million	+$2.0 million	+$25 million
High Growth Scenario	+1,920places	+2,850 places	+$1.7 million	+$2.5 million	+$30 million

Source*:* Department of Education and Childhood Development Annual Report 2010/11;Essential Economics Tables 1.3, 1.4 and 1.5
Note: Figures rounded. Constant 2012 prices.

Childcare Places

Commonwealth funding per approved childcare place in Australia is currently $7,500 per child per year (Department of Human Services). This funding is provided in the form of rebates to parents utilising approved facilities (mainly operated by the private sector which is responsible for the provision of infrastructure). A quarter of this existing per capita value (25%) has been assumed for infrastructure purposes which represents $1,875 per child per year. This value is adopted in estimating additional future childcare infrastructure costs the Regional Cities.

By 2021, additional childcare capital funding in the Regional Cities is estimated to be between $2.1 million (Base Case Scenario) and $3.2 million (High Growth Scenario). By 2031, the additional capital funding is estimated to be between $2.8 million (Base Case Scenario) and $4.8 million (High Growth Scenario).

Twenty-year cumulative costs range from $40 million (Base Case Scenario) to $60 million (High Growth Scenario). The additional childcare funding requirements are included in Table 5.17.

Table 5.17: Childcare Infrastructure and Resource Costs, at 2021 and 2031

	Additional Requirements		Estimated Additional Annual Costs		Estimated Additional Cumulative Costs (20-years)
	2021	2031	at 2021	at 2031	2011-2031
Base Case Scenario	+1,140 places	+1,490 places	+$2.1 million	+$2.8 million	+$40 million
Medium Growth Scenario	1,430 places	+2,010 places	+$2.7 million	+$3.8 million	+$50 million
High Growth Scenario	1,730 places	+2,560 places	+$3.2 million	+$4.8 million	+$60 million

Source*:* Department of Human Services; Essential Economics Tables 1.3, 1.4 and 1.5
Note: Figures rounded. Constant 2012 prices.

Aged Care places

Infrastructure

Additional hospital infrastructure costs have been calculated as follows:

- Floorspace requirement ratio of 45m^2 per bed (derived from Department of Human Services – Aged Care Residential Services Generic Brief 1999)
- Construction costs of $2,600 per m^2 (derived from Davis Langdon Blue Book 2011)
- Land requirements which assume floorspace accounts for 50% of site coverage with an average land cost of $500,000 per ha
- 10% allocation applied to total construction and land costs to allow for carparking and external site works.

Using this methodology, the average cost of providing a hospital bed in the Regional Cities is estimated to be approximately $133,000 per bed. While this estimate is expressed in terms of 'beds', the costs include all infrastructure associated with aged care facilities (lounges, kitchens, toilets, medical facilities, staff areas etc).

By 2021, additional aged care infrastructure costs in the Regional Cities are estimated to be between $460 million (Base Case Scenario) and $531 million (High Growth Scenario). By 2031, the additional costs are estimated to be between $1,056 million (Base Case Scenario) and $1,230 million (High Growth scenario).

Resources

Significant recurrent Government resources are required to support each residential aged-care place. Data sourced from the Productivity Commission (*Report on Government Services*, 2011) shows the average subsidy in Victoria was $28,570 per occupied place (includes permanent and respite beds). This existing subsidy value has been used to project future residential-based aged care recurrent costs for the Regional Cities. Twenty-year cumulative costs range from $2,220 million (Base Case Scenario) to $2,580 million (High Growth Scenario). Aged care infrastructure and resource cost estimates are shown in Table 5.18.

Table 5.18: Aged Care Infrastructure and Resource Costs, at 2021 and 2031

	Additional Requirements		Estimated Additional Cost	
	2021	**2031**	**2021**	**2031**
Aged Care Infrastructure				
Base Case Scenario	+3,440 places	+7,900 places	+$460 million	+$1,056 million
Medium Growth Scenario	+3,700 places	+8,530 places	+$495 million	+$1,116 million
High Growth Scenario	+3,970 places	+9,200 places	+$531 million	+$1,230 million
Cumulative Aged Care Recurrent Expenditure (Residential Services Only)				
				Estimated Additional Cumulative Costs (20-years)
Base Case Scenario	+3,440 places	+7,900 places		+$2,220 million
Medium Growth Scenario	+3,700 places	+8,530 places		+$2,400 million
High Growth Scenario	+3,970 places	+9,200 places		+$2,580 million

Source: Report on Government Services 2011, Productivity Commission, Table 13.2; Essential Economics Tables 1.3, 1.4 and 1.5;

Note: Figures rounded. Constant 2012 prices.

5.9 Recreation Infrastructure Costs

Arts and Cultural Facilities

The capital cost of arts and cultural facilities are based on the development costs for a medium-sized Civic Centre of 2,000m^2 at $1,800 per m^2 (Rawlingsons Handbook 2008) or an average of $3 million per facility.

Operating costs are based on a recurrent budget of $1,000,000 per year for each new facility (eg staff, marketing, maintenance). Using these benchmarks, infrastructure and resource costs are estimated for the Regional Cities for 2021 and 2031.

Infrastructure

By 2021, additional arts and cultural facilities infrastructure costs in the Regional Cities are estimated to be between $25 million (Base Case Scenario) and $36 million (High Growth Scenario). By 2031, the additional costs are estimated to be between $50 million (Base Case Scenario) and $72 million (High Growth Scenario).

Resources

By 2021, additional annual arts and cultural operating costs in the Regional Cities are estimated to be between $7 million (Base Case Scenario) and $10 million (High Growth Scenario). By 2031, the additional annual costs are estimated to be between $14 million (Base Case Scenario) and $20 million (High Growth Scenario).

Twenty-year cumulative costs range from $150 million (Base Case Scenario) to $210 million (High Growth Scenario).

Arts and cultural infrastructure and resource cost estimates are included in Table 5.19.

Table 5.19: Arts and Cultural Facilities Infrastructure Costs, at 2021 and 2031

	Additional Requirements		Estimated Additional Cost	
	2021	**2031**	**2021**	**2031**
		Infrastructure		
Base Case Scenario	+7 facilities	+14 facilities	+$25 million	+$50 million
Medium Growth Scenario	+9 facilities	+17 facilities	+$32 million	+$61 million
High Growth Scenario	+10 facilities	+20 facilities	+$36 million	+$72 million
		Operating costs		
				Estimated Additional Cumulative Costs (20-years)
Base Case Scenario	+7 facilities	+14 facilities		+$150 million
Medium Growth Scenario	+9 facilities	+17 facilities		+$180 million
High Growth Scenario	+10 facilities	+20 facilities		+$210 million

Source*:* Rawlingsons Handbook 2008; Essential Economics Tables 1.3, 1.4 and 1.5
Note: Figures rounded. Constant 2012 prices.

Recreational Facilities

The capital cost of recreational facilities is based on the development costs for a medium standard Community Recreation Centre of 1,500m^2 at $1,500 per m^2 (Rawlingsons Handbook 2008). Operating costs are based on a recurrent budget of $750,000 per year for each new facility (eg staff, marketing, maintenance). Using these benchmarks, infrastructure and resource costs are estimated for the Regional Cities for 2021 and 2031.

Infrastructure

By 2021, additional annual recreation facilities infrastructure costs in the Regional Cities are estimated to be between $18 million (Base Case Scenario) and $25 million (High Growth Scenario). By 2031, the additional costs are estimated to be between $34 million (Base Case Scenario) and $47 million (High Growth Scenario).

Resources

By 2021, additional annual recreational facilities operating costs in the Regional Cities are estimated to be between $6 million (Base Case Scenario) and $8 million pa (High Growth Scenario). By 2031, the additional annual costs are estimated to be between $11 million (Base Case Scenario) and $16 million (High Growth Scenario).

Twenty-year cumulative costs range from $120 million (Base Case Scenario) to $170 million (High Growth Scenario).

Recreational infrastructure and resource cost estimates are included in Table 5.20.

Table 5.20: Recreational Facilities Infrastructure and Resource Costs, at 2021 and 2031

	Additional Requirements		Estimated Additional Cost	
	2021	**2031**	**2021**	**2031**
		Infrastructure		
Base Case Scenario	+8 facilities	+15 facilities	+$18 million	+$34 million
Medium Growth Scenario	+9 facilities	+18 facilities	+$20 million	+$41 million
High Growth Scenario	+11 facilities	+21 facilities	+$25 million	+$47 million
		Operating Costs		
				Estimated Additional Cumulative Costs (20-years)
Base Case Scenario	+8 facilities	+15 facilities		+$120 million
Medium Growth Scenario	+9 facilities	+18 facilities		+$150 million
High Growth Scenario	+11 facilities	+21 facilities		+$170 million

Source: Rawlingsons Handbook 2008; Essential Economics Tables 1.3, 1.4 and 1.5
Note: Figures rounded. Constant 2012 prices.

5.10 Waste Management

According to Sustainability Victoria data (2009/10), the kerbside collection cost per tonne in regional Victoria locations is approximately $170 pa (including $175 pa for garbage, $170 pa for recyclables, and $145 for green organics). This represents an overall increase of approximately 20% per tonne since 2007. These separate tonnage costs have been applied to the projected future waste management collection requirements for the Regional Cities.

By 2021, additional annual kerbside waste collection costs in the Regional Cities are estimated to be between $7 million pa (Base Case Scenario) and $9 million pa (High Growth Scenario). By 2031, the additional costs are estimated to be between $14 million pa (Base Case Scenario) and $18 million pa (High Growth Scenario). Note, data relates to 2010 dollars and does not include waste collected by private contractors outside the local government system.

20 year cumulative costs range from $150 million (Base Case Scenario) to $190 million (High Growth Scenario).

Estimated costs associated with additional kerbside waste collection are included in Table 5.21

Table 5.21: Waste Management Collection Costs, at 2021 and 2031

	Additional Requirements		Estimated Additional Annual Costs		Estimated Additional Cumulative Costs (20-years)
	2021	2031	at 2021	at 2031	2011-2031
Base Case Scenario	+39,000 tonnes	+77,000 tonnes	+$7 million	+$14 million	+$150 million
Medium Growth Scenario	+45,000 tonnes	+89,000 tonnes	+$8 million	+$16 million	+$170 million
High Growth Scenario	+51,000 tonnes	+102,000 tonnes	+$9 million	+$18 million	+$190 million

Source: Sustainability Victoria *Victorian Local Government Annual Survey 2009-2010* ; Essential Economics.
Note: Figures rounded. Constant 2012 prices.

5.11 Conclusion

Considerable additional costs will be associated with future infrastructure and resource requirements in the Regional Cities under each of the three scenarios. Funding the required level of infrastructure and resources will be a joint responsibility between all spheres of Government, the private sector, utility providers, ratepayers and consumers. Table 5.22 provides a summary of future additional infrastructure and operational costs (where quantifiable) to meet these requirements.

Table 5.22: Summary of Estimated Additional Infrastructure and Resources Costs Required, Regional Cities by 2031

	Category	Requirement Type	2031		
			Base Case Scenario	Medium Growth Scenario	High Growth Scenario
1	Water	Operational and capital	$950 million	$1,120 million	$1,310 million
2	Bus services	Capital	$20 million	$25 million	$30 million
3	Rail services	Capital	$250 million	$300million	$350 million
4	Rail services	Operational	$1,110 million	$1,320 million	$1,530 million
5	Residential Land (servicing)	Capital	$545 million	$640 million	$735 million
6	Industrial Land (servicing)	Capital	$150 million	$155 million	$160 million
7	Hospital	Capital	$515 million	$615 million	$715 million
8	Hospital	Operational	$3,230 million	$3,830 million	$4,480 million
9	Emergency department costs	Operational and capital	$270 million	$320 million	$370 million
10	Aged care	Capital	$1,055 million	$1,115 million	$1,230 million
11	Aged care	Operational	$2,220 million	$2,400 million	$2,580 million
12	Electricity	Operational and capital	$1,370 million	$1,610 million	$1,880 million
13	Universities	Capital	$60 million	$80 million	$100 million
14	Universities	Operational	$2,150 million	$2,530 million	$2,950 million
15	VET	Capital	$180 million	$220 million	$250 million
16	VET	Operational	$1,070 million	$1,280 million	$1,490 million
17	Gas	Capital and operational	$1,170 million	$1,380 million	$1,600 million
18	Broadband	Capital	Funded	Funded	Funded
19	Schools	Capital	$85 million	$115 million	$140 million
20	Libraries	Operational and capital	$10 million	$15 million	$20 million
21	Kindergarten	Capital	$20 million	$25 million	$30 million
22	Childcare	Capital	$40 million	$50 million	$60 million
23	Arts and cultural	Capital	$50 million	$60 million	$70 million
24	Arts and cultural	Operational	$150 million	$180 million	$210 million
25	Recreational	Capital	$35 million	$40 million	$45 million
26	Recreational	Operational	$120 million	$150 million	$170 million
27	Waste Management	Operational and capital	$150 million	$170 million	$190 million

Note: Figures rounded

6 COST BENEFIT ASSESSMENT

6.1 Costs Associated With Higher Population Outcomes

The additional costs associated with providing key infrastructure in the regional cities to 2031 are shown in Table 6.1.

Key infrastructure costs focus principally on enabling infrastructure, the provision of which is mainly the responsibility of Federal and State governments. These costs include funding for public transport, hospital infrastructure, residential and industrial land planning and servicing, kindergarten, school and higher education facilities, aged care facilities, waste management infrastructure, and arts and recreational facilities. The estimated cost of providing these selected key infrastructure items under each scenario is as follows:

- Base Case Scenario +$3.4 billion
- Medium Growth Scenario +$3.9 billion
- High Growth Scenario +$4.4 billion

The additional costs of providing key infrastructure to support population levels higher than the Base Case Scenario have also been calculated to 2031. These estimates show:

- An additional $495 million (or $500 million rounded) would be required to accommodate +39,000 persons under the Medium Growth Scenario, and
- An additional $1,040 million (or $1.0 billion rounded) would be required to accommodate +80,000 persons under the High Growth Scenario.

Table 6.1: Estimated Additional Costs of Key Infrastructure, Regional Cities 2011-2031

	Base Case Scenario	Medium Growth Scenario	Difference from Base Case	High Growth Scenario	Difference from Base Case
Population at 2011	742,300	742,300	742,300	742,300	742,300
Population at 2031	950,370	989,370	+39,000	1,030,550	+80,180
Additional Population 2011-2031	+208,070 persons	+247,070 persons	+39,010 persons	+288,250 Persons	+80,180 persons
	$million	**$million**	**$million**	**$million**	**$million**
Rail Infrastructure	$250	$300	$50	$350	$100
Bus infrastructure	$20	$25	$5	$30	$10
Residential land servicing	$545	$640	$95	$735	$190
Industrial land servicing	$150	$155	$5	$160	$10
Hospital infrastructure	$515	$615	$100	$715	$200
Hospital emergency departments	$270	$320	$50	$370	$100
Kindergarten infrastructure	$20	$25	$5	$30	$10
Aged care facilities infrastructure	$1,055	$1,115	$60	$1,230	$175
School infrastructure	$85	$110	$25	$140	$55
TAFE infrastructure	$180	$220	$40	$250	$70
University infrastructure	$60	$80	$20	$100	$40
Library infrastructure	$10	$15	$5	$20	$10
Arts and cultural infrastructure	$50	$60	$10	$70	$20
Recreational infrastructure	$35	$40	$5	$45	$10
Waste management infrastructure	$150	$170	$20	$190	$40
Total infrastructure and resource costs (rounded)	**$3,395**	**$3,890**	**+$495**	**$4,435**	**+$1,040**

Source*:* Table 5.22
Note: Figures rounded

6.2 Social and Economic Costs of Congestion in Capital Cities

Significant social and economic costs are associated with ever-increasing congestion levels in Australia's capital cities as their populations expand rapidly. The principal causes are:

- Inadequate public transport provision, especially in outlying growth areas
- High car dependency
- Lack of sufficient local jobs (poor job self-sufficiency)
- Lack of local health, education and community services
- Lack of local recreation, cultural and leisure services

These factors lead to a situation of ever-increasing commuting by growth area residents to access employment and increased numbers of trips to meet other personal and household needs. This expanded number of journeys places increasing pressure on already-stretched road infrastructure and other resources.

According to research undertaken by the Department of Transport and Regional Service - Bureau of Transport and Regional Economics (BTRE, *Estimating urban traffic congestion costs trends for Australian Cities, Working Paper No.712,* 2007*),* the avoidable social and economic costs of congestion in Australia were estimated at $9.4 billion in 2005, a figure which is forecast to increase to $20.4 billion in 2020 (as measured in constant 2005 prices). Over this period, the avoidable social and economic costs of

congestion for Metropolitan Melbourne are expected to increase from $3.0 billion in 2005 to $8.1 billion in 2026 (in constant 2005 dollars).

These estimates are calculated with respect to detailed modelling of the following variables:

- Private time costs
- Business time costs
- Additional vehicle operating costs
- Additional air pollution costs

The social and cost of congestion measures the cost difference between the estimated congestion outcome compared with the economic optimum outcome (ie free-flowing traffic situation).

Using the BTRE data to 2020, and adjusting for the period to 2021-2026 (by applying the average growth rate for congestion over the 2005 to 2020 period), Table 6.2 shows that metropolitan Melbourne congestion costs are estimated to approximately $4.2 billion in 2011, with cumulative congestion costs amounting to $95 billion over the coming 15 years (ie, an average of $6.3 billion per year between 2011-2026).

Table 6.2: Estimate of Avoidable Social Costs of Congestion, Interface Councils, 2011-2016

Year	Melbourne Statistical District Estimated Social and Economic Cost of Congestion
2011	$4,253,000,000
2012	$4,447,000,000
2013	$4,637,000,000
2014	$4,832,000,000
2015	$5,032,000,000
2016	$5,227,000,000
2017	$5,442,000,000
2018	$5,653,000,000
2019	$5,880,000,000
2020	$6,123,000,000
2021	$6,417,000,000
2022	$6,725,000,000
2023	$7,048,000,000
2024	$7,386,000,000
2025	$7,741,000,000
2026	$8,112,000,000
Total	**$94,955,000,000**

Source: Bureau of Transport and Regional Economics, *Estimating urban traffic and congestion cost trends for Australian cities,* 2007; Essential Economics
Note: Figures rounded. Constant 2005 prices.

As this present assessment shows, the Regional Cities – as established well-functioning economies – have the capacity to accommodate significantly higher population levels in a sustainable manner and, in so doing, assist in achieving a more balanced settlement pattern across the State. This outcome will assist in reducing economic and social congestion costs associated with ongoing expansion of Melbourne's outer metropolitan areas.

For regional Victoria (and the Regional Cities) to secure a higher share of future State population growth (as expressed through the medium and high-growth scenarios), targeted State investment will need to be made in key infrastructure areas in order to unlock both capacity of regional areas (such as the timely servicing residential and employment land) and to improve the liability in regional communities (such as providing quality hospitals, universities, arts and recreational facilities, transport linkages etc).

The provision of critical infrastructure will ensure regional locations increasingly become a viable choice for skilled migrants (domestic and international), students, and families seeking a lifestyle change, and for investors seeking a productive business environment in which to operate.

The benefits to the State of larger regional populations (compared with present trends) are explored in the following section.

6.3 Net State Benefit of Higher Regional Populations

A number of Net State Benefits are associated with supporting higher regional population levels, including the following:

1. Achieve efficient use of taxpayer funds associated with the provision of infrastructure and resources to support population growth, noting that an additional $1.1 billion investment (over 20 years) in key 'hard' infrastructure would likely facilitate an increase of +80,000 persons in the Regional Cities.

   The cumulative congestion costs associated with Metropolitan Melbourne over this period are estimated to be at least $95 billion, with a large proportion of these costs likely to be associated with expanding populations in the Growth Areas, due to relatively poor local provision of jobs, transport, community and recreational services.

2. Stimulate strong outcomes in terms of employment and economic output, noting that an additional 80,000 persons would contribute approximately $2.8 billion per year in terms of State GVA (based on applying current GVA per capita in the Regional Cities of $35,160)

3. Contribute to a more balanced State settlement pattern which will assist in reducing stress on metropolitan Melbourne in terms of congestion costs.

4. Generate better economic and social outcomes for regional communities are likely to be achieved, such as:

   - Enhanced investment opportunities for business
   - Improved skills base
   - Industry diversification
   - Improved service provision
   - Enhanced lifestyle
   - Support for small towns, recognising associated benefits through strong social and economic linkages with vibrant and well-functioning major Regional Centres
   - Improved social outcomes (better health, education etc)

5. Support to State Government policy in relation to regional Victoria as envisioned in the development of Regional Strategic Plans, Provincial Victoria Campaign, financial provision through the Regional Growth Fund, and so on.

6.4 Conclusions

The main findings of this cost benefit assessment are as follows:

- The cost of providing key critical infrastructure to support higher regional populations is estimated to be between $3.4 billion (Base Case Scenario) and $4.4 billion (High Growth Scenario) over the coming 20 years (in constant 2012 prices).

- The marginal cost of providing this infrastructure to accommodate population levels above the Base Case Scenario over this period is approximately $500 million (Medium Growth Scenario – which involves an additional +39,000 persons), and approximately $1.1 billion (High Growth Scenario – which involves an additional +80,000 persons).

- Higher regional population levels can positively contribute to a more efficient population settlement pattern in Victoria, recognising the considerable congestion costs identified in Metropolitan Melbourne (estimated to be $4.4 billion in 2012), with poorly serviced expanding outer suburbs (growth areas) being responsible for a large portion of these costs.

- A range of improved economic and social outcomes for regional communities are likely to be achieved through increased population levels through increased investment, jobs, economic output, liveability, health, education and so on, while sustainable population expansion in regional areas is consistent with many State Government policies.

7 KEY FINDINGS

Background

1. Population growth rates in regional Victoria and the Regional Cities have been increasing over recent years to a point and the gap in growth rates with metropolitan Melbourne is now closing.

2. Annual growth rates in the Regional Cities have increased from 0.8% for the period 1991-2006 (compared to 1.1% pa for metropolitan Melbourne), to 1.6% for the period 2006-2011 (compared to 1.9% for metropolitan Melbourne).

3. In 2011, the population of the Regional Cities was estimated at 742,300 persons, representing an increase of 130,100 persons from 1991, with population expansion over the most recent 5-year period contributing over 40% (or 56,200 persons) of this growth.

4. State Government population projections (as detailed in Victoria in Future 2012), show that Regional Victoria is expected to accommodate 25% (or +430,850 persons) of Victoria's population growth between 2011 and 2031, with the Regional Cities securing approximately half this growth (+208,070 persons), and increasing their population levels from 742,300 persons to 950,370 persons.

5. Recognising the potential of regional areas to accommodate much higher population levels in the future, three population growth scenarios have been prepared to examine infrastructure and service requirements and associated costs. The scenarios are:

    - Base Case Scenario – based on State Government population projections included in VIF 2012 (which shows regional Victoria securing 25% of State population growth over the period 2011-2031) – Regional Cities population expands by +208,070 persons between 2001 and 2031.
    - Medium Growth Scenario – based on regional Victoria securing approximately 30% of Victoria's population growth over the period 2011-2031, with the Regional Cities population expanding by +247,070 persons over the period.
    - High Growth Scenario – based on regional Victoria accommodating approximately 35% of Victoria's population growth over the period 2011-2031, with the Regional Cities population expanding by +288,250 persons over the period.

Capacity

6. The Regional Cities have the capacity to accommodate significantly higher population levels over and above Base Case / VIF 2012 projections. The analysis shows:

    - Residential capacity of 178,860 lots (zoned and unzoned), which could accommodate +425,000 persons (with the High Growth Scenario increasing population levels by approximately +290,000)
    - Industrial capacity of 4,700 ha (zoned and unzoned), which could accommodate 190,000 jobs (with the High Growth Scenario requiring approximately +145,000 new jobs to be generated).
    - Additional employment generating capacity on non-industrial land, such as in town centres, schools, hospitals etc.

7. The Regional Cities have performed well in terms of job creation and economic output over the most recent period of strong population expansion (2006-2011). The analysis shows:

    - One job has been created for every new labour force participant (+37,300 additional jobs)

- Economic output has continued to increase from $25.3 billion in 2006, to $26.7 billion in 2011 despite the negative impacts of the GFC occurring during this period.

Progress in Provision Between 2008 and 2012

8. Over the period 2008 top 2012, growth in infrastructure and services provision has occurred across all categories, with growth strongest in the areas of childcare places (+36%), rail services (+ 26%), aged care beds (+22%) and kindergarten places (+20%). Lower growth has occurred in the provision of primary and secondary school places (+2% and +5% respectively, but noting that school provision is demand-driven), and in the provision of arts and cultural facilities (+3%) and library floorspace (+1%).

9. Importantly, the expansion of population levels in Regional Cities has been occurring in a sustainable manner. For example, between 2008 and 2012 (a time period of high population growth) declines were recorded in total household consumption of water (-5.5%), electricity (-6.5%) and gas (-1.9%); while household waste generation (+4.3%) increased at a much lower rate than dwelling expansion (+9.1%).

Future Requirements

10. Significant additional infrastructure and resources are required to support population expansion in the Regional Cities over the coming 20 years. These requirements are summarised in the following table.

		Existing Situation	2021			2031		
	Indicator		**Base Case Scenario (VIF)**	**Medium Growth Scenario**	**High Growth Scenario**	**Base Case Scenario (VIF)**	**Medium Growth Scenario**	**High Growth Scenario**
1	Household water (billion litres)	48.1 billion litres pa	+6.5	+7.8	+9.0	+12.9	+15.3	+17.8
2	Bus routes	174 routes	+21	+25	+30	+42	+50	+59
3	Rail/coach services	1,500 services	+210	+250	+290	+420	+500	+580
4	Household electricity (billion KWh)	1.73 billion KWh pa	+0.31	+0.36	+0.41	+0.62	+0.71	+0.82
5	Household gas (million GJ)	16.67 million GJ pa	+3.02	+3.47	+3.95	+5.95	+6.88	+7.86
6	Broadband Coverage (% of demand met)	93% met demand	96%	96%	96%	100%	100%	100%
7	Dwellings	309,710 dwellings	+42,370	+50,520	+59,130	+96,680	+113,370	+130,990
8	Residential land (ha)	n/a	+4,420	+5050	+5,910	+9,670	+11,340	+13,100
9	Industrial land (ha)	9,560 ha	+590	+610	+620	+1,330	+1,390	+1,440
10	Hospital beds	4,280 beds	+610	+720	+840	+1,120	+1,440	+1,680
11	Hospital Emergency Department Presentations	356,240 presentations pa	+48,490	+57,580	+67,170	+95,290	+113,150	+132,000
12	General practitioners	940 GPs	+140	+160	+190	+270	+320	+380
13	Primary school places	64,460 places	+4,240	+5,830	+7,500	+10,840	+13,930	+17,190
14	Secondary school places	57,810 places	+3,980	+5,410	+6,930	+9,940	+12,730	+15,680
15	University places	32,720 places	+5,140	+6,070	+7,060	+10,150	+12,020	+14,000
16	TAFE places	95,570 places	+13,640	+16,190	+18,890	+27,030	+32,100	+37,450
17	Library floorspace (m2)	20,830m2	+2,860	+3,390	+3,960	+5,700	+6,700	+7,890
18	Kindergarten places	11,360 places	+895	+1,125	+1,365	+1,115	+1,515	+1,945
19	Childcare places	11,350 places	+1,140	+1,430	+1,730	+1,490	+2,010	+2,560
20	Aged care beds	7,990 beds	+3,440	+3,700	+3,970	+7,900	+8,530	+9,200
21	Arts and cultural facilities	61 facilities	+7	+9	+10	+14	+17	+20
22	Recreational facilities (indoor)	65 facilities	+8	+9	+11	+15	+18	+21
23	Waste Management (tonnes pa)	219,000 tonnes pa	+39,000	+45,000	+51,000	+77,000	+89,000	+102,000

Cost of providing critical infrastructure

11. Considerable additional costs will be associated with future infrastructure and resource requirements in the Regional Cities under each of the three scenarios. Funding will be a joint responsibility between all spheres of Government, the private sector, utility providers, ratepayers and consumers.

12. Key infrastructure costs for which government (especially State Government) has a responsibility focus principally on enabling infrastructure. These funding responsibilities include public transport, hospital infrastructure, residential and industrial land planning and servicing, kindergarten infrastructure, school and higher education facilities, aged care facilities, waste management infrastructure, and arts and recreational facilities.

13. The estimated cost of providing these selected key infrastructure items under each scenario is as follows:

    - Base Case Scenario +$3.4 billion
    - Medium Growth Scenario +$3.9 billion
    - High Growth Scenario +$4.4 billion

14. The additional costs of providing key infrastructure to support population levels higher than the Base Case Scenario have also been calculated to 2031 as follows:

- An additional $495 million (or $500 million rounded) would be required to accommodate +39,000 persons under the Medium Growth Scenario, and
- An additional $1,040 million (or $1.0 billion rounded) would be required to accommodate +80,000 persons under the High Growth Scenario.

A summary of future additional infrastructure costs to meet these requirements is provided in the following Table:

	Base Case Scenario	**Medium Growth Scenario**	**Difference from Base Case**	**High Growth Scenario**	**Difference from Base Case**
Additional Population 2011-2031	+208,070 persons	+247,070 persons	+39,000 persons	+288,250 Persons	+80,180 persons
	$million	**$million**	**$million**	**$million**	**$million**
Rail Infrastructure	$250	$300	$50	$350	$100
Bus infrastructure	$20	$25	$5	$30	$10
Residential land servicing	$545	$640	$95	$735	$190
Industrial land servicing	$150	$155	$5	$160	$10
Hospital infrastructure	$515	$615	$100	$715	$200
Hospital emergency departments	$270	$320	$50	$370	$100
Kindergarten infrastructure	$20	$25	$5	$30	$10
Aged care facilities infrastructure	$1,055	$1,115	$60	$1,230	$175
School infrastructure	$85	$110	$25	$140	$55
TAFE infrastructure	$180	$220	$40	$250	$70
University infrastructure	$60	$80	$20	$100	$40
Library infrastructure	$10	$15	$5	$20	$10
Arts and cultural infrastructure	$50	$60	$10	$70	$20
Recreational infrastructure	$35	$40	$5	$45	$10
Waste management infrastructure	$150	$170	$20	$190	$40
Total infrastructure and resource costs (rounded)	**$3,395**	**$3,890**	**+$495**	**$4,435**	**+$1,040**

Source: Table 5.22
Note: Figures rounded

Cost Benefit Assessment

15. Higher regional population levels can positively contribute to a more efficient population settlement pattern in Victoria, recognising the considerable congestion costs identified in Metropolitan Melbourne (estimated to be $4.4 billion in 2012), with poorly serviced expanding outer suburbs (growth areas) being responsible for a large portion of these costs.

16. A range of improved economic and social outcomes for regional communities are likely to be achieved through increased population levels in established and well-function economic centres. These including increased investment, jobs, and economic output; improved liveability, and enhanced social benefits such as improved health, education and so on.

17. Ensuring sustainable population expansion in regional areas is consistent with many State Government policies, and reflects long-term planning, marketing and budgetary initiatives implemented by current and past governments.

APPENDIX 1: REFERENCES

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APPENDIX 2: REGIONAL CITIES DATA

BALLARAT

Population projections for Ballarat (derived from VIF 2012) show that the municipality's population is forecast to increase from its current level of approximately 97,810 persons to between 128,850 persons (Base Case Scenario) and 140,810 persons (High Growth Scenario) by 2031. This represents growth between 31,040 (Base Case Scenario) and 43,000 (High Growth Scenario) additional residents over the 20-year period. Indicative total infrastructure and resource requirements under each growth scenario for 2021 and 2031 are shown in Table A.1.

Table A.1: Estimated Total Infrastructure and Resource Requirements (Indicative Only), Ballarat, 2021 and 2031

Indicator	Description and Measure	2008	Existing	2021			2031		
				Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario	Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario
Population		**88,440**	**97,810**	**113,470**	**116,410**	**119,510**	**128,850**	**134,670**	**140,810**
1. Water									
Household usage	Estimated annual water consumption levels (billion litres)	4.6	4.8	5.6	5.8	5.9	6.4	6.7	7.0
2. Public Transport									
Bus services	Estimated number of daily bus routes operating within the municipality	19	19	22	23	23	25	26	27
Rail services	Estimated number of regular weekly train/coach passenger services to and from Metropolitan Melbourne	240	281	326	334	343	370	387	405
3. Energy									
Household electricity consumption	Estimated annual household electricity consumption (billion KWh)	0.23	0.23	0.27	0.28	0.29	0.32	0.33	0.34
Household gas consumption	Estimated annual household gas consumption (GJ)	2.17	2.18	2.62	2.68	2.76	3.04	3.17	3.32
4. Communications									
Broadband access*	Estimated broadband coverage across municipality	90.0%	96.9%	98.5%	98.5%	98.5%	100.0%	100.0%	100.0%
5. Land supply									
Total dwellings	Estimated number of private dwellings	36,140	40,350	46,810	48,020	49,300	54,560	57,020	59,620
Residential land supply	Estimated amount of residential land available (vacant) for development			31,790 additional zoned and unzoned lots available					
Industrial land supply	Estimated amount of industrial land available (vacant) for development			850ha of additional zoned and unzoned land available					

Indicator	Description and Measure	2008	Existing	2021			2031		
				Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario	Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario
6. Health									
Hospital beds	Estimated number of private and public beds located in municipality	900	1,000	1,160	1,190	1,230	1,320	1,380	1,440
Hospital emergency department presentations	Estimated number of emergency patients attended to each year (admitted and non-admitted)	43,190	68,680	79,680	81,740	83,920	90,470	94,560	98,870
No of GPs	Estimated number of GPs required in municipality	90	83	96	99	101	109	114	119
7. Education									
Primary schools places	Estimated number of public and private primary school places required in municipality	5,650	7,510	7,900	8,100	8,320	8,770	9,160	9,580
Secondary schools places	Estimated number of public and private secondary school places required in municipality	4,670	6,510	6,840	7,020	7,200	7,590	7,940	8,300
University Places	Estimated number of university places required in municipality	11,030	12,560	14,570	14,950	15,340	16,540	17,290	18,080
TAFE Places	Estimated number of TAFE places required in municipality	4,920	5,600	6,500	6,660	6,840	7,380	7,710	8,060
8. Social Infrastructure									
Library floorspace	Estimated amount of public access library floorspace (m^2) required in municipality	2,530	1,820	2,110	2,160	2,220	2,390	2,500	2,620
Kindergarten places	Estimated number of kindergarten places required in municipality	1,030	1,490	1,690	1,730	1,780	1,680	1,750	1,830
Childcare places	Estimated number of childcare places required in municipality	1,100	1,300	1,470	1,510	1,550	1,470	1,530	1,600
Aged care	Estimated number of aged care beds required in municipality	590	890	1,340	1,370	1,410	1,910	2,000	2,090
9. Recreation									
Arts and cultural facilities	Estimated number of major arts centres, museums, galleries required in the municipality	9	4	5	5	5	5	6	6
Sports facilities	Estimated number of major council operated indoor and outdoor sports centres/stadiums required in the municipality	n/a	3	3	4	4	4	4	4
10. Waste Management									
Municipal waste	Estimated amount of Kerbside municipal waste collected in the municipality (tonnes pa)	24.0	25.7	30.9	31.7	32.5	35.9	37.5	39.2

Source: Figures rounded

Note: *2008 estimates relate to broadband coverage of at least 256Kbps (ie first wave broadband). Existing estimates and forecasts relate to speeds of 8Mpbs and above (ie second and third wave broadband)

GREATER BENDIGO

Population projections for Bendigo (derived from VIF 2012) show that the municipality's population is forecast to increase from its current level of approximately 105,560 persons to between 139,840 persons (Base Case Scenario) and 153,050 persons (High Growth Scenario) by 2031. This represents growth between 34,280 (Base Case Scenario) and 47,490 (High Growth Scenario) additional residents over the 20-year period. Indicative total infrastructure and resource requirements under each growth scenario for 2021 and 2031 are shown in Table A.2.

Table A.2: Estimated Total Infrastructure and Resource Requirements (Indicative Only), Bendigo, 2021 and 2031

Indicator	Description and Measure	2008	Existing	2021			2031		
				Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario	Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario
Population		**96,740**	**105,560**	**122,600**	**125,800**	**129,170**	**139,840**	**146,260**	**153,050**
1. Water									
Household usage	Estimated annual water consumption levels (billion litres)	6.2	6.1	7.1	7.3	7.5	8.1	8.5	8.9
2. Public Transport									
Bus services	Estimated number of daily bus routes operating within the municipality	15	15	17	18	18	20	21	22
Rail services	Estimated number of regular weekly train/coach passenger services to and from Metropolitan Melbourne	240	253	294	301	310	335	351	367
3. Energy									
Household electricity consumption	Estimated annual household electricity consumption (billion KWh)	0.26	0.25	0.29	0.30	0.31	0.34	0.36	0.38
Household gas consumption	Estimated annual household gas consumption (GJ)	2.37	2.38	2.84	2.91	2.99	3.30	3.45	3.61
4. Communications									
Broadband access*	Estimated broadband coverage across municipality	65.0%	92.2%	96.1%	96.1%	96.1%	100.0%	100.0%	100.0%
5. Land supply									
Total dwellings	Estimated number of private dwellings	39,560	43,540	50,750	52,070	53,470	59,310	62,030	64,910
Residential land supply	Estimated amount of residential land available (vacant) for development			18,500 additional zoned and unzoned lots available					
Industrial land supply	Estimated amount of industrial land available (vacant) for development			700ha of additional zoned and unzoned land available					

Indicator	Description and Measure	2008	Existing	2021			2031		
				Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario	Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario
6. Health									
Hospital beds	Estimated number of private and public beds located in municipality	790	800	930	950	980	1,060	1,110	1,160
Hospital emergency department presentations	Estimated number of emergency patients attended to each year (admitted and non-admitted)	44,000	42,000	48,780	50,050	51,390	55,640	58,190	60,890
No of GPs	Estimated number of GPs required in municipality	102	135	157	161	165	179	187	196
7. Education									
Primary schools places	Estimated number of public and private primary school places required in municipality	6,210	8,600	9,370	9,620	9,870	10,570	11,050	11,570
Secondary schools places	Estimated number of public and private secondary school places required in municipality	5,440	6,240	6,800	6,980	7,160	7,670	8,020	8,390
University Places	Estimated number of university places required in municipality	3,780	5,000	5,810	5,960	6,120	6,620	6,930	7,250
TAFE Places	Estimated number of TAFE places required in municipality	14,200	10,000	11,610	11,920	12,240	13,250	13,860	14,500
8. Social Infrastructure									
Library floorspace	Estimated amount of public access library floorspace (m^2) required in municipality	2,890	2,890	3,360	3,450	3,540	3,830	4,010	4,190
Kindergarten places	Estimated number of kindergarten places required in municipality	1,000	1,160	1,340	1,370	1,410	1,320	1,380	1,450
Childcare places	Estimated number of childcare places required in municipality	1,150	1,220	1,410	1,440	1,480	1,390	1,460	1,530
Aged care	Estimated number of aged care beds required in municipality	820	1,040	1,480	1,520	1,560	2,120	2,220	2,320
9. Recreation									
Arts and cultural facilities	Estimated number of major arts centres, museums, galleries required in the municipality	1	5	6	6	6	7	7	7
Sports facilities	Estimated number of major council operated indoor and outdoor sports centres/stadiums required in the municipality	n/a	9	10	11	11	12	12	13
10. Waste Management									
Municipal waste	Estimated amount of Kerbside municipal waste collected in the municipality (tonnes pa)	34.0	36.2	43.2	44.4	45.6	50.3	52.6	55.1

Source: Figures rounded

Note: *2008 estimates relate to broadband coverage of at least 256Kbps (ie first wave broadband). Existing estimates and forecasts relate to speeds of 8Mpbs and above (ie second and third wave broadband)

GREATER GEELONG

Population projections for Geelong (derived from VIF 2012) show that the municipality's population is forecast to increase from its current level of approximately 223,050 persons to between 302,360 persons (Base Case Scenario) and 332,930 persons (High Growth Scenario) by 2031. This represents growth between 79,310 (Base Case Scenario) and 109,880 (High Growth Scenario) additional residents over the 20-year period. Indicative total infrastructure and resource requirements under each growth scenario for 2021 and 2031 are shown in Table A.3.

Table A.3: Estimated Total Infrastructure and Resource Requirements (Indicative Only), Geelong, 2021 and 2031

Indicator	Description and Measure	2008	Existing	2021			2031		
				Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario	Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario
Population		**205,930**	**223,050**	**261,310**	**268,480**	**276,050**	**302,360**	**317,230**	**332,930**
1. Water									
Household usage	Estimated annual water consumption levels (billion litres)	13.2	12.8	15.0	15.5	15.9	17.4	18.3	19.2
2. Public Transport									
Bus services	Estimated number of daily bus routes operating within the municipality	35	31	34	35	36	39	41	43
Rail services	Estimated number of regular weekly train/coach passenger services to and from Metropolitan Melbourne	350	380	445	457	470	515	540	567
3. Energy									
Household electricity consumption	Estimated annual household electricity consumption (billion KWh)	0.57	0.53	0.64	0.66	0.68	0.76	0.80	0.84
Household gas consumption	Estimated annual household gas consumption (GJ)	5.28	5.06	6.16	6.33	6.51	7.31	7.66	8.04
4. Communications									
Broadband access*	Estimated broadband coverage across municipality	85%	97%	98.5%	98.5%	98.5%	100.0%	100.0%	100.0%
5. Land supply									
Total dwellings	Estimated number of private dwellings	87,980	95,600	110,300	113,320	116,520	131,350	137,800	144,620
Residential land supply	Estimated amount of residential land available (vacant) for development			47,000 additional zoned and unzoned lots available					
Industrial land supply	Estimated amount of industrial land available (vacant) for development			920ha of additional zoned and unzoned land available					

Indicator	Description and Measure	2008	Existing	2021			2031		
				Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario	Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario
6. Health									
Hospital beds	Estimated number of private and public beds located in municipality	640	950	1,110	1,140	1,170	1,290	1,350	1,420
Hospital emergency department presentations	Estimated number of emergency patients attended to each year (admitted and non-admitted)	43,990	56,310	65,970	67,780	69,690	76,340	80,090	84,050
No of GPs	Estimated number of GPs required in municipality	250	370	430	440	450	500	520	550
7. Education									
Primary schools places	Estimated number of public and private primary school places required in municipality	18,350	18,900	21,410	22,000	22,620	24,770	25,980	27,270
Secondary schools places	Estimated number of public and private secondary school places required in municipality	19,260	18,880	21,380	21,970	22,590	24,740	25,950	27,240
University Places	Estimated number of university places required in municipality	5,350	7,720	9,040	9,290	9,550	10,460	10,970	11,520
TAFE Places	Estimated number of TAFE places required in municipality	27,650	27,650	32,390	33,280	34,220	37,480	39,330	41,270
8. Social Infrastructure									
Library floorspace	Estimated amount of public access library floorspace (m^2) required in municipality	5,700	6,700	7,850	8,070	8,300	9,090	9,530	10,010
Kindergarten places	Estimated number of kindergarten places required in municipality	3,670	4,390	5,130	5,270	5,420	5,490	5,760	6,040
Childcare places	Estimated number of childcare places required in municipality	1,430	3,190	3,730	3,830	3,940	3,980	4,180	4,390
Aged care	Estimated number of aged care beds required in municipality	2,330	2,410	3,350	3,440	3,540	4,550	4,780	5,010
9. Recreation									
Arts and cultural facilities	Estimated number of major arts centres, museums, galleries required in the municipality	16	6	7	7	7	8	9	9
Sports facilities	Estimated number of major council operated indoor and outdoor sports centres/stadiums required in the municipality	n/a	11	13	13	14	15	16	16
10. Waste Management									
Municipal waste	Estimated amount of Kerbside municipal waste collected in the municipality (tonnes pa)	62.0	65.1	79.3	81.5	83.8	94.1	98.7	103.6

Source: Figures rounded

Note: *2008 estimates relate to broadband coverage of at least 256Kbps (ie first wave broadband). Existing estimates and forecasts relate to speeds of 8Mpbs and above (ie second and third wave broadband)

GREATER SHEPPARTON

Population projections for Shepparton (derived from VIF 2012) show that the municipality's population is forecast to increase from its current level of approximately 63,850 persons to between 77,800 persons (Base Case Scenario) and 83,170 persons (High Growth Scenario) by 2031. This represents growth between 13,950 (Base Case Scenario) and 19,320 (High Growth Scenario) additional residents over the 20-year period. Indicative total infrastructure and resource requirements under each growth scenario for 2021 and 2031 are shown in Table A.4.

Table A.4: Estimated Total Infrastructure and Resource Requirements (Indicative Only), Shepparton, 2021 and 2031

Indicator	Description and Measure	2008	Existing	2021			2031		
				Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario	Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario
Population		**59,200**	**63,850**	**71,290**	**72,680**	**74,150**	**77,800**	**80,410**	**83,170**
1. Water									
Household usage	Estimated annual water consumption levels (billion litres)	6.6	4.9	5.5	5.6	5.7	6.0	6.2	6.4
2. Public Transport									
Bus services	Estimated number of daily bus routes operating within the municipality	8	9	10	10	10	11	11	12
Rail services	Estimated number of regular weekly train/coach passenger services to and from Metropolitan Melbourne	60	50	56	57	58	61	63	65
3. Energy									
Household electricity consumption	Estimated annual household electricity consumption (billion KWh)	0.15	0.15	0.17	0.17	0.17	0.19	0.19	0.20
Household gas consumption	Estimated annual household gas consumption (GJ)	1.38	1.40	1.62	1.65	1.68	1.81	1.87	1.94
4. Communications									
Broadband access*	Estimated broadband coverage across municipality	60.0%	91.3%	95.7%	95.7%	95.7%	100.0%	100.0%	100.0%
5. Land supply									
Total dwellings	Estimated number of private dwellings	23,070	25,210	28,920	29,490	30,090	32,540	33,630	34,790
Residential land supply	Estimated amount of residential land available (vacant) for development			11,525 additional zoned and unzoned lots available					
Industrial land supply	Estimated amount of industrial land available (vacant) for development			595ha of additional zoned and unzoned land available					

Indicator	Description and Measure	2008	Existing	2021			2031		
				Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario	Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario
6. Health									
Hospital beds	Estimated number of private and public beds located in municipality	350	340	380	390	400	420	430	450
Hospital emergency department presentations	Estimated number of emergency patients attended to each year (admitted and non-admitted)	35,000	44,520	49,700	50,670	51,700	54,240	56,060	57,990
No of GPs	Estimated number of GPs required in municipality	65	44	1,451	49	50	51	54	55
7. Education									
Primary schools places	Estimated number of public and private primary school places required in municipality	5,500	6,530	6,930	7,070	7,210	7,310	7,550	7,810
Secondary schools places	Estimated number of public and private secondary school places required in municipality	5,520	5,310	5,640	5,750	5,870	5,940	6,140	6,360
University Places	Estimated number of university places required in municipality	300	600	670	680	700	730	760	780
TAFE Places	Estimated number of TAFE places required in municipality	8,500	9,870	11,020	11,240	11,470	12,030	12,430	12,860
8. Social Infrastructure									
Library floorspace	Estimated amount of public access library floorspace (m^2) required in municipality	1,690	1,690	1,890	1,920	1,960	2,060	2,130	2,200
Kindergarten places	Estimated number of kindergarten places required in municipality	880	910	920	940	960	980	1,010	1,050
Childcare places	Estimated number of childcare places required in municipality	830	1,300	1,320	1,340	1,370	1,400	1,450	1,500
Aged care	Estimated number of aged care beds required in municipality	500	780	1,150	1,170	1,200	1,560	1,610	1,670
9. Recreation									
Arts and cultural facilities	Estimated number of major arts centres, museums, galleries required in the municipality	10	12	13	14	14	15	15	16
Sports facilities	Estimated number of major council operated indoor and outdoor sports centres/stadiums required in the municipality	n/a	5	6	6	6	6	6	7
10. Waste Management									
Municipal waste	Estimated amount of Kerbside municipal waste collected in the municipality (tonnes pa)	19.0	18.6	21.6	22.0	22.5	24.2	25.0	25.8

Source: Figures rounded

Note: *2008 estimates relate to broadband coverage of at least 256Kbps (ie first wave broadband). Existing estimates and forecasts relate to speeds of 8Mpbs and above (ie second and third wave broadband)

HORSHAM

Population projections for Horsham (derived from VIF 2012) show that the municipality's population is forecast to increase from its current level of approximately 20,375 persons to between 22,570 persons (Base Case Scenario) and 23,420 persons (High Growth Scenario) by 2031. This represents growth between 2,190 (Base Case Scenario) and 3,040 (High Growth Scenario) additional residents over the 20-year period. Indicative total infrastructure and resource requirements under each growth scenario for 2021 and 2031 are shown in Table A.5.

Table A.5: Estimated Total Infrastructure and Resource Requirements (Indicative Only), Horsham, 2021 and 2031

Indicator	Description and Measure	2008	Existing	2021			2031		
				Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario	Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario
Population		**19,100**	**20,375**	**21,590**	**21,810**	**22,050**	**22,570**	**22,980**	**23,420**
1. Water									
Household usage	Estimated annual water consumption levels (billion litres)	1.6	1.4	1.4	1.4	1.5	1.5	1.5	1.6
2. Public Transport									
Bus services	Estimated number of daily bus routes operating within the municipality	8	12	13	13	13	13	14	14
Rail services	Estimated number of regular weekly train/coach passenger services to and from Metropolitan Melbourne	58	105	111	112	114	116	118	121
3. Energy									
Household electricity consumption	Estimated annual household electricity consumption (billion KWh)	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06
Household gas consumption	Estimated annual household gas consumption (GJ)	0.49	0.47	0.51	0.52	0.53	0.55	0.56	0.57
4. Communications									
Broadband access*	Estimated broadband coverage across municipality	65.0%	88.3%	94.1%	94.1%	94.1%	100.0%	100.0%	100.0%
5. Land supply									
Total dwellings	Estimated number of private dwellings	8,240	8,860	9,240	9,340	9,440	9,950	10,140	10,330
Residential land supply	Estimated amount of residential land available (vacant) for development			1,880 additional zoned and unzoned lots available					
Industrial land supply	Estimated amount of industrial land available (vacant) for development			330ha of additional zoned and unzoned land available					

Indicator	Description and Measure	2008	Existing	2021			2031		
				Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario	Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario
6. Health									
Hospital beds	Estimated number of private and public beds located in municipality	70	80	90	90	90	90	90	100
Hospital emergency department presentations	Estimated number of emergency patients attended to each year (admitted and non-admitted)	14,970	15,910	16,860	17,030	17,220	17,630	17,950	18,290
No of GPs	Estimated number of GPs required in municipality	24	23	24	25	25	25	26	26
7. Education									
Primary schools places	Estimated number of public and private primary school places required in municipality	1,640	1,720	1,710	1,730	1,750	1,700	1,730	1,770
Secondary schools places	Estimated number of public and private secondary school places required in municipality	1,440	1,500	1,490	1,500	1,520	1,480	1,510	1,540
University Places	Estimated number of university places required in municipality	400	110	110	110	120	120	120	120
TAFE Places	Estimated number of TAFE places required in municipality	1,300	1,190	1,260	1,270	1,290	1,320	1,340	1,370
8. Social Infrastructure									
Library floorspace	Estimated amount of public access library floorspace (m^2) required in municipality	550	490	520	530	530	550	560	570
Kindergarten places	Estimated number of kindergarten places required in municipality	410	380	360	370	370	340	350	360
Childcare places	Estimated number of childcare places required in municipality	80	290	280	280	280	260	270	270
Aged care	Estimated number of aged care beds required in municipality	110	250	320	330	330	440	450	460
9. Recreation									
Arts and cultural facilities	Estimated number of major arts centres, museums, galleries required in the municipality	6	6	6	6	6	7	7	7
Sports facilities	Estimated number of major council operated indoor and outdoor sports centres/stadiums required in the municipality	n/a	3	3	3	3	3	3	3
10. Waste Management									
Municipal waste	Estimated amount of Kerbside municipal waste collected in the municipality (tonnes pa)	7.0	7.6	8.3	8.4	8.5	8.9	9.1	9.2

Source: Figures rounded

Note: *2008 estimates relate to broadband coverage of at least 256Kbps (ie first wave broadband). Existing estimates and forecasts relate to speeds of 8Mpbs and above (ie second and third wave broadband)

LATROBE

Population projections for Latrobe (derived from VIF 2012) show that the municipality's population is forecast to increase from its current level of approximately 76,640 persons to between 90,740 persons (Base Case Scenario) and 96,170 persons (High Growth Scenario) by 2031. This represents growth between 14,100 (Base Case Scenario) and 19,530 (High Growth Scenario) additional residents over the 20-year period. Indicative total infrastructure and resource requirements under each growth scenario for 2021 and 2031 are shown in Table A.6.

Table A.6: Estimated Total Infrastructure and Resource Requirements (Indicative Only), Latrobe, 2021 and 2031

Indicator	Description and Measure	2008	Existing	2021			2031		
				Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario	Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario
Population		**72,080**	**76,640**	**83,530**	**84,820**	**86,190**	**90,740**	**93,380**	**96,170**
1. Water									
Household usage	Estimated annual water consumption levels (billion litres)	4.5	5.0	5.4	5.5	5.6	5.9	6.0	6.2
2. Public Transport									
Bus services	Estimated number of daily bus routes operating within the municipality	21	45	49	50	51	53	55	56
Rail services	Estimated number of regular weekly train/coach passenger services to and from Metropolitan Melbourne	210	221	241	245	249	262	269	277
3. Energy									
Household electricity consumption	Estimated annual household electricity consumption (billion KWh)	0.20	0.18	0.20	0.20	0.21	0.22	0.23	0.24
Household gas consumption	Estimated annual household gas consumption (GJ)	1.81	1.72	1.93	1.96	2.00	2.15	2.21	2.28
4. Communications									
Broadband access*	Estimated broadband coverage across municipality	55.0%	93.7%	96.9%	96.9%	96.9%	100.0%	100.0%	100.0%
5. Land supply									
Total dwellings	Estimated number of private dwellings	30230	32,420	34,640	35,180	35,740	38,710	39,840	41,030
Residential land supply	Estimated amount of residential land available (vacant) for development			13,470 additional zoned and unzoned lots available					
Industrial land supply	Estimated amount of industrial land available (vacant) for development			280ha of additional zoned and unzoned land available					

Indicator	Description and Measure	2008	Existing	2021			2031		
				Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario	Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario
6. Health									
Hospital beds	Estimated number of private and public beds located in municipality	300	300	33,010	330	340	360	370	380
Hospital emergency department presentations	Estimated number of emergency patients attended to each year (admitted and non-admitted)	28,050	30,290	33,010	33,520	34,060	35,860	36,900	38,010
No of GPs	Estimated number of GPs required in municipality	83	104	113	115	117	123	127	131
7. Education									
Primary schools places	Estimated number of public and private primary school places required in municipality	6,880	7,240	6,860	6,970	7,080	7,380	7,590	7,820
Secondary schools places	Estimated number of public and private secondary school places required in municipality	5,040	5,680	5,380	5,460	5,550	5,780	5,950	6,130
University Places	Estimated number of university places required in municipality	5,500	4,028	4,390	4,460	4,530	4,770	4,910	5,050
TAFE Places	Estimated number of TAFE places required in municipality	12,000	12,000	13,080	13,280	13,490	14,210	14,620	15,060
8. Social Infrastructure									
Library floorspace	Estimated amount of public access library floorspace (m^2) required in municipality	2,250	2,250	2,450	2,490	2,530	2,660	2,740	2,820
Kindergarten places	Estimated number of kindergarten places required in municipality	810	810	890	910	920	870	900	920
Childcare places	Estimated number of childcare places required in municipality	1,040	1,450	1,610	1,630	1,660	1,560	1,610	1,660
Aged care	Estimated number of aged care beds required in municipality	690	1,180	1,750	1,770	1,800	2,510	2,580	2,660
9. Recreation									
Arts and cultural facilities	Estimated number of major arts centres, museums, galleries required in the municipality	5	11	12	12	12	13	13	14
Sports facilities	Estimated number of major council operated indoor and outdoor sports centres/stadiums required in the municipality	n/a	7	8	8	8	8	9	9
10. Waste Management									
Municipal waste	Estimated amount of Kerbside municipal waste collected in the municipality (tonnes pa)	20.0	20.2	22.7	23.1	23.4	25.2	26.0	26.7

Source: Figures rounded

Note: *2008 estimates relate to broadband coverage of at least 256Kbps (ie first wave broadband). Existing estimates and forecasts relate to speeds of 8Mpbs and above (ie second and third wave broadband)

MILDURA

Population projections for Mildura (derived from VIF 2012) show that the municipality's population is forecast to increase from its current level of approximately 54,670 persons to between 64,290 persons (Base Case Scenario) and 68,000 persons (High Growth Scenario) by 2031. This represents growth between 9,620(Base Case Scenario) and 13,330 (High Growth Scenario) additional residents over the 20-year period. Indicative total infrastructure and resource requirements under each growth scenario for 2021 and 2031 are shown in Table A.7.

Table A.7: Estimated Total Infrastructure and Resource Requirements (Indicative Only), Mildura, 2021 and 2031

Indicator	Description and Measure	2008	Existing	2021			2031		
				Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario	Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario
Population		**51,820**	**54,670**	**60,320**	**61,390**	**62,510**	**64,290**	**66,090**	**68,000**
1. Water									
Household usage	Estimated annual water consumption levels (billion litres)	6.6	6.8	7.5	7.7	7.8	8.0	8.2	8.5
2. Public Transport									
Bus services	Estimated number of daily bus routes operating within the municipality	13	11	12	12	13	13	13	14
Rail services	Estimated number of regular weekly train/coach passenger services to and from Metropolitan Melbourne	12	68	75	76	78	80	82	85
3. Energy									
Household electricity consumption	Estimated annual household electricity consumption (billion KWh)	0.14	0.13	0.14	0.15	0.15	0.16	0.16	0.17
Household gas consumption	Estimated annual household gas consumption (GJ)	1.27	1.22	1.38	1.41	1.43	1.51	1.55	1.60
4. Communications									
Broadband access*	Estimated broadband coverage across municipality	65.0%	90.9%	95.5%	95.5%	95.5%	100.0%	100.0%	100.0%
5. Land supply									
Total dwellings	Estimated number of private dwellings	21,140	22,690	24,710	25,150	25,600	27,120	27,880	28,680
Residential land supply	Estimated amount of residential land available (vacant) for development			8,610 additional zoned and unzoned lots available					
Industrial land supply	Estimated amount of industrial land available (vacant) for development			660ha of additional zoned and unzoned land available					

Indicator	Description and Measure	2008	Existing	2021			2031		
				Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario	Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario
6. Health									
Hospital beds	Estimated number of private and public beds located in municipality	200	200	220	220	230	240	240	250
Hospital emergency department presentations	Estimated number of emergency patients attended to each year (admitted and non-admitted)	33,660	17,860	19,710	20,060	20,420	21,000	21,590	22,220
No of GPs	Estimated number of GPs required in municipality	41	55	61	62	63	65	66	68
7. Education									
Primary schools places	Estimated number of public and private primary school places required in municipality	4,810	4,460	4,600	4,690	4,770	4,520	4,650	4,780
Secondary schools places	Estimated number of public and private secondary school places required in municipality	3,620	4,720	4,880	4,960	5,050	4,790	4,920	5,070
University Places	Estimated number of university places required in municipality	410	430	470	480	490	500	520	530
TAFE Places	Estimated number of TAFE places required in municipality	3,500	3,420	3,770	3,840	3,910	4,020	4,130	4,250
8. Social Infrastructure									
Library floorspace	Estimated amount of public access library floorspace (m^2) required in municipality	1,310	1,690	1,860	1,890	1,930	1,980	2,040	2,100
Kindergarten places	Estimated number of kindergarten places required in municipality	510	670	670	680	690	690	710	730
Childcare places	Estimated number of childcare places required in municipality	1,070	900	910	920	940	930	960	990
Aged care	Estimated number of aged care beds required in municipality	500	450	600	610	620	820	840	870
9. Recreation									
Arts and cultural facilities	Estimated number of major arts centres, museums, galleries required in the municipality	2	2	2	2	2	2	2	2
Sports facilities	Estimated number of major council operated indoor and outdoor sports centres/stadiums required in the municipality	n/a	19	2,877	21	21	22	22	23
10. Waste Management									
Municipal waste	Estimated amount of Kerbside municipal waste collected in the municipality (tonnes pa)	15.0	15.3	17.3	17.6	17.9	18.9	19.4	19.9

Source: Figures rounded

Note: *2008 estimates relate to broadband coverage of at least 256Kbps (ie first wave broadband). Existing estimates and forecasts relate to speeds of 8Mpbs and above (ie second and third wave broadband)

WANGARATTA

Population projections for Wangaratta (derived from VIF 2012) show that the municipality's population is forecast to increase from its current level of approximately 29,020 persons to between 31,560 persons (Base Case Scenario) and 32,530 persons (High Growth Scenario) by 2031. This represents growth between 2,540 (Base Case Scenario) and 3,510 (High Growth Scenario) additional residents over the 20-year period. Indicative total infrastructure and resource requirements under each growth scenario for 2021 and 2031 are shown in Table A.8.

Table A.8: Estimated Total Infrastructure and Resource Requirements (Indicative Only), Wangaratta, 2021 and 2031

Indicator	Description and Measure	2008	Existing	2021			2031		
				Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario	Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario
Population		**27,320**	**29,020**	**30,290**	**30,530**	**30,790**	**31,560**	**32,030**	**32,530**
1. Water									
Household usage	Estimated annual water consumption levels (billion litres)	3.1	2.0	2.0	2.1	2.1	2.1	2.2	2.2
2. Public Transport									
Bus services	Estimated number of daily bus routes operating within the municipality	6	11	11	12	12	12	12	12
Rail services	Estimated number of regular weekly train/coach passenger services to and from Metropolitan Melbourne	75	52	54	55	55	57	57	58
3. Energy									
Household electricity consumption	Estimated annual household electricity consumption (billion KWh)	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08
Household gas consumption	Estimated annual household gas consumption (GJ)	0.69	0.67	0.72	0.73	0.73	0.77	0.78	0.80
4. Communications									
Broadband access*	Estimated broadband coverage across municipality	54.0%	87.6%	93.8%	93.8%	93.8%	100.0%	100.0%	100.0%
5. Land supply									
Total dwellings	Estimated number of private dwellings	11,520	12,390	12,790	12,890	13,000	13,730	13,930	14,150
Residential land supply	Estimated amount of residential land available (vacant) for development			8,260 additional zoned and unzoned lots available					
Industrial land supply	Estimated amount of industrial land available (vacant) for development			150ha of additional zoned and unzoned land available					

Indicator	Description and Measure	2008	Existing	2021			2031		
				Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario	Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario
6. Health									
Hospital beds	Estimated number of private and public beds located in municipality	180	240	250	250	250	260	260	260
Hospital emergency department presentations	Estimated number of emergency patients attended to each year (admitted and non-admitted)	18,500	20,210	21,100	21,270	21,440	21,980	22,310	22,660
No of GPs	Estimated number of GPs required in municipality	22	31	32	33	33	34	34	35
7. Education									
Primary schools places	Estimated number of public and private primary school places required in municipality	2,530	2,610	2,500	2,520	2,540	2,520	2,550	2,590
Secondary schools places	Estimated number of public and private secondary school places required in municipality	2,490	2,340	2,230	2,250	2,270	2,250	2,280	2,320
University Places	Estimated number of university places required in municipality	0	0	160	160	160	170	170	170
TAFE Places	Estimated number of TAFE places required in municipality	1,910	2,800	2,920	2,950	2,970	3,050	3,090	3,140
8. Social Infrastructure									
Library floorspace	Estimated amount of public access library floorspace (m^2) required in municipality	1,900	1,500	1,560	1,570	1,590	1,630	1,650	1,680
Kindergarten places	Estimated number of kindergarten places required in municipality	330	400	390	1,570	1,590	1,630	1,650	1,680
Childcare places	Estimated number of childcare places required in municipality	360	390	380	400	400	370	380	380
Aged care	Estimated number of aged care beds required in municipality	330	330	430	390	390	360	360	370
9. Recreation									
Arts and cultural facilities	Estimated number of major arts centres, museums, galleries required in the municipality	4	5	5	430	433	558	566	575
Sports facilities	Estimated number of major council operated indoor and outdoor sports centres/stadiums required in the municipality	n/a	4	4	4	4	4	4	4
10. Waste Management									
Municipal waste	Estimated amount of Kerbside municipal waste collected in the municipality (tonnes pa)	9.0	9.4	10.2	10.3	10.4	10.9	11.1	11.2

Source: Figures rounded

Note: *2008 estimates relate to broadband coverage of at least 256Kbps (ie first wave broadband). Existing estimates and forecasts relate to speeds of 8Mpbs and above (ie second and third wave broadband)

WARRNAMBOOL

Population projections for Warrnambool (derived from VIF 2012) show that the municipality's population is forecast to increase from its current level of approximately 34,190 persons to between 43,930 persons(Base Case Scenario) and 47,690 persons (High Growth Scenario) by 2031. This represents growth between 9,740 (Base Case Scenario) and 13,500 (High Growth Scenario) additional residents over the 20-year period. Indicative total infrastructure and resource requirements under each growth scenario for 2021 and 2031 are shown in Table A.9.

Table A.9: Estimated Total Infrastructure and Resource Requirements (Indicative Only), Warrnambool, 2021 and 2031

Indicator	Description and Measure	2008	Existing	2021			2031		
				Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario	Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario
Population		**31,500**	**34,190**	**39,420**	**40,400**	**41,430**	**43,930**	**45,760**	**47,690**
1. Water									
Household usage	Estimated annual water consumption levels (billion litres)	1.9	1.8	2.1	2.2	2.2	2.4	2.5	2.6
2. Public Transport									
Bus services	Estimated number of daily bus routes operating within the municipality	10	10	12	12	12	13	13	14
Rail services	Estimated number of regular weekly train/coach passenger services to and from Metropolitan Melbourne	42	42	48	50	51	54	56	59
3. Energy									
Household electricity consumption	Estimated annual household electricity consumption (billion KWh)	0.08	0.08	0.09	0.10	0.10	0.11	0.11	0.12
Household gas consumption	Estimated annual household gas consumption (GJ)	0.76	0.77	0.91	0.93	0.96	1.04	1.09	1.13
4. Communications									
Broadband access*	Estimated broadband coverage across municipality	55.0%	93.0%	96.5%	96.5%	96.5%	100.0%	100.0%	100.0%
5. Land supply									
Total dwellings	Estimated number of private dwellings	12,710	13,930	16,350	16,750	17,180	18,770	19,550	20,370
Residential land supply	Estimated amount of serviced residential land available (vacant) for development			5,730 additional zoned and unzoned lots available					
Industrial land supply	Estimated amount of serviced industrial land available (vacant) for development			80ha of additional zoned and unzoned land available					

Indicator	Description and Measure	2008	Existing	2021			2031		
				Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario	Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario
6. Health									
Hospital beds	Estimated number of private and public beds located in municipality	230	230	260	270	270	290	300	310
Hospital emergency department presentations	Estimated number of emergency patients attended to each year (admitted and non-admitted)	24,140	25,590	29,500	30,240	31,010	32,880	34,250	35,690
No of GPs	Estimated number of GPs required in municipality	47	48	55	57	58	62	64	67
7. Education									
Primary schools places	Estimated number of public and private primary school places required in municipality	3,180	3,270	3,450	3,530	3,620	3,650	3,800	3,960
Secondary schools places	Estimated number of public and private secondary school places required in municipality	3,500	3,400	3,580	3,670	3,760	3,790	3,950	4,110
University Places	Estimated number of university places required in municipality	1,110	1,400	1,610	1,650	1,690	1,790	1,870	1,950
TAFE Places	Estimated number of TAFE places required in municipality	9,790	9,000	10,370	10,630	10,900	11,560	12,040	12,550
8. Social Infrastructure									
Library floorspace	Estimated amount of public access library floorspace (m^2) required in municipality	600	600	690	710	730	770	800	840
Kindergarten places	Estimated number of kindergarten places required in municipality	500	580	670	680	700	700	730	760
Childcare places	Estimated number of childcare places required in municipality	330	350	410	420	430	420	440	460
Aged care	Estimated number of aged care beds required in municipality	400	340	480	490	500	660	680	710
9. Recreation									
Arts and cultural facilities	Estimated number of major arts centres, museums, galleries required in the municipality	2	3	3	4	4	4	4	4
Sports facilities	Estimated number of major council operated indoor and outdoor sports centres/stadiums required in the municipality	n/a	2	2	2	2	3	3	3
10. Waste Management									
Municipal waste	Estimated amount of Kerbside municipal waste collected in the municipality (tonnes pa)	10.0	10.4	12.3	12.6	13.0	14.1	14.7	15.4

Source: Figures rounded

Note: *2008 estimates relate to broadband coverage of at least 256Kbps (ie first wave broadband). Existing estimates and forecasts relate to speeds of 8Mpbs and above (ie second and third wave broadband)

WODONGA

Population projections for Wodonga (derived from VIF 2012) show that the municipality's population is forecast to increase from its current level of approximately 37,130persons to between 48,440 persons (Base Case Scenario) and 52,790 persons (High Growth Scenario) by 2031. This represents growth between 11,310 (Base Case Scenario) and 15,660 (High Growth Scenario) additional residents over the 20-year period. Indicative total infrastructure and resource requirements under each growth scenario for 2021 and 2031 are shown in Table A.10.

Table A.10: Estimated Total Infrastructure and Resource Requirements (Indicative Only), Wodonga, 2021 and 2031

Indicator	Description and Measure	2008	Existing	2021			2031		
				Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario	Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario
Population		**34,500**	**37,130**	**43,040**	**44,140**	**45,310**	**48,440**	**50,550**	**52,790**
1. Water									
Household usage	Estimated annual water consumption levels (billion litres)	2.6	2.4	2.8	2.9	2.9	3.2	3.3	3.4
2. Public Transport									
Bus services	Estimated number of daily bus routes operating within the municipality	11	13	15	15	16	17	18	18
Rail services	Estimated number of regular weekly train/coach passenger services to and from Metropolitan Melbourne	94	52	60	62	63	68	71	74
3. Energy									
Household electricity consumption	Estimated annual household electricity consumption (billion KWh)	0.09	0.08	0.10	0.11	0.11	0.12	0.12	0.13
Household gas consumption	Estimated annual household gas consumption (GJ)	0.80	0.82	0.99	1.01	1.04	1.14	1.19	1.24
4. Communications									
Broadband access*	Estimated broadband coverage across municipality	75.0%	94.9%	97.4%	97.4%	97.4%	100.0%	100.0%	100.0%
5. Land supply									
Total dwellings	Estimated number of private dwellings	13,280	14,720	17,560	18,020	18,490	20,360	21,260	22,200
Residential land supply	Estimated amount of serviced residential land available (vacant) for development			31,090 additional zoned and unzoned lots available					
Industrial land supply	Estimated amount of serviced industrial land available (vacant) for development			500ha of additional zoned and unzoned land available					

Indicator	Description and Measure	2008	Existing	2021			2031		
				Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario	Base Case Growth Scenario	Medium Growth Scenario	High Growth Scenario
6. Health									
Hospital beds	Estimated number of private and public beds located in municipality	160	130	160	160	160	170	180	190
Hospital emergency department presentations	Estimated number of emergency patients attended to each year (admitted and non-admitted)	34,870	34,870	40,420	41,460	42,560	45,490	47,480	49,580
No of GPs	Estimated number of GPs required in municipality	109	50	58	59	61	65	68	71
7. Education									
Primary schools places	Estimated number of public and private primary school places required in municipality	3,260	3,610	3,970	4,070	4,180	4,130	4,310	4,500
Secondary schools places	Estimated number of public and private secondary school places required in municipality	2,440	3,240	3,570	3,660	3,760	3,710	3,870	4,040
University Places	Estimated number of university places required in municipality	730	890	1,030	1,060	1,090	1,160	1,210	1,270
TAFE Places	Estimated number of TAFE places required in municipality	1,890	14,040	16,270	16,690	17,130	18,310	19,110	19,960
8. Social Infrastructure									
Library floorspace	Estimated amount of public access library floorspace (m^2) required in municipality	1,130	1,200	1,390	1,430	1,460	1,570	1,630	1,710
Kindergarten places	Estimated number of kindergarten places required in municipality	370	580	600	610	630	640	660	690
Childcare places	Estimated number of childcare places required in municipality	930	960	990	1,020	1,040	1,050	1,100	1,150
Aged care	Estimated number of aged care beds required in municipality	300	330	540	550	560	770	800	840
9. Recreation									
Arts and cultural facilities	Estimated number of major arts centres, museums, galleries required in the municipality	4	7	8	8	9	9	10	10
Sports facilities	Estimated number of major council operated indoor and outdoor sports centres/stadiums required in the municipality	n/a	2	2	2	2	3	3	3
10. Waste Management									
Municipal waste	Estimated amount of Kerbside municipal waste collected in the municipality (tonnes pa)	10.0	10.8	13.0	13.4	13.7	15.1	15.7	16.4

Source: Figures rounded

Note: *2008 estimates relate to broadband coverage of at least 256Kbps (ie first wave broadband). Existing estimates and forecasts relate to speeds of 8Mpbs and above (ie second and third wave broadband)