

# Shepparton & Mooroopna 2050: Regional City Growth Plan

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**DRAFT Background Report**



September 2019



# CONTENTS

<b>1</b>	Introduction .....	1
<b>2</b>	Outcome 1 – A City for the Goulburn Region .....	2
<b>2.1</b>	Freight.....	2
<b>2.2</b>	GV Freight & logistics Centre (GV Link Site) .....	3
<b>2.3</b>	Industry .....	3
<b>2.4</b>	Goulburn Murray Irrigation District .....	4
<b>2.5</b>	Irrigated land and agriculture .....	7
<b>2.6</b>	G MID Master Plan .....	10
<b>2.7</b>	Economic Development .....	10
<b>2.8</b>	Health and Tertiary Education .....	10
<b>2.9</b>	Empowered Communities.....	11
<b>2.10</b>	Multicultural Strategy .....	11
<b>3</b>	Outcome 2 – A City of Liveable Neighbourhoods.....	12
<b>3.1</b>	Liveability .....	12
<b>3.2</b>	Community Planning Program .....	13
<b>3.3</b>	Greater Shepparton Townships Framework Plan .....	13
<b>3.4</b>	Electronic Gaming Machines (EGMs) .....	14
<b>4</b>	Outcome 3 – A City of Growth and Renewal.....	15
<b>4.1</b>	Housing Strategy .....	15
<b>4.2</b>	Existing Growth Areas .....	16
<b>4.3</b>	Future Growth Areas.....	19
<b>4.4</b>	Investigation Areas 4/10 – East of Doyles Road.....	20
<b>4.5</b>	Infill Development .....	21
<b>5</b>	Outcome 4 – A City with Infrastructure and Transport .....	22
<b>5.1</b>	Road projects.....	22
<b>5.2</b>	Greater Shepparton Movement and Place Strategy .....	23
<b>5.3</b>	Public Transport.....	23
<b>6</b>	Outcome 5 – A City that is Greener and Embraces Water .....	25
<b>6.1</b>	Flood studies .....	25

6.2	Urban Forest Strategy.....	26
6.3	Integrated Water Management (IWM).....	26
7	Outcome 6 – A city of Innovation and Resilience.....	28
7.1	Renewable energy.....	28
7.2	Transport Energy.....	30
7.3	Sustainable Waste Management.....	33

## TABLES

Table 1 Residential Investigation Areas	15
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## FIGURES

Figure 1 Goulburn-Murray Water region map	5
Figure 2 Water Service Committees boundaries	5
Figure 3 Goulburn Broken Catchment Authority catchment	7
Figure 4 Shepparton water service area and land use extent	8
Figure 5 Value of agricultural production Shepparton region, 2016 – 17	9
Figure 6 Mooroopna West Growth Corridor Development Plan	17
Figure 7 Shepparton North Future Urban Structure	18
Figure 8 Master Plan for Kialla Raceway development	19
Figure 9 Master Plan for Kialla North Growth Corridor	20
Figure 10 Location of Investigation Areas 4/10	21
Figure 11 Opportunities that can be leveraged by IWM	27

# 1 INTRODUCTION

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The Victorian Planning Authority (VPA) and Greater Shepparton City Council (council) has prepared the draft *Shepparton & Mooroopna 2050: Regional City Growth Plan* (Growth Plan) to guide the sustainable development of the Shepparton-Mooroopna urban area to the year 2050.

The Growth Plan is a high-level and broad strategy that:

- sets out the future vision for Shepparton and Mooroopna
- guides sustainable future growth and development over the next 30 years
- identifies the steps needed to manage growth
- defines key projects and infrastructure required to support growth
- provides certainty for public and private investment decision making.

The *Shepparton & Mooroopna 2050: Regional City Growth Plan Background Report* (Background Report) should be read in conjunction with the *Shepparton & Mooroopna 2050: Regional City Growth Plan* (Growth Plan). The Background Report contains complementary information that provides an evidence base for the Growth Plan.

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## 2 OUTCOME 1 – A CITY FOR THE GOULBURN REGION

### Relevant documents:

*Hume Region Planning for Freight Pilot (2013)*

*City of Greater Shepparton, Industrial Land Review (2011)*

*Shepparton Residential and Industrial Land Supply Assessment (2019)*

*Shepparton Tertiary Education Precinct Development Plan Report (2005)*

*Shepparton Irrigation Region Groundwater Management Area Local Management Plan (2015)*

*Regional Irrigated Land and Water Use Mapping in the DMID – Dairy Evaluation (2017)*

*Socio-Economic Profile of the Goulburn Broken Catchment (including all of the Shepparton Irrigation Region) (2006)*

*Goulburn Broken Regional Catchment Strategy 2013 – 2019 (2013)*

*Regional Irrigated Land and Water Use Mapping in the GMID – Summary (2017)*

*Cultural Diversity and Inclusion Strategy and Action Plan 2015 – 2018 (2015)*

*Greater Shepparton Multicultural Strategy 2019 – 2022 (2019)*

Empowered Communities - <https://empoweredcommunities.org.au/about-us/>

### 2.1 Freight

Greater Shepparton has a key role within the Victorian and Australian freight network.

The major road routes that service Shepparton and Mooroopna are:

- Midland Highway – The Midland Highway links major towns in Victoria, beginning from Geelong and linking to Mansfield it crosses regional Victoria travelling via Ballarat, Bendigo and Shepparton in an arc shape. It provides the only east-west connection within the immediate vicinity of Shepparton and is heavily used by trucks including B-Double and Higher Mass Limit Trucks.
- Goulburn Valley Highway - Goulburn Valley Highway is a north-south route providing connections between Central New South Wales (NSW) and Seymour/Melbourne. It travels directly through the major retail precinct of central Shepparton.
- Shepparton Alternative Route (SAR) - The SAR is located on the eastern side of Shepparton and incorporates River Road, Doyles Road and Grahamvale Road. The SAR forms part of the inland freight route to rural NSW and Brisbane.

The road network underscores the role that Shepparton plays in performing a (predominantly eastern seaboard) national freight task. The radial nature of the road network has historically focussed all cross-town freight movements through the central commercial areas of Shepparton and Mooroopna.

Freight is an important sector as Shepparton and Mooroopna accommodate through movements for trucks travelling north as far as Brisbane and east to Bendigo and beyond. There are also a number of freight movements that start their journey in Shepparton to transport food products, both fresh and processed, within Victoria, nationally and internationally. Major industry around Shepparton has focussed its activities to the east of the town which is served by the SAR.

The economy of Greater Shepparton continues to thrive on the back of a number of service, health, food, manufacturing and tourism sectors. Activity in these sectors is placing increased pressure on existing road networks which are trying to accommodate population growth and additional demand for movement.

In relation to freight rail, Shepparton is serviced by a rail line linking to Melbourne and Tocumwal to the north. In addition, there are branch lines that link Toolamba to Echuca and Shepparton to Dookie.

## 2.2 GV Freight & logistics Centre (GV Link Site)

Greater Shepparton City Council (council) purchased the land for the GV Link site in 2011. GV Link is a modern transport and logistics centre which is being built on a 331 hectare green field site on Toolamba Road, two kilometres south of the Midland Highway at Mooroopna, 4.7 kilometres south west of Shepparton. Current and proposed road and rail infrastructure will enable easy site access now and into the future.

As a modern transport and logistics centre, GV Link has the potential to provide significant benefits for Victoria and the Goulburn Valley including a more efficient supply chain for regional products to market, reduced congestion on roads into and around Melbourne, direct rail access to the Port of Melbourne and easier access to global markets for local businesses. There are three stages identified for GV Link:

- Stage 1 – a general freight and logistics area comprising four allotments
- Stage 2 – an additional freight and logistics area comprising five allotments
- Stage 3 – a true intermodal terminal connecting GV Link businesses to streamlined road transport and a high capacity modern rail terminal.

## 2.3 Industry

The current supply of industrial land that services Shepparton and Mooroopna is mainly located in the east of Shepparton and at Lemnos.

The *Industrial Land Review, City of Greater Shepparton, (2011)*, was an assessment of industrial land use and development in the City of Greater Shepparton, which looked at land supply, transport and other associated issues, options and future requirements.

It provided a framework for future site assessment and selection, and makes recommendations on actions to be taken to plan strategically for the best outcomes for industrial development in the municipality. The *Industrial Land Review, City of Greater Shepparton, 2011* was adopted by Council in July 2011 and implemented through Amendment C162 into the Greater Shepparton Planning Scheme (Planning Scheme). This amendment introduced a number of industrial investigation areas, the areas within the scope of the Growth Plan are identified below:

- Investigation area 7 – Wanganui Road, Shepparton North. This area includes lands on the northern side of Wanganui Road and land owned by Council to the south of Wanganui Road. The land is constrained by flooding and further investigation is required to explore mitigation options to guide any future rezoning of this land. This area could be utilised for industrial uses should an increase in demand occur in the future as the land will be bounded by major transport routes.
- Investigation area 8 – Mooroopna south. All land to the south of Mooroopna in proximity to the GV Link freight logistics centre should be considered for inclusion in the Industrial 1 Zone. This is being held by Council as a long term industrial development option and could be a suitable site for a resource recovery precinct. The impact that the construction of the Goulburn Valley Highway Shepparton Bypass will have on traffic movement and development within the surrounding area will need to be understood.
- Investigation Area 10 – East of Doyles Road, Grahamvale. There are a number of land use interface issues to be addressed in the area. There is a mix of agriculture, residential estates such as Dobson's Estate, and the Shepparton East and Lemnos industrial areas. Further investigation is required in this area following the implementation of the Goulburn Broken Catchment Management Authority's (GBCMA) *Shepparton East Overland Flow Urban Flood Study (2017)*. In addition to this, the future role and function of the Shepparton Alternative Route (SAR) will need to be known and development to the east is considered inappropriate at this time. Investigations will include issues associated with present industry, potential for expansion of industrial and / or residential uses and developments, future servicing requirements and agricultural impacts.
- Investigation Area 11 – Lemnos contains a strong cluster of transport and warehousing businesses. This investigation area is intended to complement and provide for the expansion of industry in this area. It is important to note that only the site owned by Campbells Soups Australia Pty Ltd is connected to reticulated sewerage. Future industrial development in this area should be provided with reticulated services.

The *Urban Development Program 2011: Regional Residential Report City of Greater Shepparton (UDP) (2011)* was undertaken by Spatial Economics Pty Ltd to provide an analysis of the supply and demand for residential and industrial land across the municipality.

It was commissioned as part of a state-wide program by the Department of Planning and Community Development in conjunction with Council. Spatial Economics Pty Ltd also updated the UDP with new data in 2015, resulting in the report known as the *Shepparton Residential and Industrial Land Supply Assessment* (2016).

Since the 2016 update, the consumption of industrial land in Greater Shepparton has exceeded expectations, due to uptake by large scale users. In addition, key residential growth areas in Shepparton and Kialla are now approaching their full capacity. A further update to the UDP is necessary to ensure that an adequate supply of residential and industrial land for the next 15 years is maintained.

The *Industrial Land Supply & Demand Assessment* (Spatial Economics Pty Ltd, July 2019) has provided an update on industrial land supply and consumption and identifies the need for additional industrial land.

## 2.4 Goulburn Murray Irrigation District

### 2.4.1 Goulburn-Murray Water (G-MW)

The Goulburn-Murray Irrigation District (GMID) system is the largest irrigation system in Victoria. It covers 9,950 square kilometres and accounts for more than 70% of water stored in Victoria and almost 90% of water used in irrigation across the State. G-MW manages both regulated and unregulated river systems that flow into the Murray and administers groundwater within this area. G-MW has over 25,000 customers and provides over 39,000 connections in a region of 68,000km.

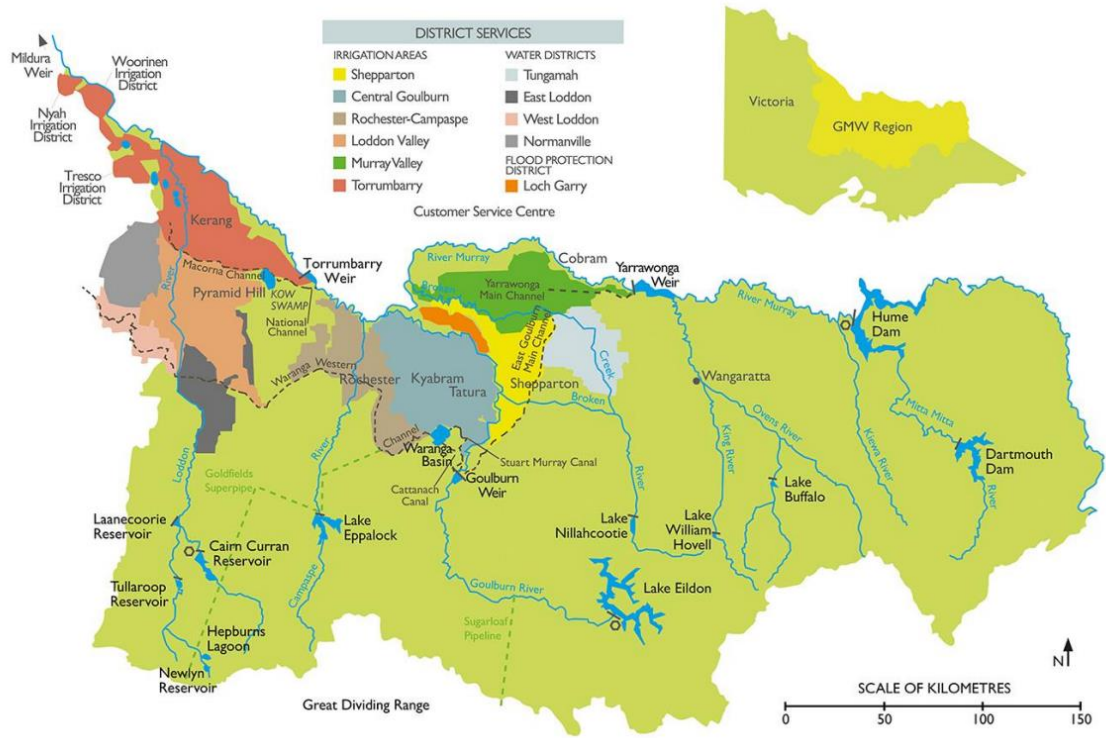
In relation to development, G-MW are interested in the impact of development on:

- Surface water and groundwater:
  - quality
  - use
  - disposal
  - G-MW infrastructure
  - G-MW services.

The G-MW region map and district services are identified in **Figure 1**.

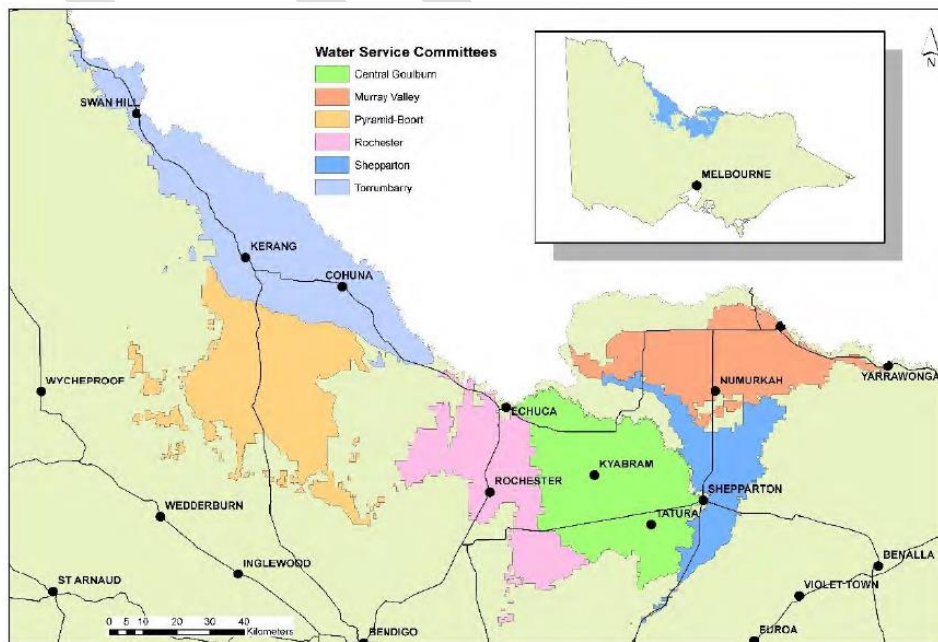


Figure 1 Goulburn-Murray Water region map



As identified in **Figure 1**, to the east of Shepparton is the Shepparton Irrigation District and to the west is the Central Goulburn Irrigation District, there are separate water service committees that operate in these areas as identified in **Figure 2**. The water service committees are made up of customers from the region and help G-MW better understand issues facing customers.

Figure 2 Water Service Committees boundaries



G-MW is delivering the \$2 billion Connections Project, funded by the Victorian and Commonwealth governments. This is the most significant upgrade to the region's irrigation infrastructure in its 100-year history and is the largest irrigation modernisation project in Australia. This project will automate much of the water delivery network, replace ageing irrigation infrastructure, meet measurement compliance requirements and ensure equitable access to maintain the true value of water while also reducing the GMID footprint, making water use sustainable and preparing for future challenges and opportunities.

## 2.4.2 Goulburn Broken Catchment Management Authority (GBCMA)

The GBCMA works with communities and government agencies to manage activities to protect and improve the catchment's land, water and biodiversity. This work is guided by a Regional Catchment Strategy (RCS) which is the *Goulburn Broken Regional Catchment Strategy*. This Strategy guides efforts to sustain and restore the region's natural environment and the communities that rely on healthy waterways, landscapes and biodiversity to remain prosperous and vibrant.

The catchment area for the GBCMA is identified in **Figure 3**, which identifies Shepparton as being within the "Agricultural Floodplain" district. There is some overlap with the catchment area of the GBCMA and the GMID boundary.

The *Goulburn Broken Regional Catchment Strategy* details strategic priorities along with management measures and possible actions, some notable priorities include:

- creating opportunities for community leaders to contribute to water policy
- prioritising the protection of waterway and wetlands within the modernised irrigation deliver system
- modernising water delivery on irrigated land to provide ecological and productivity benefits
- delivering farm planning to integrate ecological and agricultural productivity benefits
- researching costs and benefits of new options for farm production, such as energy
- working with landholders to protect and improved biodiversity on farms and build understanding of its contribution to sustainable and profitable farming
- planning and implement flood, fire and drought response and recovery.

The full strategic priorities and actions can be found in Table 8 in the Regional Catchment Strategy.

Figure 3 Goulburn Broken Catchment Authority catchment



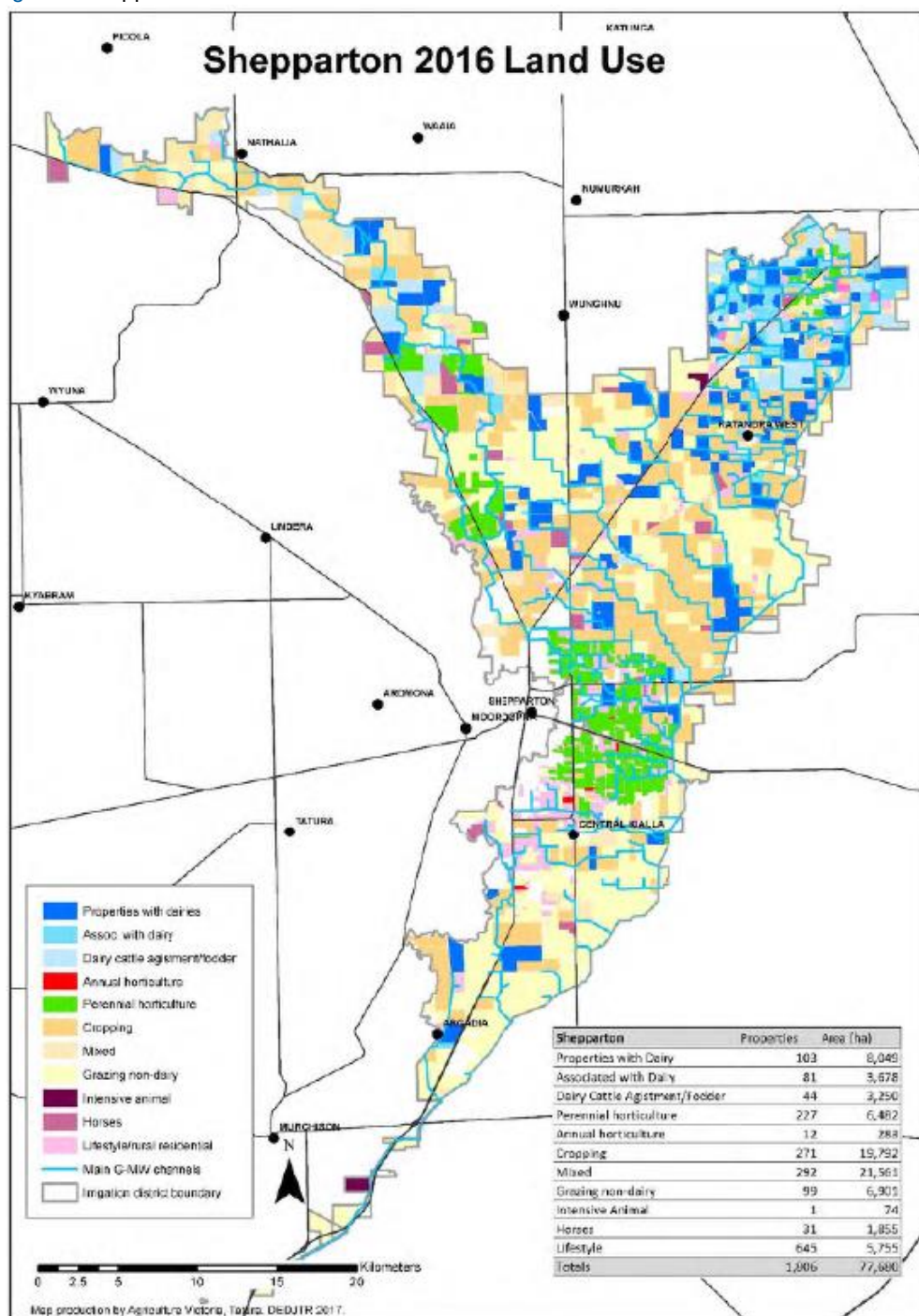
## 2.5 Irrigated land and agriculture

Shepparton and Mooroopna are located on the lower floodplain of the Goulburn Broken Catchment which means the soil is rich making the Goulburn Valley region one of the most productive agricultural regions and food bowls in Victoria. Approximately 25% of the total value of Victoria’s agricultural production is generated in the Goulburn Valley region.

Agriculture is central to the economy of Greater Shepparton and Victoria as a whole. Primary agricultural industries in this region include dairy, horticulture, viticulture, livestock production (beef, sheep, goats, pigs and poultry), cropping, timber production and aquaculture. The Shepparton Irrigation Region (SIR) is referred to as the “Food Bowl” of Australia with an estimated Farm Gate Value of Agricultural Production (FGVAP) of \$1.24 billion in 2003-4. The economic output from the Region was calculated at \$6.2 billion and it produced 25% of Victoria’s export earnings (Young, 2000). Greater Shepparton’s farm gate gross value for agricultural production in 2001 was over \$400 million and one of the highest in the GBC (figure X). This reflects the intensity and diversity of agricultural production that irrigation permits in a relatively low rainfall area. It also explains why 20 or more major food processing companies have plants located in the Shepparton Irrigation Region. They have ready access to large volumes of reliably produced raw material for their production lines and a concentration of infrastructure and services that support their businesses.

Shepparton and Mooroopna are located on the agricultural floodplains within the Goulburn Broken Catchment, so it is essential to preserve and support the industries that rely on these floodplains to secure the economic prosperity and stability of the Greater Shepparton region. **Figure 4** shows the Shepparton water service area and land use extents operating in these areas.

Figure 4 Shepparton water service area and land use extent



## 2.5.1 Dairy

Dairy is the second most extensive land use in the GMID and accounts for around half of the irrigation water used, with the remaining used by perennial and annual horticulture, cropping and mixed farming. In summary:

- the GMID dairy industry remains an extensive land use in the GMID, as such it is a critically important component of the regional economy

- dairy supports more than 4000 people working on farms supplying 16 regional processing facilities which in turn provides more than 3000 jobs across several towns. In addition GMID dairy supports other services such as vets, dairy machinery and irrigation equipment specialists, agricultural stores, financial services and agronomists
- in 2015/16, the GMID produced more than 1700 million litres of milk with a farm-gate value of more than \$740 million, an estimated \$595 million of the farm-gate value was reinvested back into the local economy
- dairy farms have embraced the opportunity to upgrade their irrigation infrastructure over the last five years, with 65.3% undertaking works
- of the dairy farmers surveyed, 46.3% had received funding from Federal Government programs such as the On-Farm Irrigation Efficiency Program or State programs
- approximately 75% of GMID dairy farmers agreed their property would still be irrigated in the next five years.

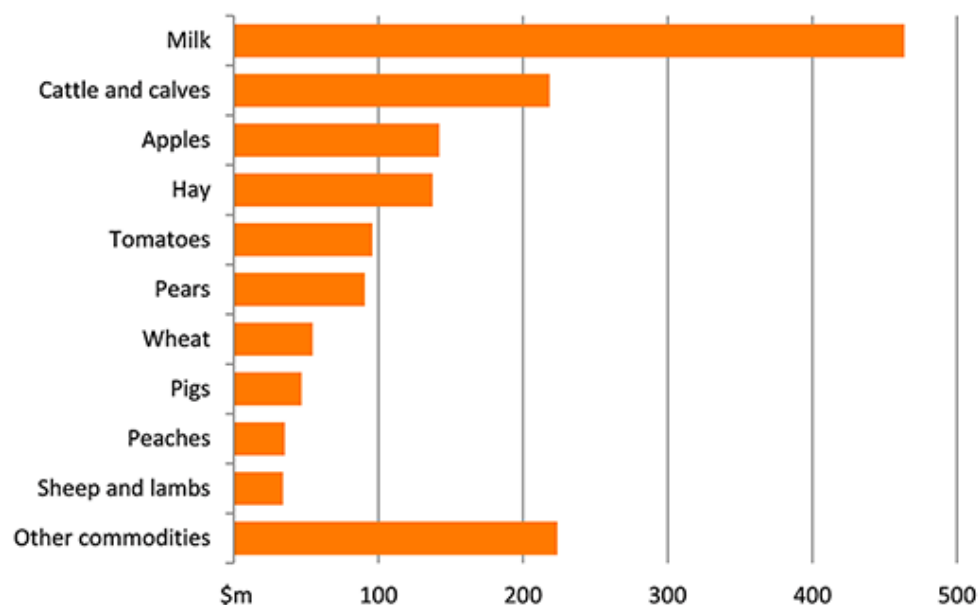
### 2.5.2 Orchards and fruit growing

Orchards and fruit growing play a key role in Shepparton and Mooroopna. They not only significantly contribute to the economy, but also have an important impact on character of the area. Mooroopna is known as the 'Fruit Salad City' and Shepparton is famous for being the home of SPC, the global canned fruit brand.

The most important commodities in the Shepparton region based on the gross value of agricultural production were milk (\$464 million), followed by cattle and calves (\$218 million) and apples (\$142 million). These commodities together contributed 53 per cent of the total value of agricultural production in the region. In 2016–17 the Shepparton region accounted for 95 per cent (\$91 million) of the total value of Victoria's pear production. This means that along with dairy, fruit-growing is amongst the most important contributors to Victoria's economy.

Apples, tomatoes, pears and peaches had the highest value for agricultural production in 2016 – 17 as shows in **Figure 5**.

Figure 5 Value of agricultural production Shepparton region, 2016 – 17



## 2.6 GMID Master Plan

Initiated by the Goulburn Regional Partnership, the master plan is designed to explore the opportunities for long-term growth and prosperity across the GMID, and how this might be achieved. The Master Plan seek to develop a strategy that builds upon the resilience of the GMID through guiding the growth and development of the social, economic and environmental sustainability of the GMID into the future (the Master Plan) and delivers clear actions for implementation to ensure that the Master Plan will benefit the GMID communities going forward.

It particularly aims to address the challenges facing the GMID over the coming decades such as reduced water availability for agricultural production, high infrastructure renewal and maintenance costs, ongoing structural adjustment, pressures on natural resources, and demographic shifts. There will also be a strong focus on mitigating the impacts of climate change and globalisation.

Once completed, the Master Plan will provide GMID decision-makers and surrounding communities with a planned approach to the future, in addressing the challenges and taking advantage of the opportunities, leading to better outcomes and stronger, more resilient communities.

This project will be led by the Goulburn Regional Partnership, with assistance and input from Regional Development Victoria (RDV) and other key government agency stakeholders as required. The Goulburn Regional Partnership was established in 2016 by the Victorian state government to provide a regional voice directly to government. RDV is a statutory agency of the Department of Jobs, Precincts and Regions.

## 2.7 Economic Development

The *Greater Shepparton Economic Development, Tourism & Events Strategy 2016 – 2020* (2016) identifies actions to strengthen the existing business sector, attract new businesses and attract visitors to the city. The strategy aims at identifying opportunities that will lead to building and diversifying the local economy, assist in building on Council's event portfolio and boosting tourism and overnight stays within the region.

## 2.8 Health and Tertiary Education

Goulburn Valley Health (GV Health) is the main referral health service in the region and offers multiple allied health services including a 24 hour emergency department, surgery and women and children services, rehabilitation, mental health, Aboriginal health and palliative care to approximately 160,000 people in the region and beyond. GV Health is undergoing a major redevelopment program in two stages; the first stage is at the hospital's main site at Graham Street and includes expanding space for existing services and improving car parking and access; and the second stage involved changes to the main entrance at Numurkah Road and improved emergency, visitor and vehicle access.

Shepparton Private Hospital and the Shepparton Rural Clinic School are located in close proximity to GV Health and also provide health-related services for the region, these hospital also provide education and research opportunities with the nearby La Trobe University and GOTAFE.

In addition, GV Health is seeking to increase their service offering in the Shepparton CBD, beginning with the redevelopment of the existing Community Health building in Corio Street to accommodate additional Child and Adolescent Mental Health Services and ambulatory paediatric services. The \$10 million Health Precinct proposal would allow extension and some refurbishment of the Corio Street facilities.

The expansion of GV Health presence in the CBD complements the broader Shepparton CBD Revitalisation Project, a \$100 million plus initiative focused on the planning and implementation of a number of improvements to the CBD. These improvements represent a wider transformation project for Shepparton, recognising that the specific projects are interconnected and that the overall package has the potential to leverage new commercial development and economic benefits for the city and for the wider region that the Shepparton CBD serves.

In recent years, Council has undertaken a broad array of strategic improvements to transform the Shepparton Central Business District (CBD), recognising that specific projects are interconnected and that the overall package has the potential to leverage new commercial development and economic benefits for the city and for the wider region that the Shepparton CBD serves.

The clustering of health and tertiary facilities in the Shepparton CBD presents the opportunity to ensure this precinct complements of the CBD Revitalisation Project by enhancing the economic and social vitality of the area. There is an opportunity to enhance Shepparton as a significant regional hub for health and higher education. It aims to support the expansion of important health and education facilities in central Shepparton, leading to increased employment across the wider region, as well as the provision of improved access to health and education facilities and related services for the benefit of the community.

Council has facilitated a number of workshops that have brought together key stakeholders from the health and education sector and other government partners to develop a vision for Shepparton as a regional hub for health and education services. A project working group with staff from Council, GOTAFE, GV Health and LaTrobe University has been established to continue to drive this vision into the future.

Demand for enrolment at regional campuses is continuing to grow. La Trobe University is undertaking a Campus Expansion that will generate an annual spending stimulus of \$1.2 million (2021) for Shepparton CBD businesses, including generating demand for additional CBD services such as retail, accommodation, food and beverage, financial, medical, etc. GOTAFE is also expanding its course offering and exploring options to address community needs in growth areas.

## 2.9 Empowered Communities

Empowered Communities is a set of transformational national reforms for an Indigenous Empowerment agenda. Indigenous leaders from eight regions across Australia are working together with government and corporate Australia to reform how indigenous policies and programs are designed and delivered.

This initiative identifies the need for a shift away from the traditional social policy framework in which indigenous affairs has been conducted, to a comprehensive indigenous empowerment agenda. It is a long-term reform that requires a new partnership of indigenous leaders, governments and corporate leaders in order to succeed, with all partners prepared to play their roles in a different way.

The Goulburn-Murray region area is recognised as being the only Empowered Communities Region in Victoria where the following vision is being achieved:

“In the Goulburn-Murray we are working hard to build aspiration, optimism and capability so that Aboriginal people have collective ownership of our society. Our vision is the creation of an integrated community in Goulburn-Murray where Aboriginal people’s rights are supported and their contributions are valued and celebrated”.

## 2.10 Multicultural Strategy

The *Greater Shepparton Multicultural Strategy 2019 – 2022* (2019) sets a vision to promote and facilitate good multicultural practice and leadership within and across the municipality. The strategy includes an Action Plan that focuses on the delivery of actions in three priority areas:

- valuing cultural diversity
- accessing opportunity
- enabling contribution and participation.

The strategy seeks to improve the wider community’s awareness and understanding of the economic, educational, social and cultural benefits of multiculturalism.

Council adopted the Strategy at the March 2019 Council Meeting.

## 3 OUTCOME 2 – A CITY OF LIVEABLE NEIGHBOURHOODS

### Relevant documents:

*Neighbourhood Liveability Assessment of Shepparton: The application of indicators as evidence to plan for a healthy and liveable regional city* (RMIT, 2018)

*Neighbourhood Walkability Checklist. How walkable is your community?* (Heart Foundation, 2011)

*Greater Shepparton Townships Framework Plan Review* (2018)

*Greater Shepparton Cycling Strategy 2013 – 2017* (2013)

*RiverConnect Paths Master Plan* (2015)

*Hume Region Significant Tracks and Trails Strategy 2014 – 2023* (2014)

### 3.1 Liveability

The Healthy Liveable Cities Group at RMIT developed a Neighbourhood Liveability Assessment of Shepparton and concluded Shepparton provides a high level of liveability in many areas, particularly the central area of town, the indicator results support this including:

- good access to services of daily activity, services for older people, GPs and supermarkets in the centre of town
- high levels of local employment across the outer areas of town
- two train stations with access to capital cities
- a walkable centre of town
- good access to public open space in many neighbourhoods in Shepparton
- good school walkability but only for schools located in the northern end of the town.

The liveability index identified issues that require further exploration to improve the liveability of Shepparton, these include:

- a large proportion of lower income households (lowest 40% of household incomes) experiencing housing stress
- the need for greater housing diversity in the outer areas of town with current housing diversity largely only available in the centre of town
- low levels of Year 12 or VCA completion rates in young adults aged between 18 – 24 years with less than 50% of young adults holding this level of education in a number of neighbourhoods
- poor access to supermarkets and associated fresh fruit and vegetables in the outer areas of town
- an annual EGM gambling expenditure of over \$16 million during the 2016 financial year and over 900 recorded incidents in the Shepparton postcode across a 1 year period
- reduced access to public transport and services across the outer neighbourhoods of town particularly in Grahamvale, Shepparton East and Orrvale
- reduced public transport and services across the outer neighbourhoods or town, particularly in Grahamvale, Shepparton and Orrvale.



### 3.1.1 Walkability

The Healthy Liveable Cities Group from RMIT suggests that 800 metres is a good distance for supermarket access. A large amount of Shepparton and Mooroopna's community is within 800 metres of a supermarket; however the residents living on the outer southern, northern and eastern areas of the city have greater distances to travel. Increased walking distances needed to access supermarkets contributes to car dependency and decreased walkability.

Improved streetscape amenity can enhance the walking environment; the following items are some examples from the Heart Foundation's checklist for a walkable community:

- Are there trees along the route to provide shade and a pleasant environment?
- Are the street frontages interesting and attractive?
- Is the neighbourhood free from litter and broken glass?
- Do the footpaths all link up with no missing segments?
- Are there drinking fountains in parks or open space?
- Are there places to shelter from rain or hot sun?
- Can you see other people around as you walk?
- Is the wait at pedestrian lights reasonably short?
- Do you feel safely separated from road traffic?

### 3.1.2 Cycling

The *Greater Shepparton Cycling Strategy 2013 – 2017* (2013) sets the current vision for cycling infrastructure in Greater Shepparton. This document requires updating to account for infrastructure that has been built and prioritise future investment.

The Growth Plan identifies a number of opportunities to strengthen Shepparton and Mooroopna as a cycling destination. These are discussed in the Growth Plan and include investment in the Shepparton BMX track, the Shepparton Regional Park, Mount Major Mountain Bike Course and the Shepparton to Seymour trail via Nagambie.

## 3.2 Community Planning Program

Council is committed to developing community plans for small towns, localities and neighbourhoods.

A Community Plan is a written document that identifies a community's strengths and outlines how those strengths can be utilised to build capacity and enable empowerment for the future. A Community Plan captures the priorities a community has identified are important to a strong future.

The Community Plan process involves community representatives engaging their community through consultation, in order to gain their views on future opportunities for their town, locality, or neighbourhood. A Community Plan belongs to the community and Council aims to work to assist the community to implement the relevant areas of the plan by providing advice and information on engaging stakeholders and seeking funding from Council, governments, and other sources.

## 3.3 Greater Shepparton Townships Framework Plan

The *Greater Shepparton Townships Framework Plan Review* (2018) focuses on the nine townships that the *Greater Shepparton Housing Strategy* (2011) provided framework plans for. The purpose of the review is to complement and build upon the work undertaken through the Housing Strategy in 2011, and to update the framework plans for each of the townships within the municipality.

The outcome of this work will be the revised framework plans for the townships, to be implemented through Amendment C212.

The townships that are included in the Review are:

- Congupna
- Dookie
- Katandra West
- Merrigum
- Murchison
- Tallygaroopna
- Tatura
- Toolamba and Old Toolamba
- Undera.

### 3.4 Electronic Gaming Machines (EGMs)

The prevalence and location of EGMs was identified by the Healthy Liveable Cities Group from RMIT as something to improve on for the liveability of residents. Five major venues with EGMs are located in the centre of Shepparton, one to the south near Kialla, and another venue is located in Mooroopna. All venues are located within, or in very close proximity of a neighbourhood identified as having the highest level of socio-economic disadvantage in Victoria. In total, approximately \$16.4 million was expended on EGMs in Shepparton between July 2016 and June 2017.

A number of councils have prepared gaming policies and implemented these in the local planning section of their respective planning schemes. Generally, the objectives of these policies are similar and include to:

- minimise the harms that arise from gaming
- discourage new gaming machines in vulnerable or disadvantaged area
- minimise opportunities for convenience gaming
- locate gaming machines where the community has a choice of non-gambling entertainment or recreation activities with the gaming venue and local area
- protect the amenity of areas surrounding gaming venues.

Examples of Gaming policies to refer to include City of Ballarat and Cardinia Shire Council.

## 4 OUTCOME 3 – A CITY OF GROWTH AND RENEWAL

**Relevant documents:**

*Greater Shepparton Housing Strategy (2011)*

*Mooroopna West Growth Corridor Structure Plan (2009)*

*Mooroopna West Growth Corridor Development Contributions Plan (2009)*

*Shepparton North East Precinct Structure Plan (2019)*

*Shepparton North East Development Contributions Plan (2019)*

### 4.1 Housing Strategy

The *Greater Shepparton Housing Strategy (2011)* has informed the planning of growth areas in Shepparton and Mooroopna. This includes the Shepparton North and South growth corridors; development of these corridors is nearing completion. The Strategy has also informed the development of additional growth corridors: Mooroopna West, Shepparton North East and Shepparton South East.

The Strategy also identified a number of investigation areas as having potential for residential or industrial development. These areas were introduced into the Greater Shepparton Planning Scheme by Planning Scheme Amendment C93.

#### 4.1.1 Residential investigation areas

The Planning Scheme provides guidance for the development of and reflects the status of investigation areas. The investigation areas that are within the scope of the Growth Plan are identified in **Table 1**.

**Table 1** Residential Investigation Areas

Investigation area	Overview from Greater Shepparton Planning Scheme	Status
1 – Kialla Paceway & Shepparton Greyhound racing environs	This area surrounds and includes the greyhound and trotting facilities and is directly adjacent to the Shepparton South Growth corridor. There is potential to extend services to this land. However, future residential development within this area will be dependent on amenity issues such as lighting, noise, odour and dust being addressed to ensure that the long term interests of the racing facilities are protected.	Identified for development as part of Amendment C199, gazetted on 15 March 2019.  This Amendment supported a mix of low density residential and equine related activities.
2 – Raftery Road, Kialla	The land is adjacent to the Shepparton South Growth Corridor and is situated between the Seven Creeks and Goulburn River corridors. Development is currently restricted by the 8ha minimum lot size under the Rural Living Zone. Higher density development is dependent on issues relating to servicing, flooding and the	Identified in the Growth Plan for residential development.

	environmental assets of the two river corridors being resolved.	
3 – Adams Road area, Kialla	This area is directly adjacent to the Kialla Lakes Estate though is significantly impacted by flooding. The potential to develop this land to a more intensive residential use is dependent on this issues being resolved.	Identified for development as part of Amendment C195, gazetted on 17 August 2017.  This Amendment rezoned the land to the Urban Growth Zone. A PSP and DCP will need to be prepared.
4 (also identified as investigation area 10) – East of Grahamvale Road	There are a number of land use interface issues to be addressed in this area. There is a mix of agriculture, residential estates, such as Dobson’s Estate, and the Shepparton East and Lemnos industrial areas. Further investigation is required in this area following finalisation of the Industrial Strategy. Investigations will include issues associated with present industry, potential for expansion of industrial and / or residential uses and developments, future servicing requirements and agricultural impacts.	Identified in the Growth Plan as not being suitable for residential or industrial development and reinforces as forming part of the Goulburn Murray Irrigation District as productive farm land.

## 4.2 Existing Growth Areas

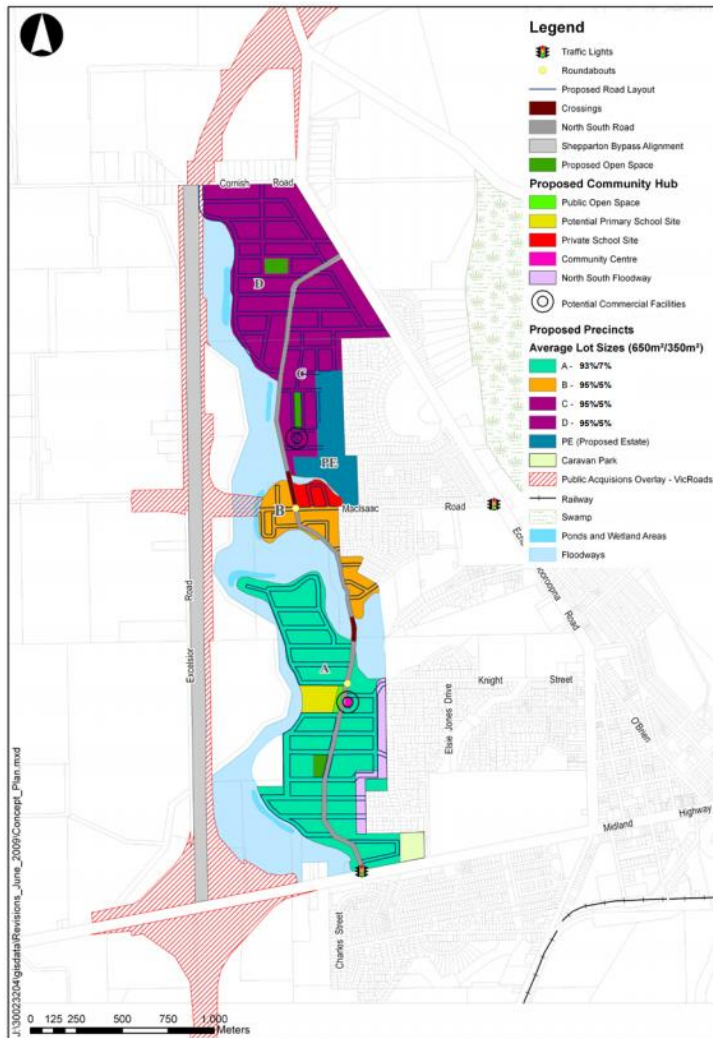
### 4.2.1 Mooroopna West Growth Corridor

The Mooroopna West Growth Corridor comprises 260 hectares of developable land and is bound by the established urban area of Mooroopna to the east, Cornish Road to the north, the proposed Goulburn Valley Highway Shepparton Bypass reservation along Excelsior Avenue to the west and the Midland Highway to the south. Development of this corridor has commenced and is it predicated to support a residential population of approximately 4000 based on a total lot yield of 1600 lots.

Planning for this corridor is guided by the *Mooroopna West Growth Corridor Structure Plan (2009)* and *Mooroopna West Growth Corridor Development Contributions Plan (2009)*.

The proposed Structure for Mooroopna West is identified in **Figure 6**.

Figure 6 Mooroopna West Growth Corridor Development Plan



#### 4.2.2 Shepparton North East Growth Corridor

The Victorian Planning Authority (VPA) in partnership with Council have prepared the *Shepparton North East Precinct Structure Plan (NEPSP)* and *Shepparton North East Development Contributions Plan (NEDCP)*. The PSP applies to approximately 177 hectares of land to the north east of the Shepparton CBD and is generally bound by Ford Road to the north, Grahamvale Road to the east, a G-MW drainage reserve to the south and Verney Road to the west.

The PSP will deliver approximately 1,500 dwelling and cater for a population of 4,000 people.

The Future Urban Structure for the Precinct can be seen in **Figure 7**.

Figure 7 Shepparton North Future Urban Structure



### 4.2.3 Shepparton South East Precinct Structure Plan

The VPA and Council are preparing the Shepparton South East Precinct Structure Plan (SEPSP) and South East Development Contributions Plan (SEDCP) which applies to approximately 385 hectares of land to the south east of the Shepparton CBD. The Precinct is bound by the Midland Highway (Benalla Road) to the north, Doyles Road (Shepparton Alternative Route) to the east, Broken River to the south and existing residential development to the west.

Once fully developed, it is anticipated that the SEPSP will accommodate approximately 2500 lots and cater for a population of 6000 people. The SEPSP is being finalised and it is anticipated that it will be placed on public exhibition in early 2020.

## 4.3 Future Growth Areas

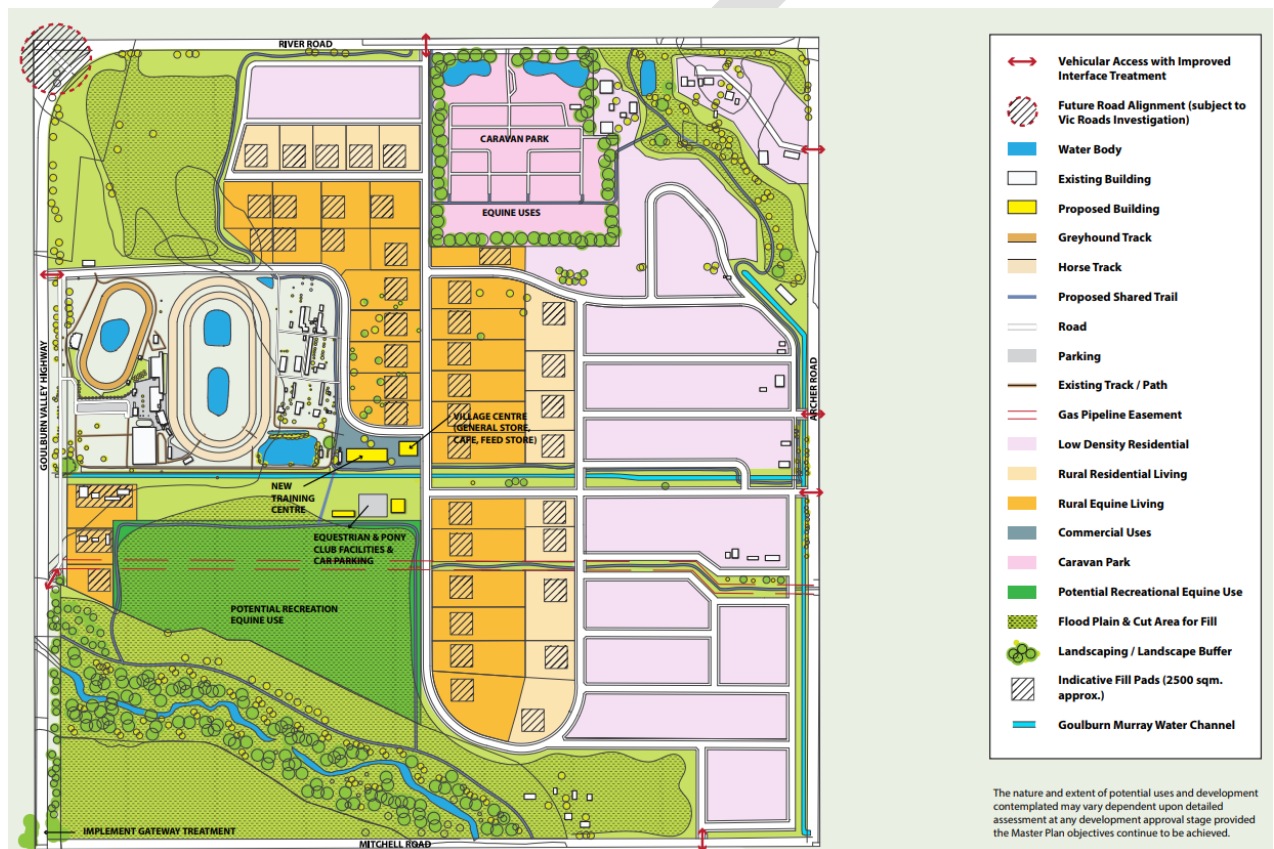
### 4.3.1 Kialla Raceway Development (previously Investigation Area 1)

A Master Plan was prepared for Investigation Area 1 and adopted by Council on 17 October 2017, Amendment C199 implemented the findings of the Master Plan into the Planning Scheme and was gazetted on 15 March 2018. The Master Plan is the first stage of strategic work which supports a mix of low density residential and equine related activities.

The Master Plan can be seen in **Figure 8**.

This area is now identified as the Kialla Raceway Development for development in the medium term (5 – 10 years). This growth area has the potential to deliver approximately 350 dwellings.

**Figure 8** Master Plan for Kialla Raceway development



### 4.3.2 Kialla West Growth Corridor (previously Investigation Area 2)

Investigation Area 2 applies to an area of land along Raftery Road in Kialla. The land is adjacent to the Shepparton South Growth Corridor and is situated between the Seven Creeks and Goulburn River corridors. This Investigation Area is currently unresolved in the Planning Scheme, the Growth Plan affirms this as an appropriate location for development subject to a more detailed planning process. This Growth Area has the potential to deliver approximately 800 dwellings.

### 4.3.3 Kialla North Growth Corridor (previously Investigation Area 3)

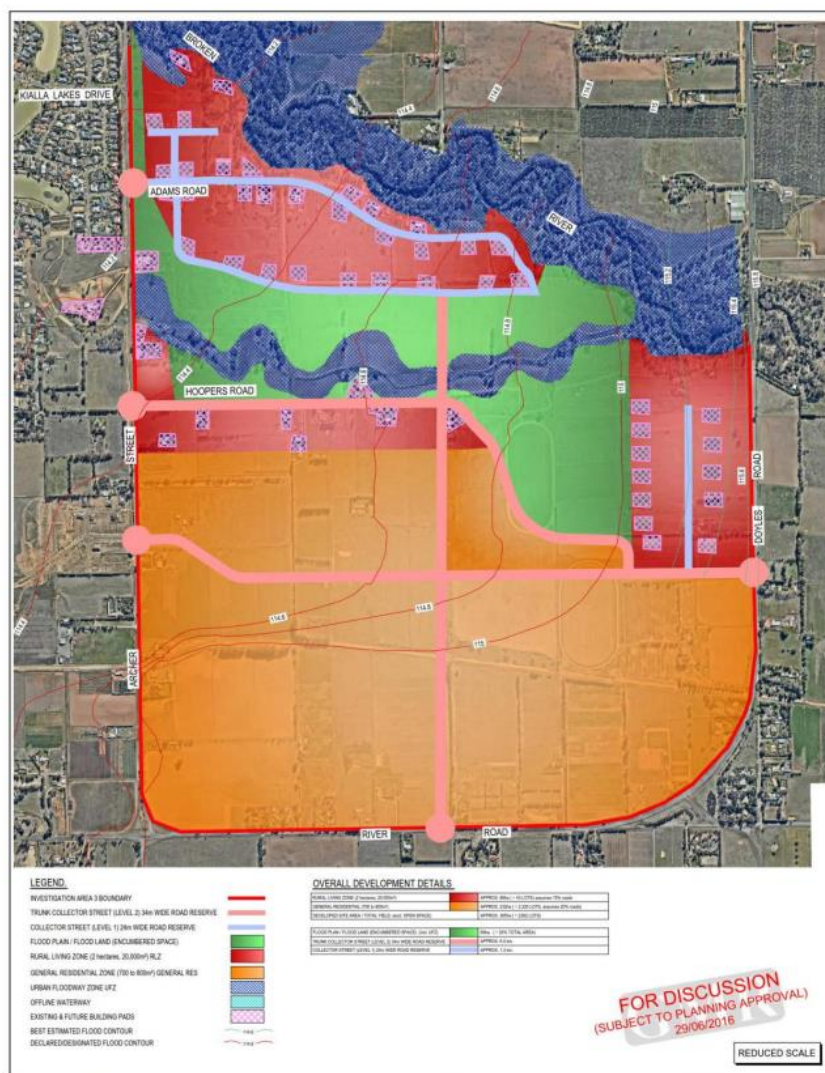
This area is directly adjacent to the Kialla Lakes Estate though it is significantly impacted by flooding. A Model of Flood Behaviour and Conceptual Master Plan have been prepared which informed a planning scheme amendment to identify this land for residential development. Amendment C195 rezoned Investigation Area 3 to the Urban Growth Zone to safeguard the area for future development as a strategic residential growth corridor.

The Growth Plan affirms this as a location suitable for development. A Precinct Structure Plan and Development Contributions Plan will need to be prepared to facilitate the development of the land.

The Precinct is anticipated to deliver approximately 2000 dwellings and cater for a population of approximately 5000 people.

The Master Plan for the site is identified in **Figure 9**.

**Figure 9** Master Plan for Kialla North Growth Corridor



#### 4.3.4 Long term future growth

The Kialla Central area, Radio Australia Site and Shepparton Airport are identified for long term future growth. It is not expected that these areas will develop for 10+ years.

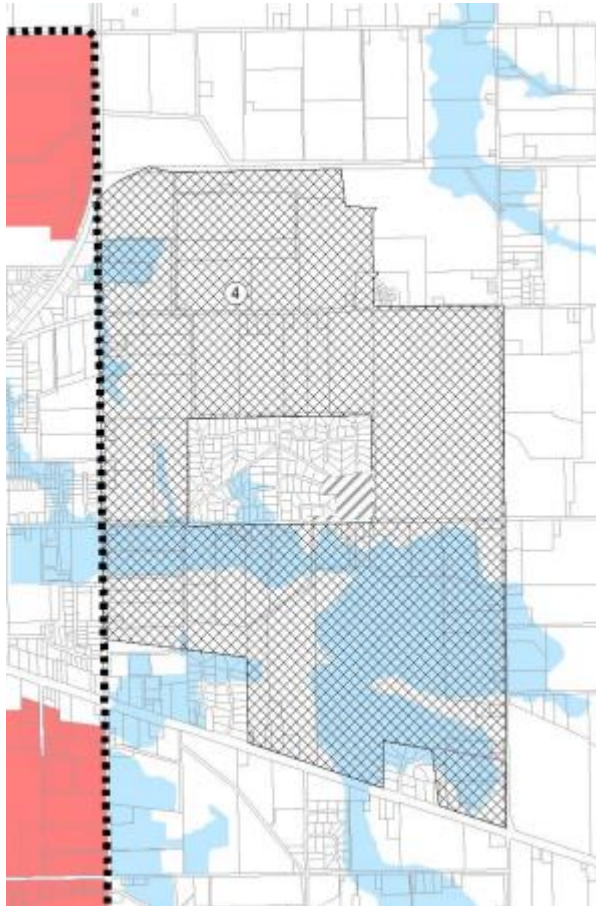
### 4.4 Investigation Areas 4/10 – East of Doyles Road

The location of investigation areas 4/10 is located to the east of Doyles Road outside of the current settlement boundary as shown in **Figure 10**.



As outlined in the Growth Plan, this area has not been shown for development and is being reinforced as important agricultural land.

Figure 10 Location of Investigation Areas 4/10



## 4.5 Infill Development

The *Shepparton CBD Strategy* was finalised in October 2008 and was implemented through Amendment C92. The amendment zoned the Shepparton CBD to the Activity Centre Zone (ACZ) which defined a number of precincts each with a unique vision. An *Addendum to the Shepparton CBD Strategy 2016* provided the strategic justification to rezone Benalla Road and the Marketplace to the ACZ through Amendment C192.

The ACZ encourages increased densities and improvements to public realm and connections in the Shepparton CBD. There is still scope for the vision of the *Shepparton CBD Strategy* and the ACZ to be realised but much of this is left to developers proceeding with development of key sites.

The Growth Plan identifies the need for a stand alone strategic document to be prepared for Mooroopna as there is not currently a strategic document that provides guidance for the established areas of the town.

## 5 OUTCOME 4 – A CITY WITH INFRASTRUCTURE AND TRANSPORT

### Relevant documents:

*Greater Shepparton Movement and Place Strategy - Vision and Objectives Paper (2017)*

*Wanganui Road and Ford Road, Shepparton: Feasibility Study Design Report (2018) (Draft Report)*

### 5.1 Road projects

#### 5.1.1 Goulburn Valley Highway Shepparton Bypass

Construction of the Goulburn Valley Highway Shepparton Bypass is the next logical step in providing a fully duplicated highway from Shepparton to Melbourne.

The full 36km four lane Shepparton Bypass is estimated to cost just over \$1.3 billion. In order to make the investment affordable, Council endorsed a five stage Bypass proposal at its Ordinary Council Meeting held in May 2016. The current priority is Stage 1 – Midland Highway to the Goulburn Valley Highway in Shepparton North – a total distance of 10.05kms.

In mid-2018, the responsibility for planning and designing changes to the arterial road network across Victoria was transferred from Regional Roads Victoria (RRV) to Major Road Projects Victoria (MRPV).

The 2017/18 State Budget allocated \$10.2 million over three years to undertake a business case, preparatory works and land acquisition for Stage One of the Shepparton Bypass, and the upgrade of the Ford Road, Goulburn Valley Highway and Wanganui Road intersection. The works on this upgrade are scheduled to commence in late 2019.

The Federal Government has committed \$208 million for the construction of Stage One of the Shepparton Bypass. At present, RRV and MRPV are working to complete further planning studies to help complete the business case to be considered in a future state government budget process.

#### 5.1.2 Shepparton Alternative Route

MRPV and RRV are currently undertaking a planning study to investigate potential capacity upgrades required to Doyles, Grahamvale and River Roads to inform the future role and function of the Shepparton Alternative Route (SAR). This would include key intersection upgrades and asphalt resurfacing to accommodate additional freight movements.

A critical component of these planning studies is the completion of an updated integrated transport model. This work is not expected to be complete until late-2019. After completion of the updated integrated transport model, the planning study for the SAR can be completed and the quantum of works required to upgrade the road to fulfil its role and function within the arterial road network can be completed.

#### 5.1.3 Wanganui Road and Ford Road, Shepparton: Feasibility Study Design Report 2018 (Draft Report)

The purpose of the investigation was to detail how Ford and Wanganui Roads could be upgraded to effectually cater for the potential expected increases in traffic volumes and serve as a key east-west future arterial route connecting Stage One of the Shepparton Bypass with the SAR (Grahamvale Road). A final report would provide the elements needed to effectively advocate for future government funding as part of a future state government budget process.

The Draft Report was released for public comment from 26 February 2018 to 23 April 2018. Following this initial consultation, Council undertook further targeted consultation with land owners and occupiers of land adjacent to four community-suggested alternative alignments that submitters felt could serve as the east-west arterial route. In total, 123 submissions were received by Council for all three consultation phases. At this time, it was considered that Council would consider a final report in late 2018.

However, following the completion of these subsequent consultation phases in mid-2018, the responsibility for planning and designing changes to the arterial road network across Victoria was transferred from RRV to MRPV.

At present, RRV and MRPV are working to complete further planning studies on the wider Shepparton and Mooroopna road network to help inform all future arterial road upgrades, particularly Stage One of the Shepparton Bypass.

A critical component of these planning studies is the completion of an updated integrated transport model. This information will inform all future planning and design work for road upgrades across Shepparton and Mooroopna. This work is not expected to be complete until late-2019.

MRPV is also undertaking an additional design review of the proposed upgrade design for the entire route to ensure that the route complies with recently updated standards for arterial link roads.

It is anticipated that an Updated Draft Report will be considered by Council at an Ordinary Council Meeting in early 2020.

#### 5.1.4 Shepparton CBD Inner Eastern Link Road (interim name)

The purpose of the study is to prepare a traffic impact assessment, to understand the issues and opportunities of establishing the Shepparton CBD Inner Eastern Link Road (interim name), including the preparation of concept designs and cost estimates for the upgrade of eight intersections along the link road.

Council has appointed consultants to undertake this work and an inception meeting has taken place. It is anticipated that a draft report, including concept designs would be released for public consultation in late 2019 / early 2020.

This work is being undertaken in partnership with the Department of Transport, MRPV and RRV.

## 5.2 Greater Shepparton Movement and Place Strategy

The *Greater Shepparton Movement and Place Strategy* (MAPS) is being prepared to provide a framework for positive changes to the physical assets and operations of the transport network. MAPS aims to provide a comprehensive understanding of the existing and future transport requirements. The strategy will take a holistic approach to the provision of an improved transport system for various modes including walking, cycling, public transport, driving and freight movement.

The *Greater Shepparton Movement and Place Strategy - Vision and Objectives Paper 2017* provides the long-term vision and objectives of the MAPS based on community and stakeholder feedback and analysis of data and trends related to transport in Shepparton.

The Draft MAPS is expected to be prepared in early 2020 once the wider arterial road investigations being undertaken by Department of Transport, MRPV and RRV are completed over the coming months.

## 5.3 Public Transport

### 5.3.1 Rail

The upgrade of the existing passenger rail services between Seymour and Shepparton is imperative to the delivery of better rail connectivity to Melbourne for residents of Greater Shepparton. In 2017, the State Government allocated \$43.5 million (of which \$33 million was for capital works) towards improved passenger rail transport. The works comprise Stage One of three stages required to realise the Shepparton Line Upgrade and have recently been completed. In May 2018, the State Government allocated a further \$313 million towards

achieving Stage Two of the Shepparton Line Upgrade. Stage Two includes upgrades to signalling, tracks, 54 level crossings, platform extensions, stabling and the preparation of a business case for Stage Three.

Stage Three will allow for nine return services using VLocity trains. It is understood that Stage Three will be realised soon after the completion of Stage Two.

In the long term, it will be essential that Shepparton services are routed through a new heavy rail link via Melbourne Tullamarine Airport. Further work will be required to secure commitment from the State and Commonwealth Governments to ensure sustainable regional transport solutions.

The Department of Transport is preparing the *Shepparton Rail Freight Planning Study*. The study will lead to enhanced freight capacity, ensuring the benefits for both freight and passenger services are maximised. Currently underway, the \$10 million study is jointly funded by the Victorian and Commonwealth governments and includes a \$9 million package of rail freight infrastructure upgrades.

### 5.3.2 Community Hub

What makes a successful community hub:

- know the local context you are planning within
- use an evidence-based approach
- scope and create partnerships early
- engage with your community
- co-locate your hub with open/outdoor space
- provide a mix of programmed and informal space
- being mindful of the scale and size of the hub
- include consideration of “other” spaces such as storage, wet and dry areas, waiting area, reception area – access points.

There is an opportunity to co-locate a youth component in the community. Youth unemployment and disadvantage is a key issue that needs to be addressed. Council will work with community representatives and NGOs to assist in developing a Youth hub in the Shepparton CBD. The development of the Youth Hub should respond to the needs of Greater Shepparton’s youth, and have regard to the new GOTAFE skills and Jobs Centre to ensure that there is not an overlap in services. Work with the community and organisations such as the Lighthouse Project and Rumbalara to ensure this facility provide the appropriate services to meet young people needs. In developing a business case, the following should be considered:

- support NGOs undertaking community consultation activities to determine the role and services provided at the Youth Hub
- identify appropriate sites, including opportunities for co-location with the Health and Education Hub
- seek state and federal funding, as well as philanthropic donations to help establish the Youth Hub.

## 6 OUTCOME 5 – A CITY THAT IS GREENER AND EMBRACES WATER

### Relevant documents:

*Wanganui Road and Ford Road, Shepparton: Feasibility Study Design Report 2018 (Draft Report)*

*Shepparton East Overland Flow Urban Flood Study (2017)*

*Shepparton Mooroopna Flood Mapping and Flood Intelligence Project Report March (2019)*

*Urban Forest Strategy (2017 – 2037) (2017)*

### 6.1 Flood studies

#### 6.1.1 Shepparton Mooroopna Flood Mapping and Flood Intelligence Project (2019)

The purpose of the *Shepparton Mooroopna Flood Mapping and Flood Intelligence Project Report March 2019* (Report) is to update the flood intelligence and mapping tools contained within the existing *Shepparton Mooroopna Floodplain Management Study: Floodplain Management Plan October 2002*. The Report was funded by the Federal and State governments, and Council. It seeks to update the existing information on flood risk within the Shepparton-Mooroopna area. The project involved detailed hydrological and hydraulic modelling of the Goulburn River, Seven Creeks and the Broken River, producing flood mapping and flood intelligence information.

In line with State and regional flood strategies, a priority outcome of the project was to share the updated flood mapping and intelligence information with stakeholders and the wider community.

At the Ordinary Council Meeting held on 18 September 2018, Council resolved to release a draft for public comment commencing on Monday 24 September and concluding on Wednesday 7 November 2018. At the Ordinary Council Meeting held on 19 March 2019, Council resolved to adopt the Report; to prepare and exhibit a planning scheme amendment to include the findings and recommendations of the Report; and to adopt the *Greater Shepparton City Council Municipal Flood Emergency Plan August 2018*.

A planning scheme amendment is required to implement the findings and recommendations of the Report. Further consultation will be undertaken as part of the planning scheme amendment process, in accordance with the *Planning and Environment Act 1987*.

#### 6.1.2 Shepparton East Overland Flow Urban Flood Study (2017)

The *Shepparton East Overland Flow Urban Flood Study* was commissioned by the GBCMA to investigate overland flooding in the Shepparton East area, including the issues that caused and/or exacerbated flooding as a result of the localised intense storm activity experienced in 1993 and in 2012.

A planning scheme amendment is required to implement the findings and recommendations of the Study. Further consultation will be undertaken as part of the planning scheme amendment process, in accordance with the *Planning and Environment Act 1987*.

## 6.2 Urban Forest Strategy

The *Urban Forest Strategy (2017 – 2037)* (2017) sets ambitious targets for Council to achieve the following by 2037:

- increase urban forest canopy cover in each town (includes Shepparton and Mooroopna) to 40%.
- reduce the number of vacant street tree sites to zero.
- improve urban forest diversity by age and useful life expectancy.
- increase the number of biodiversity links through each towns' street and road network.
- include urban trees in all major Council infrastructure projects at planning, design and implementation phase.
- ensure best practice urban tree management is being delivered across all Council programs.

The Strategy also audited towns to identify gaps in street tree cover in order to achieve the target to reduce the number of vacant street tree sites to zero and provides guidance on species diversity and street tree species across the municipality.



The Urban Forest Strategy aims to improve Greater Shepparton's overall liveability through equitable best practice tree planting transforming residential streets from the above image to the below.

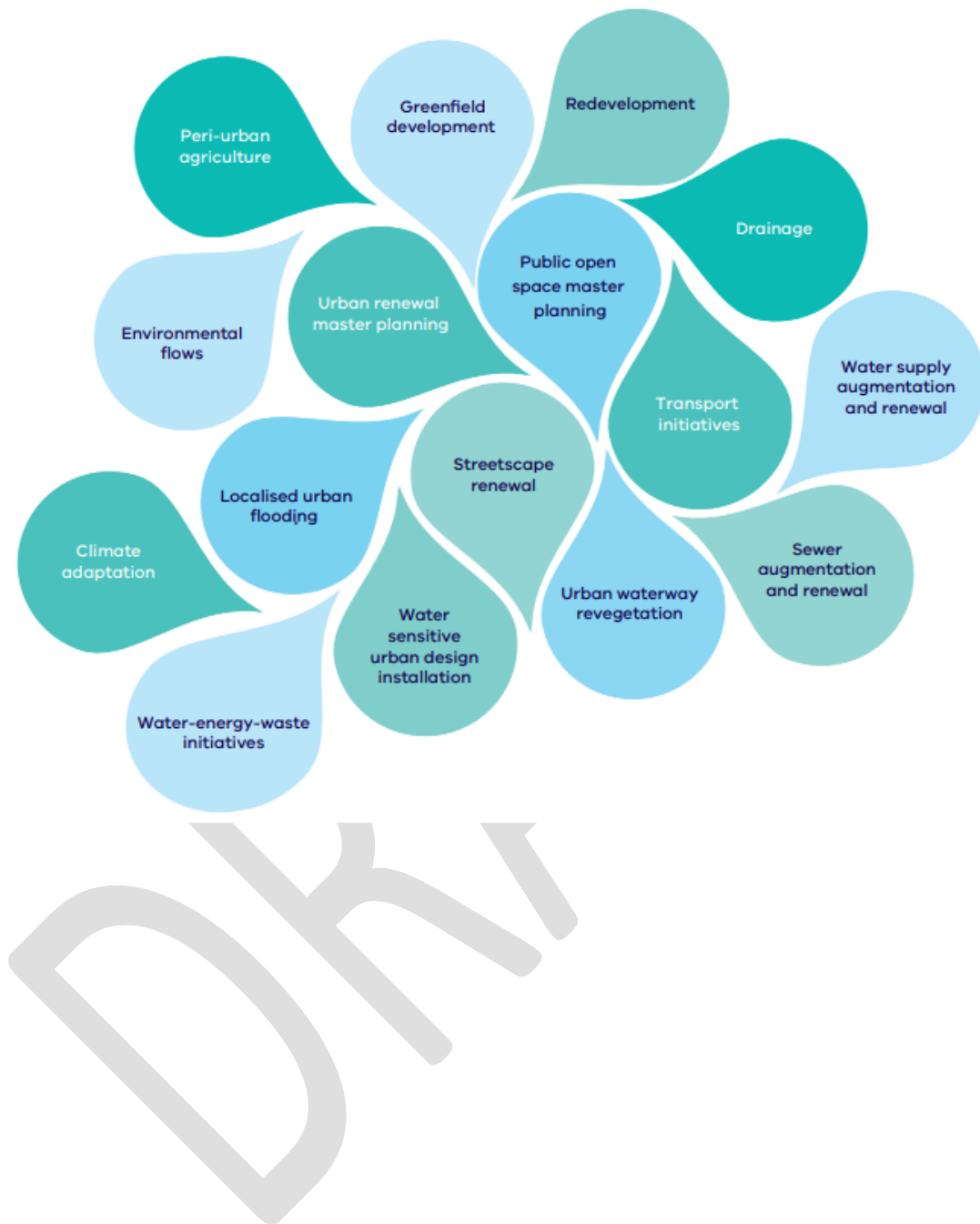


## 6.3 Integrated Water Management (IWM)

A number of councils have prepared IWM Plans for their municipal areas. An IWM Plan explores options and sets out recommendations for future water management. It has the potential to deliver on liveability and community benefits by developing an approach to whole or urban water cycle management, including stormwater management, wastewater, water supplies and waterways.

The DELWP *Integrated Water Management Framework* (2017) identifies examples of opportunities that can be leveraged by IWM as identified in **Figure 11**.

Figure 11 Opportunities that can be leveraged by IWM



## 7 OUTCOME 6 – A CITY OF INNOVATION AND RESILIENCE

### Relevant documents:

*Solar Energy Facilities Design and Development Guidelines* (2019)

*Renewable Energy Action Plan* (2017)

Community Engagement and Benefit Sharing in Renewable Energy Development (2017)

Solar Energy Facilities – Design and Development Guidelines (2019)

<https://www.energy.vic.gov.au/renewable-energy/victorian-hydrogen-investment-program>

<http://www.invest.vic.gov.au/opportunities/hydrogen-energy-supply-chain>

Advice on Automated and Zero Emissions Vehicles Infrastructure (2018)

*Parliament of Victoria Inquiry into electric vehicles* (2018)

*Turning Waste into Energy* (2017)

<https://arena.gov.au/renewable-energy/hydrogen/>

*Victoria's Climate Change Act* (2017)

### 7.1 Renewable energy

Victoria's *Climate Change Act 2017* establishes a target for Victoria to have net zero greenhouse gas emissions by 2050. Victoria's Climate Change Framework makes it clear that moving to a clean energy supply by increasing renewable energy generation is a key pillar of the state's approach to emissions reduction. There are many opportunities for Shepparton to be a regional leader in this area.

#### 7.1.1 Solar

Greater Shepparton has received applications for a number of large scale solar energy facilities. Solar energy provides a clean source of energy generation and contributes to the reduction of greenhouse gas emissions which will establish Shepparton as a leader in sustainability in Victoria.

Due to Shepparton's strong agricultural sector and availability of land, it is ideal to co-locate solar farms with agricultural production. This helps to stabilise farm incomes, which can fluctuate due to changing commodity prices and climatic patterns.

When well-sited and carefully designed, solar energy facilities have minimal impacts on surrounding communities, the environment and on agricultural activities. However, significant land use change can raise concerns across communities about potential impacts, which is why public engagement will be an important part of the development process.

The DELWP *Solar Energy Facilities – Design and Development Guidelines* (2019) must be considered when contemplating the most appropriate location for solar energy facilities. Consideration should be given to:

- relevant government policy
- appropriate site location – analysis of opportunities and constraints
- regulatory requirements



- best practice design and development features
- and early and effective community engagement.

Further strategic considerations include:

- policy context, zones and overlays
- agricultural values including irrigation infrastructure impacts
- heritage and Aboriginal cultural values
- landscape values and visual amenity
- biodiversity and native vegetation
- access to the Victorian electricity grid
- other infrastructure requirements
- cumulative effect of solar energy facilities in the area.

#### **Creating smart, solar energy schools in Regional Victoria:**

The Victorian Government has pledged to assist Victorian schools to install solar systems. This assistance will be tailored to the schools need and may include rooftop solar PV installations at primary and secondary schools across regional Victoria. Energy efficiency measures may also include opportunities for lighting upgrades to schools as an effective measure to reduce energy consumption. Curriculum resources will be developed to support student education on energy consumption.

#### **Protecting Agricultural Land:**

Strategies to protect agricultural land are set out in all Victorian planning schemes. Clause 14.01 Agriculture: Protection of agricultural land includes the objective to protect the state's agricultural base by preserving productive farmland.

Key measures are outlined, including the need to:

- protect strategically important agricultural and primary production land from incompatible uses
- protect productive farmland that is of strategic significance in the local or regional context
- avoid permanent removal of productive agricultural land from the state's agricultural base without consideration of the economic importance of the land for the agricultural production and processing sectors.

The Farming Zone (Clause 35.07) sets out decision guidelines for 'Agricultural issues and the impacts from non-agriculture uses'.

Productive farmland that is of 'strategic significance' represents the most productive farming land in the state. This productivity arises from a combination of land attributes and economic factors. Most rural land is not considered to be strategically significant agricultural land.

When making decisions on the appropriate location of solar energy facilities, councils should require permit applicants to provide an assessment of:

- the agricultural quality of the proposed site
- the amount of strategically significant agricultural land in the council area and in the region (the regional assessment should include impacts across the area defined by the Regional Growth Plan boundaries, unless otherwise determined by the council)
- the potential impact of removing this land from agricultural production. The proponent should lodge a report on this assessment with the permit application. Strategically significant agricultural land may include other elements – these criteria have been adapted for use specifically in relation to solar energy facility development.

#### **Irrigated Land:**

Agricultural land, particularly irrigated land, is a valuable resource, and successive governments have invested heavily in improving agricultural production, including by modernising irrigation infrastructure.

Areas serviced by modernised irrigation infrastructure are designated as strategically significant agricultural land. Careful planning is needed to ensure areas of high agricultural significance are not negatively impacted by solar facilities and do not become fragmented or unworkable as a regional resource. Proponents should demonstrate that the solar energy development will have limited impacts on the significant investments, such as the Goulburn-Murray Irrigation District, that have been made by the Victorian and Commonwealth governments to upgrade irrigation infrastructure, supporting agricultural production in the region.

Goulburn Murray Water (GMW) suggests that there are large tracts of farming land outside the declared Goulburn Murray Irrigation Districts (GMID) where the siting of solar farms:

- would not impact on the irrigated agriculture which typically has higher economic returns and is vitally important for our regional communities and the regional, state and national economy
- would not compromise the public investment in modernised irrigation delivery infrastructure
- would not compromise regional development objectives to retain and attract the return of water usage in the GMID
- would not impact on the communities in the GMID which are typically more densely settled than dry land areas.

### 7.1.2 Solar Homes

Created as a portfolio entity within DELWP, Solar Victoria is responsible for the delivery of the Victorian Government's Solar Homes Program.

The program is a key initiative of the Victorian Government's commitment to reduce energy costs, boost energy supply, create new jobs in the renewables sector and tackle climate change. In the first year of program operations, over 33,000 households have taken up the program offering and installed Solar PV and Solar Hot Water systems. This rapid take up highlights the willingness of Victorians to adopt renewable energy technology, take charge of their power bills and to create a better future.

Over 10-years, the Solar Homes Program will enable the installation of solar panels, solar hot water systems or batteries on 770,000 homes across the State, resulting in over one million Victorian homes powered by renewable energy.

The program will help hundreds of thousands of Victorian households to cut their power bills all while promoting and maintaining the highest standards in safety and quality possible using accredited providers and approved products.

The Solar Homes Program will cut Victoria's carbon emissions by almost four million tonnes – the same as taking one million of Victoria's 4.6 million cars off the road – and generate an eighth of Victoria's 50 per cent target for renewable energy by 2030.

## 7.2 Transport Energy

### 7.2.1 Electric energy

The Central Victorian Greenhouse Alliance is partnering with a number of regional councils (including Greater Shepparton), the EV Council Australia and DELWP to develop a business case for providing a network of public electric vehicle charging infrastructure across the state.

#### **Investment into renewable transport energies in regional areas:**

Investment in technological innovations for the diversification of transport energy sources should be explored. The *Parliament of Victoria Inquiry into electric vehicles* (May, 2018) identified that regional communities rely heavily on fuel. Alternative transport energy sources could provide the fuel security regional communities need.

This should include considerations of energy sources such as electric and hydrogen fuel sources for transport energy.

**Increase in peak energy demand:**

In the absence of any demand management, incentives and other mechanisms for managing charging behaviour, a battery electric vehicle fleet is likely to cause large increases in peak electricity demand due to a high proportion of people charging their vehicle at the end of the day when they arrive home. On top of this, given the forecast emissions profile of Victoria’s energy sector, unless the additional electricity demand for battery electric vehicles comes from zero emissions sources, they could actually lead to an overall increase in greenhouse gas emissions in Victoria.

**7.2.2 Hydrogen fuel**

There are great renewable energy opportunities, including zero emission vehicles, in regional Victoria. Shepparton could be a potential hub for this to lead the way for a more sustainable future.

**What is hydrogen?**

Hydrogen is the most common chemical in the universe. It can be produced as a gas or liquid, or made part of other materials, and has many uses such as fuel for transport or a way to store electricity. When it is produced using renewable energy or processes, hydrogen becomes a way of storing renewable energy for use at a later time when it is needed. The only by-products of hydrogen fuel in vehicles is pure water and heat without all the toxic emissions from petrol making it, in theory, a zero emissions fuel.

The hydrogen economy cycle consists of three key steps:

- hydrogen production
- hydrogen storage and delivery
- hydrogen consumption – converting the chemical energy of hydrogen into other forms of energy.

**Victorian Hydrogen Investment Program**

The Victorian Government is ensuring Victoria captures the benefits of a green hydrogen economy through the Victorian Hydrogen Investment Program (VHIP).

VHIP sets out a clear pathway to developing the Victorian hydrogen sector across three activity streams:

- **Market testing:** Through the Request for Industry Submissions process, the Victorian Government will determine the current extent of market interest and opportunity for hydrogen, including status of potential projects. This process will inform future investment programs.
- **Industry development:** The Victorian Government will conduct extensive stakeholder consultation through a Hydrogen Industry Development Discussion Paper. This will build a solid understanding of the sector’s primary drivers, barriers, opportunities for growth and other capabilities. The Discussion Paper will be used to create a Victorian Hydrogen Industry Development Plan.
- **Victorian Government investment program:** The Victorian Government will provide funding to leverage hydrogen research, trials, pilots and demonstrations, creating a strong base of industry knowledge, skills and seed funding.

**Case study: Mariestad, Sweden**

Mariestad in Sweden is establishing a complete system where electricity from solar energy is used to produce hydrogen. The hydrogen can then be used to heat homes and buildings and as fuel for vehicles. The first step in this journey was to open an off-grid solar powered hydrogen producing and filling station. The next step is the construction of a new preschool with solar-powered hydrogen gas.

**Case study: *The Hydrogen Centre, Altona, Melbourne, Australia***

Toyota's Altona plant is set to be the place of the newly proposed Hydrogen Centre. It will include solar PV and battery storage to contribute towards the energy requirements for the production of renewable hydrogen via electrolysis. The project aims to demonstrate the end-to-end process from production using an electrolyser, through to compression and storage of hydrogen for use in hydrogen fuel cell vehicles. The Hydrogen Centre is the first step towards Toyota's broader transformation of the decommissioned car manufacturing plant into an EcoPark and centre of excellence.

### **Ensuring hydrogen fuel is 'zero emissions'**

Meeting the forecast needs of Victoria's entire vehicle fleet with hydrogen fuel would require either a significant investment in additional electricity generation capacity in excess of Victoria's current state-wide consumption, or intensive use of coal and natural gas resources. This would potentially generate significant CO<sub>2</sub> emissions, which would subsequently need to be captured using carbon capture and storage technologies to make them 'zero emissions'. Energy modelling found that between 12 million and 31 million tonnes of CO<sub>2</sub> storage would be required annually if Victoria's hydrogen needs were met by natural gas and coal sources respectively.

So whilst it may not make practical sense to transition the entire vehicle fleet to hydrogen, it definitely has potential range-to-weight benefits when used as a fuel for heavy vehicles. In addition, hydrogen offers energy storage potential (similar to a battery) to maximise the potential of renewable energy generation. This may improve the resilience of Victoria's energy network by diversifying Victoria's energy supply mix. Hydrogen would also deliver the same environmental benefits if it was produced from a zero emissions source.

### **Hydrogen versus electric vehicles**

Both hydrogen and electric vehicles will cause a significant increase in electricity consumption.

There are major losses associated with the hydrogen fuel cycle. Converting electricity to hydrogen and back into electricity means that it is only about 45% efficient<sup>1</sup> with current technologies. It was calculated that a full transition to hydrogen in 2046 – for both light and heavy vehicles – would require 64 TWh of electricity, the equivalent of a 147% increase in Victoria's annual electricity consumption. Battery electric vehicles, meanwhile, would require roughly one third the amount (22 TWh)<sup>2</sup>.

However, although initial infrastructure costs will be higher for hydrogen than for electric vehicles, the rapid refill times means that ultimately, less infrastructure will be required to serve the same number of electric vehicles. Further, hydrogen generation can be done at any time as opposed to electricity generation, mitigating its impact on peak demand.

### **A diverse transport network for Shepparton**

A sustainable transport future will likely consist of a combination of different fuels and vehicles to suit different uses. No one solution will solve all transport issues. This will also inevitably include investment into public transport, reducing car-dependency and creating walkable neighbourhoods.

It is likely however, that hydrogen fuel will (at least initially) be used mostly for heavy vehicles. So since Shepparton already plays a key role in Victoria's and Australia's freight network, there is an opportunity for it to host a hydrogen refuelling station, although this will require further investigation.

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<sup>1</sup> <https://www.deingenieur.nl/artikel/hydrogen-car-wins-over-electric-car>

<sup>2</sup> <http://theconversation.com/why-battery-powered-vehicles-stack-up-better-than-hydrogen-106844>

## 7.3 Sustainable Waste Management

### 7.3.1 Waste to energy

Waste to energy facilities can play an important role in an integrated waste management system. Only a handful of waste to energy facilities currently operate in Victoria and only four per cent of waste is diverted to energy recovery. Most of those use organic feedstocks to generate energy they use on site.

Waste to energy facilities can support Victoria's energy transition by providing a small amount of distributed, reliable, partly renewable energy. Waste to energy generation is considered 'renewable energy' where organic waste (biomass) is used as the feedstock.

Waste to energy facilities can add a small volume of supply, and improve both the reliability and diversity of Victoria's energy mix. For example, mass combustion waste to energy facilities provide reliable, dispatchable electricity. On-site generation and consumption can reduce demand from the electricity and gas grids.

Technology types of waste-energy processes can be found in more detail in Appendix A of *Turning Waste into Energy* (2017).

#### **Proposed old Heinz factory waste-to-energy plant**

A waste-to-energy facility has been proposed for the old Heinz factory in Girgarre. It is expected to process 23,382 tonnes of dairy waste per year from the nearby dairy industry, and 3475 tonnes of food products, 2421 tonnes of fruit and vegetables and 722 tonnes of supermarket and grocery waste. This waste will generate power for a new dairy factory.

The collection radius includes Bendigo, Shepparton, Echuca and areas in New South Wales.

The site was chosen due to the large amount of fruits and vegetables that are produced in the Goulburn Valley which would provide sources of uncontaminated organic waste streams.

### 7.3.2 Composting facilities

Shepparton is already home to a commercial scale composting facility. It is run by Western Composting Technology who constructed the facility as their flagship plant in October 2008. The Shepparton facility collects and recycles green waste, garden waste and commercial food waste into usable compost products. Products are sold to wholesalers who blend with their own soil conditioners and additives to help grow fresh produce and for use in landscaping. Each year, the Shepparton plant processes 20,000 tonnes of food and organic waste from approximately 49,000 households, and 2,000 tonnes of solid commercial food waste.

There is potential for the addition of more composting facilities in the Shepparton region. This will reduce landfill waste whilst also providing employment opportunity for the area.



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September 2019