

RMCG

MARCH 2020

Shepparton East Agricultural Land Use Options

Final report

Greater Shepparton City Council and Victorian Planning Authority



Table of Contents

| | |
|--|-----------|
| Executive summary | 1 |
| INTRODUCTION | 1 |
| KEY FINDINGS | 1 |
| RECOMMENDATIONS | 2 |
| 1 Introduction | 5 |
| BACKGROUND | 5 |
| PURPOSE | 5 |
| STUDY AREA | 5 |
| APPROACH | 8 |
| 2 Policy and strategic context | 9 |
| STRATEGIC CONTEXT | 9 |
| POLICY CONTEXT | 10 |
| KEY FINDINGS AND IMPLICATIONS | 15 |
| 3 Amenity issues and regulations | 18 |
| AMENITY ISSUES | 18 |
| STATE GOVERNMENT REGULATIONS | 18 |
| GREATER SHEPPARTON LOCAL LAWS | 19 |
| KEY FINDINGS AND IMPLICATIONS | 20 |
| 4 Current land use and land suitability | 21 |
| REGIONAL INFRASTRUCTURE AND VALUE CHAIN | 21 |
| LOT SIZES AND LAND OWNERSHIP | 21 |
| LAND USE | 25 |
| LAND SUITABILITY | 29 |
| KEY FINDINGS AND IMPLICATIONS | 33 |
| 5 Agricultural viability | 36 |
| FARM SIZE | 36 |
| LAND VALUES | 38 |
| LAND USE CONFLICT | 40 |
| PLANNING POLICY | 40 |
| KEY FINDINGS AND IMPLICATIONS | 41 |
| 6 Land use conflict | 42 |
| RISK ASSESSMENT | 42 |
| MITIGATION STRATEGIES | 45 |
| KEY FINDINGS AND IMPLICATIONS | 48 |
| 7 Consultation | 49 |
| 8 Conclusions and recommendations | 50 |
| KEY FINDINGS | 50 |
| RECOMMENDATIONS | 51 |
| Appendix 1: Risk evaluation | 53 |
| Appendix 2: Viability assessment of horticulture enterprises for the GMID | 57 |

Executive summary

INTRODUCTION

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

- future residential growth corridors to provide approximately 30 years land supply for the City
- agriculture as the primary use of land within Shepparton East.

A number of Shepparton East landowners indicated during community engagement on the draft Growth Plan, that the agricultural viability of the district was compromised by its proximity to residential and industrial development leading to land use conflict.

RMCG was engaged to investigate and provide advice to the VPA and Council on:

- The viability of agriculture in Shepparton East
- Alternative farm management practices or alternative farming practices that are suited to the land's context
- A planning response to the existing land use conflict between farming and rural residential practices.

The review focussed on two areas located on the eastern boundary of the township of Shepparton:

- Shepparton East which is currently experiencing land use issues and was therefore the main focus of the study, and
- Shepparton South East Interface area, which was included in the study, given the potential for conflicts to arise in this area in the future.

The project was undertaken in four stages:

- Stage 1 - Site inspection
- Stage 2 - Background research and analysis
- Stage 3 - Land suitability and risk assessment
- Stage 4 - Stakeholder consultation.

KEY FINDINGS

Shepparton East is located within the Goulburn Murray Irrigation District (GMID). The GMID is the country's largest irrigation district and produces more fruit and dairy produce than any other region, as well as supporting significant general horticulture and mixed farming. The region has extensive and well established value chain businesses including food processors and manufacturers as well as industries providing support services.

The current policy direction for Shepparton East is for the land to be retained for agriculture, and the Zone schedules and local policy provide clear direction to support this outcome. The overarching strategic direction is also for the land to be retained for agriculture. However, framework plans in the Municipal Strategic Statement (MSS) that identify Shepparton East as an investigation area for residential and industrial growth, introduce uncertainty as to the long-term future of the area for agriculture. Adoption and implementation of the

draft Growth Plan will resolve this uncertainty as it clearly states that land within Shepparton East is to be retained for agriculture.

Shepparton East has an ideal combination of natural attributes for high-value agriculture, including excellent soil types, Mediterranean climate and access to a secure supply of high quality water. Land use within Shepparton East is predominantly perennial horticulture (apples, pears and stone-fruit) with some annual horticulture. Farm businesses are establishing new orchards affirming the productive potential of the area. The irrigation network servicing Shepparton East has largely been modernised. Modernisation facilitates farm amalgamation, adaptation to climate change, and adoption of new technology and practices.

Soil based horticulture is likely to continue for the foreseeable future, being the most suited to the conditions in Shepparton East. Alternative horticulture, such as products for niche markets, may be introduced to the area, driven by consumer and market demands, and the scale of the farm businesses in Shepparton East. Additionally, protected cropping may become a viable option for Shepparton East given the area's access to services and labour supply. Protected cropping enables production of very high value horticultural products under stringently managed and controlled growing conditions.

Uses of land adjacent to Shepparton East include an industrial estate and residential estates including Dobsons Estate, Davies Drive, Mason Court and Orrvale Road. While not ideal from a land use conflict risk point of view, the residential estates are contained and well defined. House lot excisions within the study area are generally clustered and as a result the balance land is relatively unfragmented. Complaints regarding noise from the use of scare guns and gas guns in Shepparton East are received by Council from residential neighbours from time to time. There have been no ongoing disputes. EPA guidelines provide clear standards and thresholds for operation of farm machinery, frost fans and scare guns, and from the low number of complaints it would appear that farmers are operating within the guidelines. The risk assessment did not identify any high priority risks that reduce the viability of agriculture in Shepparton East.

Based on the current land ownership and a comparison with industry statistics, farm businesses in Shepparton East are considered to be at the *smaller* end of the spectrum of farm business sizes. Operating and maintaining a viable farm business at this scale requires a high degree of management expertise as there is less capacity for small business to absorb risk, compared to larger farm businesses.

An assessment of farm size, land values, land use conflict and planning policy on the viability of farming in Shepparton East found farm size to be the most significant factor currently impacting farm viability. The biggest barrier to increasing farm size is the uncertainty created by ambiguous planning policy, in particular the identification of Shepparton East as an investigation area for residential and industrial development. If agriculture is to be sustained in Shepparton East, it is *critical* that businesses are able to increase scale, by increasing the area of production, switching to higher value horticultural commodities or more intensive production systems such as protected horticulture.

RECOMMENDATIONS

The purpose of this study was to identify:

- The viability of agriculture in Shepparton East
- Alternative farm management practices or alternative farming practices that are suited to the land's context
- Planning response to the existing land use conflict between farming, industrial and rural residential practices.

Soil based horticulture is likely to continue as the primary agricultural use for the foreseeable future, being the most suited to the conditions in Shepparton East. Alternative horticulture, such as products for niche markets, may be introduced to the area, driven by consumer and market demands, and the scale of the farm businesses in Shepparton East. Additionally, protected cropping may become a viable option for Shepparton East given

the area's access to the required services and labour supply. Protected cropping enables production of very high value horticultural products under stringently managed and controlled growing conditions.

The following measures are recommended to maintain and promote agriculture in Shepparton East. These measures seek to:

- Facilitate farm amalgamation
- Support horticultural businesses to adapt to changing conditions and adopt new technology
- Discourage uses that are incompatible with an agricultural area and may introduce land use conflict
- Better manage land use conflicts.

PLANNING POLICY

The recommendations for planning policy include:

- Removing reference to Investigation Area 4 at Clause 21.04-1 and Investigation Area 10 at Clause 21.06-4 Industry
- Retain the Farming Zone and Farming Zone 1 Schedules
- Retain the current policy guidelines at Clause 21.06-2 Subdivision and Clause 21.06-3 Dwellings
- Consider introducing policy guidelines for other Section 2 uses that are not compatible with agriculture
- Consider introducing additional policy guidelines for Section 2 uses that are *not* compatible with agriculture and ancillary to agriculture to reinforce the overarching objective of the Regional Rural Land Use Strategy and Clause 21.06-1 Objectives and Strategies. Policy guidance should seek to retain land for horticultural production. Uses not ancillary to horticultural production should be strongly discouraged. Uses ancillary to horticulture such as cool stores and packing sheds should be of a scale commensurate with the size of the lot and directly related to horticultural production on the lot. Light industrial uses e.g. transport depots and warehousing will be strongly discouraged. Repurposing of horticultural cool stores and packing sheds for a use not ancillary to horticultural production on the lot should be strongly discouraged and avoided.
- Consider introducing policy guidelines for assessment of horticultural structure (See Planning Practice Note 18: Planning prepared by DELWP considerations for horticultural structures and Planning Guideline for Intensive Horticulture and Production Nurseries prepared by the Queensland Farming Federation¹)

ADVOCACY

Advocate for modernisation of the remaining irrigation infrastructure in Shepparton East that has not been part of the Connections Program to date.

EDUCATION AND COMMUNICATION

Implement a communication and media program to increase awareness and understanding of:

- EPA guidelines regarding appropriate use of scare guns and frost fans
- The use and importance of frost fans and scare guns and other farm management practices
- Appropriate methods for raising concerns regarding farm management practices.

¹ <https://www.qff.org.au/wp-content/uploads/2016/11/QFF-Guide-to-Planning-Intensive-Hort-Prod.pdf>

TRAFFIC MANAGEMENT

Council to consider:

- Using road design and signage to encourage commuter traffic onto the Midland Highway and New Dookie Road and to minimise traffic within the study area.
- Exploring parking options for farm workers accessing properties along Doyles Road.
- Options for minimising transfer of dust to properties neighbouring Doyles Road during works to widen the road.

1 Introduction

BACKGROUND

The Victorian Planning Authority (VPA) in partnership with Greater Shepparton City Council (Council) has prepared the draft Shepparton and Mooroopna 2050: Regional City Growth Plan (Growth Plan) to guide the sustainable development of the Shepparton-Mooroopna urban area to the year 2050. The draft Growth Plan identifies future residential growth corridors to provide approximately 30 years land supply for the city.

In 2011, Council completed a Housing Strategy that identified an investigation area for residential or industrial development in Shepparton East. This land was not identified in the draft Growth Plan as an area for future industrial or residential development. The draft Growth Plan reaffirmed the existing eastern growth boundary for Shepparton with land identified for urban development east of Doyles and Grahamvale Roads in Shepparton East. The draft Growth Plan identifies agriculture as the primary land use within Shepparton East.

A number of Shepparton East landowners indicated during community engagement on the draft Growth Plan, that the agricultural viability of the district was compromised by its proximity to residential and industrial development leading to land use conflict. For example, restrictions have been placed on the use of bird scare guns, pesticides and frost fans. The landholders reported that most land use conflict occurs at the interface between agriculture and Dobsons Estate, a residential development.

PURPOSE

RMCG was engaged to investigate and provide advice to VPA and Council on:

- The viability of agriculture within the Study Area and Shepparton East more broadly
- Alternative farm management practices or alternative farming practices that are suited to the land's context
- A planning response to the existing land use conflict between farming and rural residential practices.

The investigation was to consider:

- Uses permitted under the current zoning (Farming Zone)
- Protection of amenity guidance provided by Local Law Number 1 – Community Living
- EPA regulations on noise and odour, particularly in relation to bird scare guns, frost fans and pesticide spray drift, and any other relevant regulations; and
- The extent of investment in irrigation infrastructure as part of the Goulburn-Murray Water (G-MW) Connections Program.

STUDY AREA

RMCG was asked to review and study two areas located on the eastern boundary of the City of Shepparton. Shepparton East is located within the Goulburn Murray Irrigation District (GMID). The GMID is the country's largest irrigation district and produces more fruit and dairy produce than any other region, as well as supporting significant general horticulture and mixed farming.

The GMID makes up about 43% of the irrigated area, uses 31% of the water and generates 27% of the Gross Value of Irrigated Agricultural Production (GVIAP) in the southern Murray Darling Basin. However, this will vary from year to year depending on water allocation.

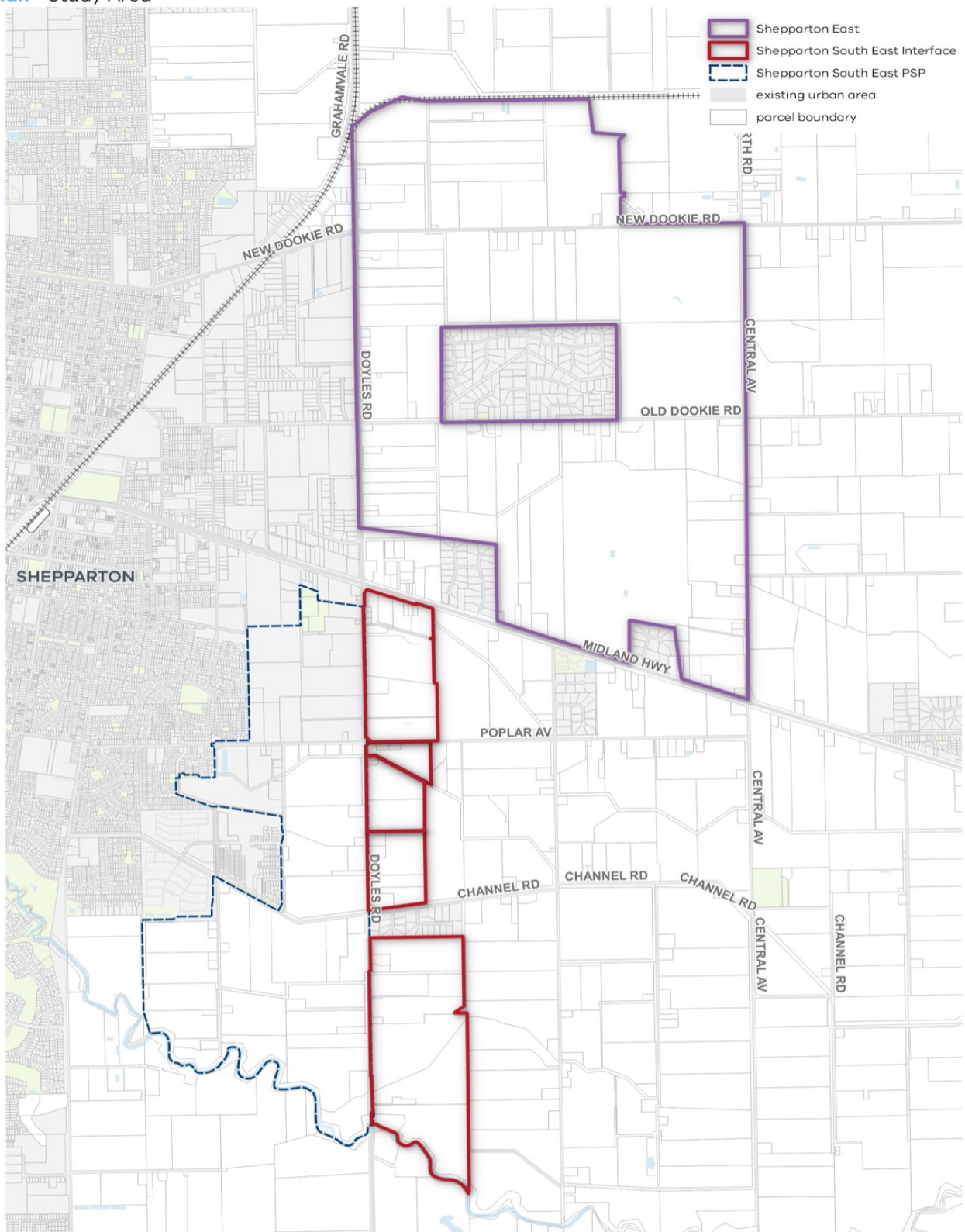
The food processing industry in the GMID is a major Victorian employer and its main exporter. There are 16 dairy factories in the region with dairying producing 53% of the GVIAP and using most of the region's land and water. Horticulture produces around 36% of the GVIAP. Total agricultural production including dryland is 18% of Victoria's Gross Value of Agricultural Production (GVAP) of \$11.6 billion².

The two areas reviewed are shown in Figure 1. The study focused mainly on the area called Shepparton East (highlighted in Figure 1 with a purple boundary) which is currently experiencing land use issues. This area is bound approximately by the Midland Highway (South), Doyles Road (West), Central Avenue (East) and the Dookie Branch line (North).

The Shepparton South East Interface area (highlighted in Figure 1 with a red boundary) was also included in the study, given the potential for conflicts to arise in this area in the future. This area is bound approximately by the Midland Highway (North), Doyles Road (West) the Broken River (South) and Orrvale Road/irrigation channel (East)

² ABARES 2015

Plan - Study Area



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Figure 1: Study area

APPROACH

The project was undertaken in four stages:

Stage 1 - Site inspection

The site was inspected with Council staff to identify hotspots and other important site considerations.

Stage 2 - Background research and analysis

Background research and analysis was undertaken to:

- Prepare mapping of the study areas to identify areas with agricultural opportunity and areas that are constrained
- Identify alternative farm management practices and agricultural uses suited to the land's context
- Provide a rural land use risk assessment between rural residential and industrial development and current land use and identified alternative agricultural options.

Mapping of the study areas included:

- Current lot arrangement and landownership
- Current land use (agriculture, dwellings, lifestyle) and infrastructure (roads, extent of irrigation)
- Land hazards (flooding)
- Land valuations
- Land capability.

Data and information were sourced from Council, Department of Jobs, Precincts and Resources and Goulburn Murray Water.

Stage 3 - Land suitability and risk assessment

A land use risk assessment, based on the NSW DPI LUCRA Guide, between rural residential and current farming practices, was undertaken to identify priority risks, high risk locations and whether there are strategies, particularly changes to management practices to effectively mitigate the risks. This included consideration of compliance with amenity local laws and EPA regulations.

The suitability of land (soils, water and climate) within the study area for a range of agriculture was assessed to identify viable alternative traditional farming practices and types. We also considered the viability of production, to test whether the agricultural options are economically feasible, given the property sizes, focusing on commercial agriculture as opposed to hobby farming.

Stage 4 - Stakeholder consultation

Landholders were consulted to discuss their current circumstances, what options they are considering for the future and how land use conflict impacts agriculture within the study area.

Other stakeholders consulted during the study included:

- Goulburn-Murray Water and the Connections program
- EPA and the OPLE within Council
- DELWP and GBCMA.

2 Policy and strategic context

This section of the report summarises the strategic and local policy context set out in State and local plans and strategies relevant to Shepparton East.

STRATEGIC CONTEXT

Draft Shepparton and Mooroopna 2050: Regional City Growth Plan

To guide the sustainable development of Shepparton-Mooroopna, the VPA and Council have developed a draft Regional City Growth Plan. The Growth Plan makes recommendations for urban growth and other initiatives to 2050. The areas identified for growth were determined through a review of the Greater Shepparton Housing Strategy (2011) and the Industrial Land Review (2011). The review considered land supply needs and development constraints to identify the most appropriate areas for residential and industrial development.

The Growth Plan does not identify Shepparton East as a growth area for residential or industrial development due to the following constraints:

- The Shepparton East Overland Flow Urban Flood Study (2017) found that a large portion of the site is subject to overland flooding
- There has been considerable investment in irrigation infrastructure upgrades and modernisation to support agriculture as part of the G-MW Connections Program
- The majority of land holdings are still utilising irrigation infrastructure and actively farming their land
- The Shepparton Alternative Route (SAR) is a major freight route and forms the western boundary of Shepparton East. This road is identified for potential duplication and is considered a logical eastern growth boundary for the city
- Future growth can be accommodated within the current settlement boundary³.

Campaspe, Greater Shepparton and Moira Rural Land Use Strategy (RRLUS)

The key objective of the RRLUS (2008) is to secure and promote the future of agriculture across the region recognising the economic importance of the industry to Greater Shepparton and broader region. The RRLUS recommended a number of changes to local policy and Farming Zone schedules to:

- Enable farms to continue to expand and grow over time
- Ensure land remains unencumbered by unnecessary infrastructure, especially dwellings
- Ensure that development does not lead to land use conflict
- Maintain land in lots sufficiently large to enable landowners to own and use such equipment and skills as are necessary to maintain the land using best practice.

For Shepparton East, the RRLUS recommended that the land be zoned as Farming Zone Schedule 2 (Consolidation) to support existing farm businesses to operate and grow⁴.

³ Shepparton & Mooroopna 2050 – Regional City Growth Plan 2019

⁴ Campaspe, Greater Shepparton and Moira - Rural Land Use Strategy Final October 2008

Demand and Supply – Industrial Land Greater Shepparton

Consumption of industrial land is rapidly increasing in Greater Shepparton due to strong growth in the industrial sector. Demand for industrial land, particularly for agricultural processing, transport logistics, warehousing and smaller support industries such as refrigeration repairs/maintenance, and mechanical servicing is predicted to increase.

The recent (September 2019) industrial land supply and demand assessment for Greater Shepparton identifies that there is between 13 to 21 years supply of industrial zoned land across Greater Shepparton and an additional 20 to 32 years supply of land identified for future industrial zoning/development⁵. However, there is concern that the current supply of zoned land for large-scale industrial development will be inadequate to meet demand in the medium to long term. Investigation Area 10 (east of Doyles Road, Grahamvale) was not included in the Demand and Supply analysis due to uncertainty regarding its suitability for industrial development.

The East Shepparton industrial precinct (adjacent to the study area), covers around 313 hectares and comprises 49% of the total zoned industrial land stocks in the City.

Greater Shepparton Housing Strategy

The Greater Shepparton Housing Strategy sets objectives, strategies and actions to improve housing outcomes to the year 2031. The Strategy determined that there was sufficient supply of housing land within the settlement boundary to meet housing needs to 2031. The Strategy identified a number of investigation areas where further work was required on land conditions, servicing needs and development potential to assess suitability for housing development. One of these areas - Investigation Area 4 – east of Doyles Road, Grahamvale, which is part of the Study Area was not assessed at the time as the preparation of the Industrial Strategy may have impacted the ultimate land use, zoning and development form for the land.

POLICY CONTEXT

PLANNING POLICY FRAMEWORK

Key clauses of the Planning Policy Framework relevant to the Shepparton East study area are summarised here.

- 11.02-1S Supply of urban land - Ensure a sufficient supply of land is available for residential, commercial, retail, industrial, recreational, institutional and other community uses
- 11.02-2S Structure planning - Facilitate the orderly development of urban areas
- 11.03-2S Growth areas - Locate urban growth close to transport corridors and services and provide efficient and effective infrastructure to create sustainability benefits while protecting primary production, major sources of raw materials and valued environmental areas
- 13.02-1 Floodplain management - Assist the protection of: life, property and community infrastructure from flood hazard; the natural flood carrying capacity of rivers, streams and floodways; the flood storage function of floodplains and waterways; floodplain areas of environmental significance or of importance to river health
- 13.05-1S Noise abatement - Assist the control of noise effects on sensitive land uses
- 13.07-1S Land use compatibility - Safeguard community amenity while facilitating appropriate commercial, industrial or other uses with potential off-site effects

⁵ Demand and Supply – Industrial Land Greater Shepparton (2019) Spatial Economics

- Clause 14.01-1S Protection of agricultural land - protect productive farmland which is of strategic significance in the local or regional context
- 14.01-2S Sustainable agricultural land use - Encourage sustainable agricultural land use
- 14.01-2R Agricultural productivity - Hume:
 - Support clustering of intensive rural industries and agricultural production
 - Take advantage of locational opportunities, including separation from sensitive land uses and access to transport, power, water and communications infrastructure
- 17.01-1R Diversified economy - Hume Strategy
 - Encourage appropriate new and developing forms of industry, agriculture, tourism and alternative energy production.

MUNICIPAL STRATEGIC STATEMENT

Clause 21.04-1 Urban Consolidation and Growth draws on the findings of the Greater Shepparton Housing Strategy (2011) to provide future directions for growth and to prepare framework plans for key centres. Investigation Areas have been identified within the Framework Plans. These areas represent land which has potential to be rezoned to a higher density residential use however presently have significant issues or development constraints. The relevant issues will need to be resolved on a site-by-site basis through a more detailed analysis to determine the potential for higher density development and any subsequent changes to the Framework Plans.

The Clause includes Investigation Area 4 – (Investigation Area 10 in Clause 21.06-4 Industry) east of Doyles Road, Grahamvale and states “*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 Dobsons 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*”.

Objectives and strategies to be met in providing for urban development including relevant to this Study include:

- Contain urban growth to identified growth areas in order to protect higher quality and intact agricultural areas and achieve a more compact built up area
- Release land efficiently in terms of location, supply of services and infrastructure and in accordance with land capability
- Coordinate the assessment, planning, development and servicing of identified investigation areas in an integrated manner
- Provide a settlement boundary beyond which additional urban growth and rezoning should not be supported
- Avoid incremental approvals and development in identified investigation areas until an integrated investigation has been completed to assess and resolve future land opportunities and constraints, land use, development opportunities, subdivisional layout and servicing for the area.

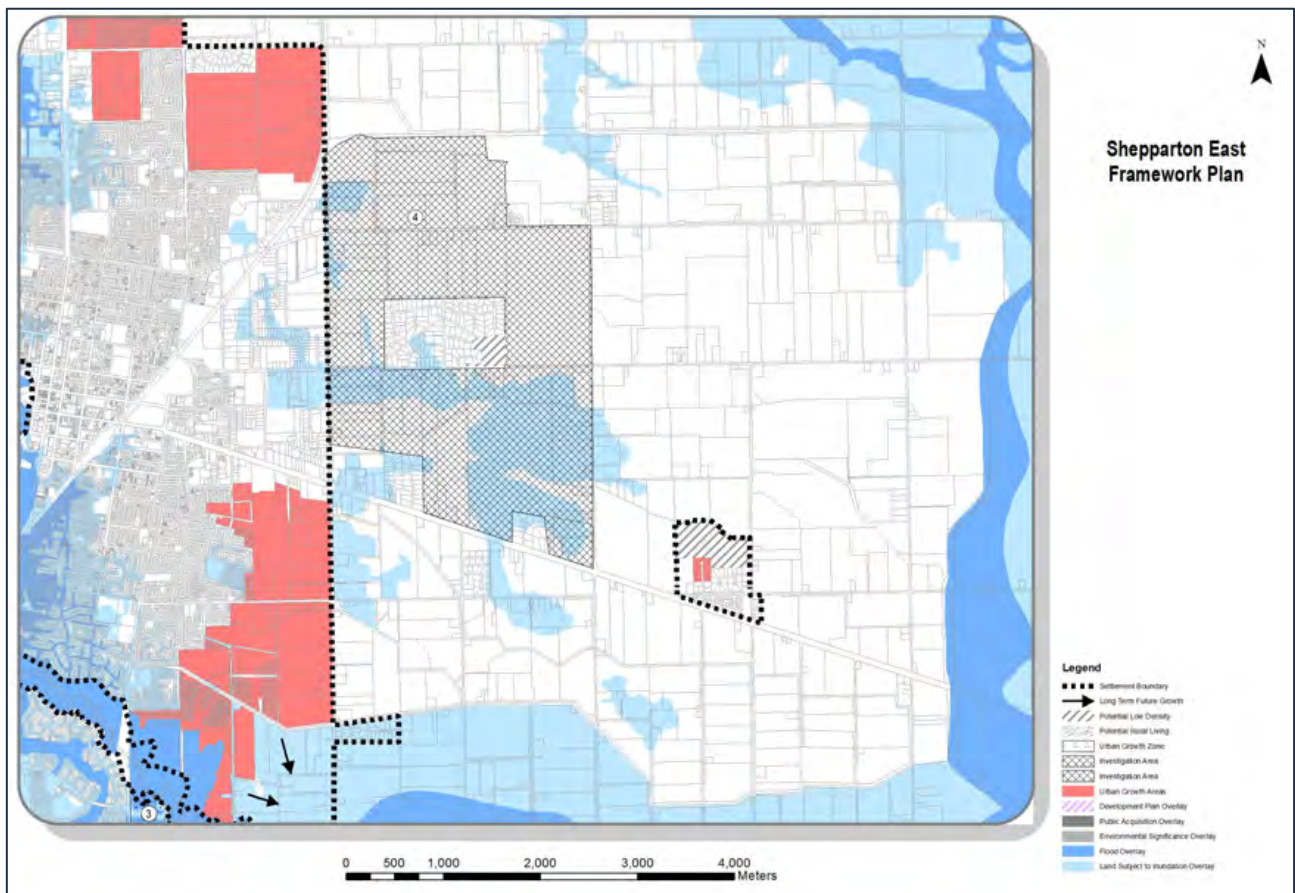


Figure 2: Shepparton East framework plan

Clause 21.06 – Economic Development acknowledges that irrigated primary production underpins the region’s economy. The level of production is nationally important, and the region’s workforce is heavily dependent on the agricultural sector. The objectives of this clause are to:

- ensure that agriculture is and remains the major economic driver in the region
- facilitate growth of existing farm businesses
- facilitate growth of new agricultural investment
- provide for small scale, specialized agriculture
- The strategies listed to achieve these objectives are:
 - Identify ‘growth’, ‘consolidation’ and ‘niche’ areas in the Farming Zone
 - Encourage growth and expansion of existing farm businesses and new investment in ‘growth’ and ‘consolidation’ areas
 - Encourage opportunities for smaller scale, specialized agriculture in ‘niche’ areas
 - Discourage land uses and development in the Farming Zone, Schedule 1 that would compromise the future agricultural use of the land, including farm related tourism
 - Encourage tourism in the Farming Zone, Schedule 2 that is carefully managed to prevent conflict and impact on agricultural operations
 - Encourage value adding and new enterprises for agricultural production. Encourage the preparation of Whole Farm Plans for on farm earthworks. Discourage non-agricultural uses on rural land other than rural based industry

- Discourage non-agricultural development in rural areas except where development is dependent on a rural location and cannot be accommodated within existing industrial or business zoned land
- Discourage non-agricultural development along major roads in rural areas especially at the fringe of existing urban areas when it may contribute to ribbon development
- Buildings for non-agricultural purposes in rural areas should be set back a minimum of 100 metres from any road, be constructed in muted coloured ‘colorbond’ materials or similar and screened from any road by dense tree and shrub planting
- Signs for industrial and commercial development in rural areas will be strictly limited in size and number.

Guidance for assessment of planning permit applications, additional to that provided in the Zone, is set out at **Clause 21.06-2 – Subdivision in Rural Areas** and **Clause 21.06-3 – Dwellings in Rural Areas**. The clauses seek to prevent fragmentation of agricultural land by subdivision and ensure that new dwellings support rural activities and production and are not to meet lifestyle objectives, which may conflict with the rural use of the land.

Clause 21.06-4 – Industry notes that with regard to industrial land, the 2011 Industrial Land Review, found that demand for industrial land is greatest in Shepparton East and that this area will continue to be the preferred location for industry. Several industrial investigation areas were identified with potential to be rezoned for industrial use, however, significant issues or constraints such as environmental, flooding, infrastructure and/or land use conflicts would need to be resolved through a more detailed analysis to determine the potential of these sites to be developed for industrial purposes.

The clause notes with regard land within the study area:

Investigation Area 10 (Investigation Area 4 in Clause 21.04-1 Urban Consolidation and Growth) – East of Doyles Road, Grahamvale. 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 the finalisation of the GBCMA’s Shepparton East Flood Study. 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.



Orchards Shepparton East (RMCG)

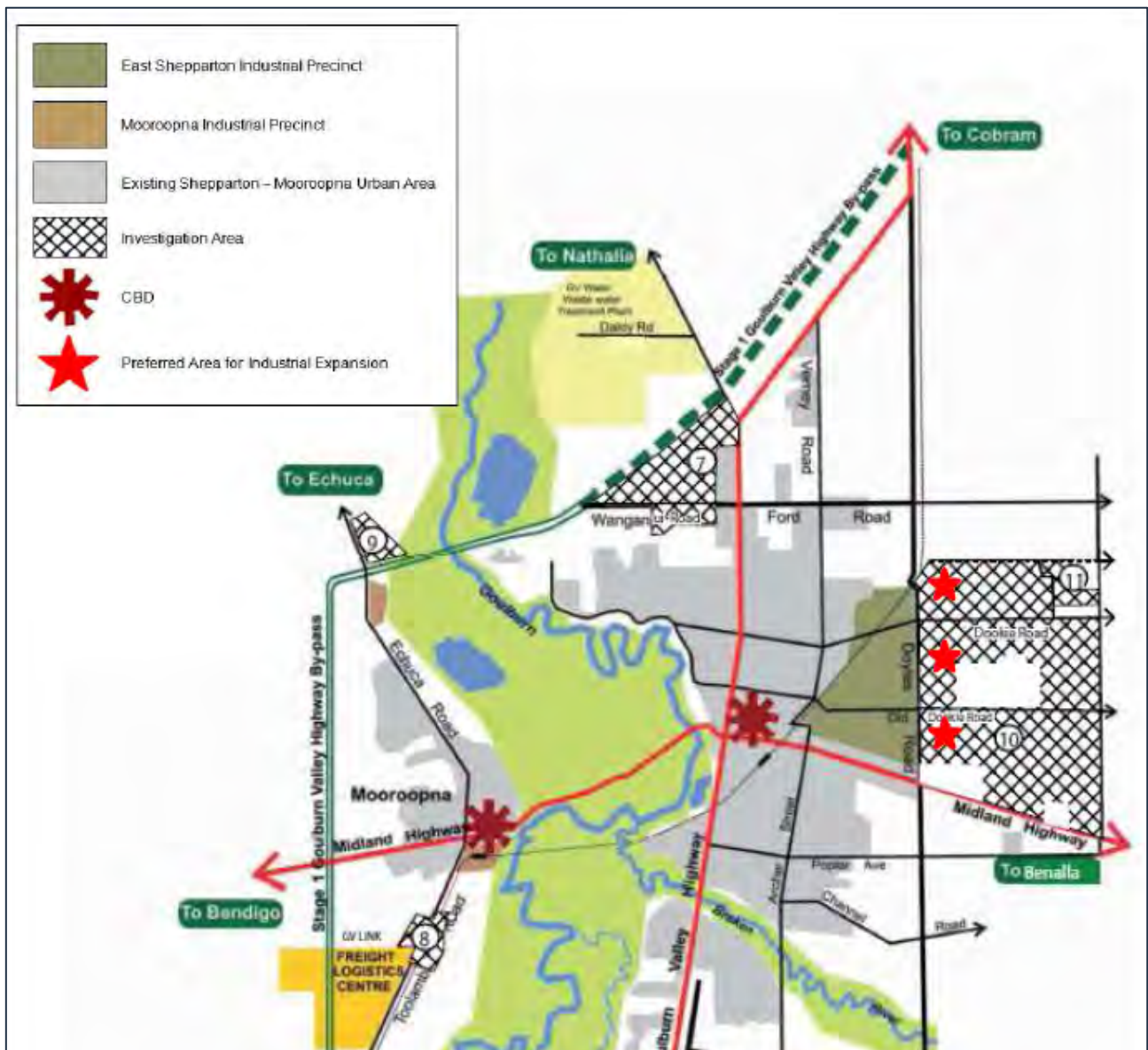


Figure 3: Shepparton industrial framework plan

ZONES

Land within the Study Area is zoned Farming Schedule 1 which specifies:

- Minimum subdivision area of 40ha
- Minimum area for which no permit is required for a dwelling of 60ha
- Minimum setback from a road
 - A Road Zone Category 1 or land in a Public Acquisition Overlay to be acquired for a road, Category 1 - 100 metres
 - A Road Zone Category 2 or land in a Public Acquisition Overlay to be acquired for a road, Category 2 - 40 metres
 - Any other road - 20 metres
- Minimum setback from a boundary - 5 metres
- Minimum setback from a dwelling not in the same ownership - 100 metres.

OVERLAYS

A number of overlays apply to land within the Shepparton East area:

- Land Subject to Inundation Overlay: Identifies land in a flood storage or fringe area affected by a 1 in 100 year flood and limits the location and form of development to minimise impacts from flooding on property and the natural environment
- Floodway Overlay: Identifies waterways, major flood paths, drainage depressions and high hazard areas which have the greatest risk and frequency of being affected by flooding and limits the location and form of development to minimise impacts from flooding on property and the natural environment
- Heritage Overlay 263 (east of Doyles Road): This is an interim overlay due to expire in May 2020.

KEY FINDINGS AND IMPLICATIONS

The current policy direction for Shepparton East and Shepparton South East is for the land to be retained for agriculture and the Zone schedules and local policy provide clear direction to support this outcome. The overarching strategic direction is also for the land to be retained for agriculture. However, the identification of the Shepparton East study area as an investigation area for residential and industrial growth introduces uncertainty as to the long term future of the area for agriculture. Adoption and implementation of the draft Growth Plan will resolve this uncertainty as it clearly states that land within Shepparton East and Shepparton South East is to be retained for agriculture.



Coolstore and packing sheds (RMCG)

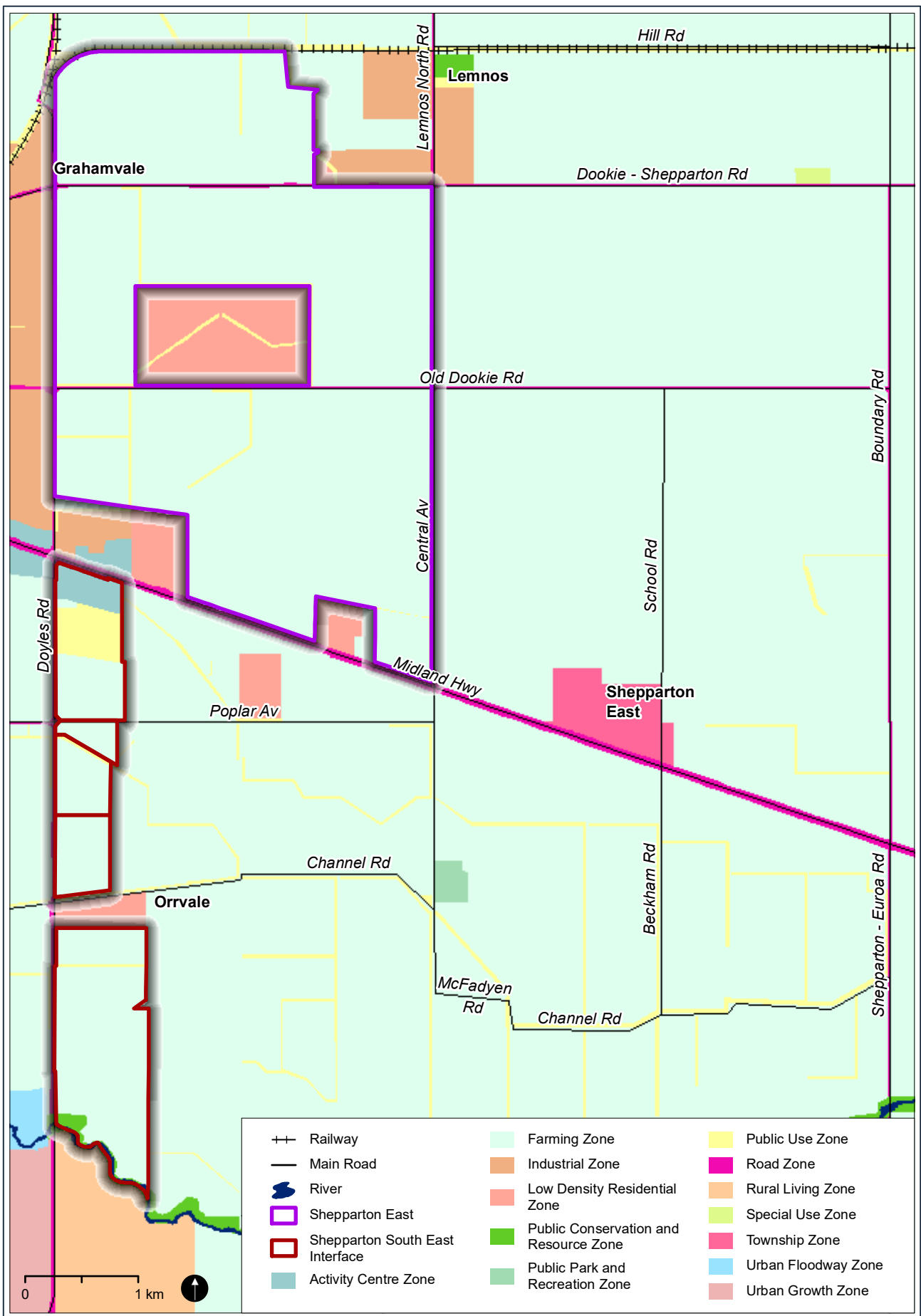


Figure 4: Planning zones

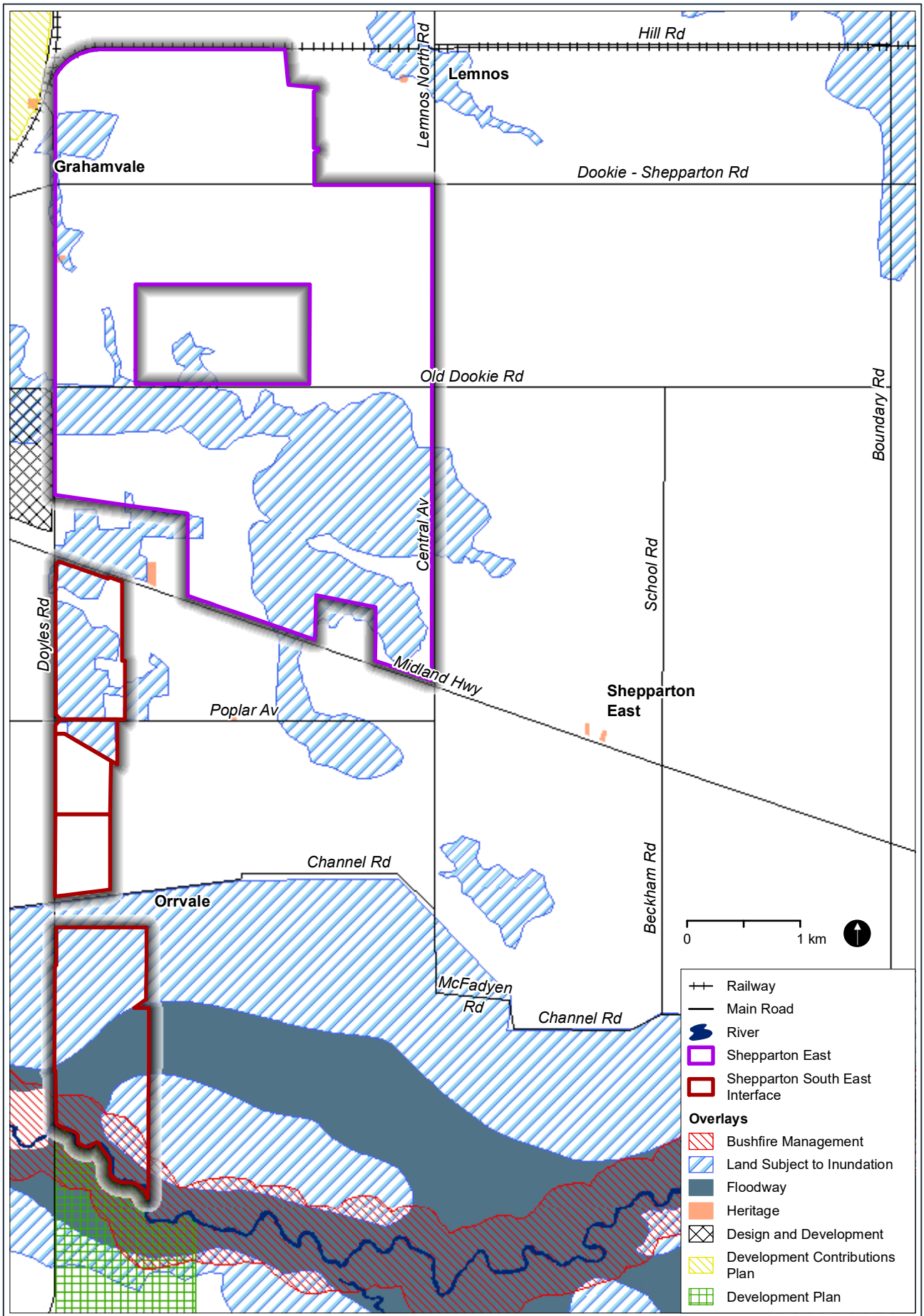


Figure 5: Planning overlays

3 Amenity issues and regulations

This section of the report provides an overview of the complaints from residential neighbours regarding farming activities in Shepparton East and Shepparton South East, and the relevant regulations and local laws that seek to avoid amenity impacts.

AMENITY ISSUES

Between January 2018 and February 2019, the Local Laws Department within Council received 8 scare gun reports and 4 gas gun reports from Shepparton East. After February 2019, all complaints regarding noise from an agricultural property were reported to the Officer for Protection of Local Environment (OPLE) within Council. The OPLE stated that reports (complaints) regarding noise from scare/gas guns were not considered excessive (generally 20 to 30 complaints are received during a season) from across Greater Shepparton. It was noted however that Shepparton East generally received a higher proportion of complaints relative to other parts of Greater Shepparton. The OPLE also identified that:

- When complaints are received, they are usually due to a malfunctioning gun (gas leaks, broken timers) and that the owner (primary producer) is frequently aware of the issue and seeking to correct it
- The majority of complaints are a 'one-off' and it is very rare that the issue escalates or requires further action by the OPLE or EPA
- Complaints are confined to the period of time that guns are used during fruit ripening season⁶.

STATE GOVERNMENT REGULATIONS

EPA GUIDELINES

EPA Victoria provides information and advice to help producers and others in the agricultural sector manage the impacts from their agricultural operations. These relate to the off-site impacts of production that may impact on waste, air quality, water quality, livestock management and noise. Guidelines are provided by the EPA or set by industry to assist producers. The guidelines provide clear standards and thresholds for operation of farm machinery, frost fans and scare guns. As noted above, recent complaints relate mainly to malfunctioning equipment and there have been no ongoing disputes which suggest that farmers are operating within the guidelines.

A summary of the guidelines for noise, frost fans and scare guns is provided here.

Noise⁷

EPA Victoria have developed guidelines for the management of noise generated on farms. The guidelines set out recommended maximum noise levels ('recommended levels'), which can be applied to manage the impacts of noise on the community. Guidelines do not apply to noise from mobile farm machinery or from livestock on a farm or in a saleyard.

⁶ Verbal report from OPLE within Greater Shepparton Council

⁷ Noise from industry in regional Victoria guidelines (2011) EPA Victoria

The guidelines for noise occurring in a Farming Zone are to be no higher than 46dB during the day, 41dB during the evening and 36dB at night. In the Farming Zone, where the noise-emitting subject agricultural activity is 'intensive', then an adjustment of +3 dB should be applied to the determined Zone Levels to reflect amenity expectations of locally intense farming activities. Intensive farming activities are agricultural activities under the planning scheme (Clause 74), including horticulture and timber production, but not:

- 'extensive animal husbandry'
- 'apiculture'
- other 'crop raising'.

Frost fans

The EPA Guidelines for Noise from Frost Fans⁸ provides guidance on avoiding land use conflict arising from the use of frost fans. There are no legislated noise standards for frost fans in Victoria. The following guidelines⁹ are recommended to minimise the potential for conflict:

- Only use frost fans when the temperature around plants is below 0 °C and when the trees are at a critical growth stage
- Site fans so that recommended noise levels are met. Within the Farming Zone an outdoor noise level of 50 dB9A is permitted if less than 12 frost events is likely or 45 dB9A if greater than 12 frost events is likely. An indoor noise level of up to 30dB9A is permitted
- Talk to neighbours (within 1,000m) of the fans to help them understand the likely noise levels, how often and when the fans will operate. This will help to set expectations.

Scare guns

The Environment Protection Authority (EPA) regulates the use of scare guns in Victoria under the *Environment Protection Act 1970*. The Guidelines for the control of noise from scare guns include:

- A scare gun must not be used if the distance between the scare gun and any complainant's house is less than 300m
- The scare gun must not emit more than 70 blasts/day
- The scare gun must not be used earlier than 7am or later than sunset. Earlier starting times will be allowed if this is agreed to by the neighbours/local residents
- The total time of operation of a scare gun must not exceed 12 hours in any one day. However, the time of operation may be divided into two separate periods, provided the interval between blasts is not less than six minutes
- The scare gun must be located as far away as possible from any neighbouring houses
- Wherever possible, the shielding effects of natural features, buildings and so on shall be used to reduce the level of the blasts at complainants' houses
- Wherever possible, the use of the scare gun shall be minimised.

GREATER SHEPPARTON LOCAL LAWS

Local laws are designed to protect public health, safety, or amenity in a municipality. They aim to ensure that the actions of an individual or group do not have a negative or undesirable impact on the rest of the community. Local Laws cannot duplicate, overlap, conflict with or be inconsistent with existing legislation, or any planning scheme.

⁸ <https://www.epa.vic.gov.au/about-epa/publications/1043-1>

⁹ Noise from frost fans (2012) EPA Victoria publication number 1043.1

LOCAL LAW NUMBER 1 – COMMUNITY LIVING 2018

The purpose of Local Law Number 1 is to provide for the peace, order and good government of Greater Shepparton and covers issuing of permits and infringement notices and the prohibiting, regulating and controlling of various activities. With regard to rural land use conflicts, the local law states:

- Noise - A person must not, on any land which they own or occupy, permit any noise or nuisance which:
 - Interferes with the reasonable comfort of any person; or
 - In the case of noise is annoying, objectionable, or unreasonable.

There is some subjectivity in the interpretation of the local law as to what constitutes 'reasonable comfort' or 'annoying, objectionable or unreasonable' which could make this law difficult to enforce and lead to unfair or unbalanced outcomes.

KEY FINDINGS AND IMPLICATIONS

Complaints are received by Council from time to time with noise from scare gun and gas guns the primary cause of complaints from Shepparton East. There have been no ongoing disputes regarding the use of scare guns and gas guns. EPA guidelines provide clear standards and thresholds for operation of farm machinery, frost fans and scare guns, and it would appear that farmers are operating within the guidelines. Ongoing education of residential neighbours regarding the importance to farm productivity and profitability of mitigating the effects of frost and birds by using scare guns and frost fans is important.

4 Current land use and land suitability

This section of the report provides an assessment of the current land use and land suitability within the study area including a review of lot sizes, land ownership, land uses.

REGIONAL INFRASTRUCTURE AND VALUE CHAIN

Many of Australia's best-known food processors including Unilever, Freedom Foods, Campbells, Snow Brand and SPC, have established operations in the GMID. These companies are supported by well-developed transport networks; up-to-date infrastructure; extensive handling and packing; and warehousing and distribution facilities.

The region is ideally located for distribution of produce to any markets in South-Eastern Australia. Domestic markets served include Sydney, Melbourne and Adelaide, as well as Brisbane and Newcastle via an excellent road and transport system with local transport companies operating this national network on a daily basis.

GMID's primary producers and processors are well-serviced and supported by advanced research, natural resource management, engineering, technology, organisational and support services in the region, including:

- Agriculture Victoria Institutes at Tatura and service centres at Cobram, Swan Hill and Echuca
- Goulburn Ovens Institute of TAFE and LaTrobe University
- Dookie Agricultural College/University of Melbourne
- Melbourne University School of Health
- BRIT in Echuca
- Goulburn-Broken Catchment Management Authority
- North Central Catchment Management Authority
- Goulburn-Murray Rural Water Authority
- Specialist engineering, metal and electrical firms, packaging, warehousing, cool store and value-adding enterprises.

Agriculture within Shepparton East is supported by a range of services including:

- Energy - including electricity, hydro-electricity and natural gas
- Business networks within the Greater Shepparton area include the:
 - Exporter's Network (which provides opportunities for businesses to learn about export activities and requirements and to network with other businesses interested in exporting)
 - Goulburn Valley Business and Rural Industry Network
- Extensive cool chain and storage infrastructure. While the majority of the infrastructure is designed to meet the needs of the main horticultural crops in the region (stone and pome fruit, tomato and kiwifruit etc) it is likely that this infrastructure could be modified to suit other crop types
- Agronomic services and materials required for horticultural production such as fertilisers, pesticides, machinery and irrigation equipment¹⁰.

LOT SIZES AND LAND OWNERSHIP

An analysis of lot sizes and ownership of land (Table 1, Table 2) in the study area and surrounding land found:

¹⁰ Capability of the GMID to support increased production of horticultural crops (2010) RMCG report for Regional Development Victoria

- There are 167 lots within the study area held in 99 separate ownerships
- The 85 lots less than 2ha in size are held in just five separate ownerships
- The breakdown of lots by size range in the study area and surrounding land is similar
- Most land ownerships are between 20 ha and 50 ha, indicating that there has been lot amalgamation over time
- There are slightly more land ownerships in the 50 ha – 100 ha size range outside the study area
- Land owners within the study area also own land outside the study area.

Figure 6 shows the distribution of lots within the study area and surrounding Farming Zone land and Figure 7 shows the land in single ownership.

SPC noted that the number of small family owned and managed farms in Shepparton East has reduced with enterprises such as GV Independent Packers purchasing land and increasing the size of their operation. A number of producers have diversified their markets, selling some fruit to SPC for canning whilst also supplying fresh product into the markets. Those growing for the fresh market have invested in netting to ensure that they meet quality specifications and have also invested in new plantings¹¹.

Table 1: Lot analysis: all lots and lots in study area*

| Size range (ha) | ALL LOTS | | | STUDY AREA | | |
|-----------------|----------------|-------------------------------|-----------------|----------------|-------------------------------|-----------------|
| | Number of lots | Total area in lots size range | % of total area | Number of lots | Total area in lots size range | % of total area |
| < 2 | 735 | 384 | 8% | 85 | 50 | 5% |
| 2 – 20 | 334 | 3,052 | 64% | 73 | 617 | 59% |
| 20 – 50 | 37 | 949 | 20% | 6 | 142 | 14% |
| 50 – 100 | 5 | 286 | 6% | 2 | 120 | 12% |
| > 100 | 1 | 112 | 2% | 1 | 112 | 11% |
| Total | 1,112 | 4,784 | 100% | 167 | 1,041 | 100% |

All lots includes lots within the boundaries of Hill Rd to the north, Doyles Rd to the west, Boundary Rd to the east and the river to the south.

Table 2: Ownership analysis: all ownership and ownership in study area

| Size range (ha) | ALL OWNERSHIP | | | STUDY AREA | | |
|-----------------|----------------|-------------------------------|-----------------|----------------|-------------------------------|-----------------|
| | Number of lots | Total area in lots size range | % of total area | Number of lots | Total area in lots size range | % of total area |
| < 2 | 528 | 280 | 5% | 5 | 26 | 2% |
| 2 – 20 | 165 | 1588 | 31% | 36 | 328 | 20% |
| 20 – 50 | 55 | 1633 | 32% | 17 | 499 | 30% |
| 50 – 100 | 10 | 630 | 12% | 1 | 84 | 5% |
| > 100 | 7 | 973 | 19% | 5 | 713 | 43% |
| Total | 765 | 5,104 | 100% | 99 | 1,649 | 100% |

Note that ownerships may include land owned outside the map and study area.

¹¹ Pers comms. SPC Ardmona 2020

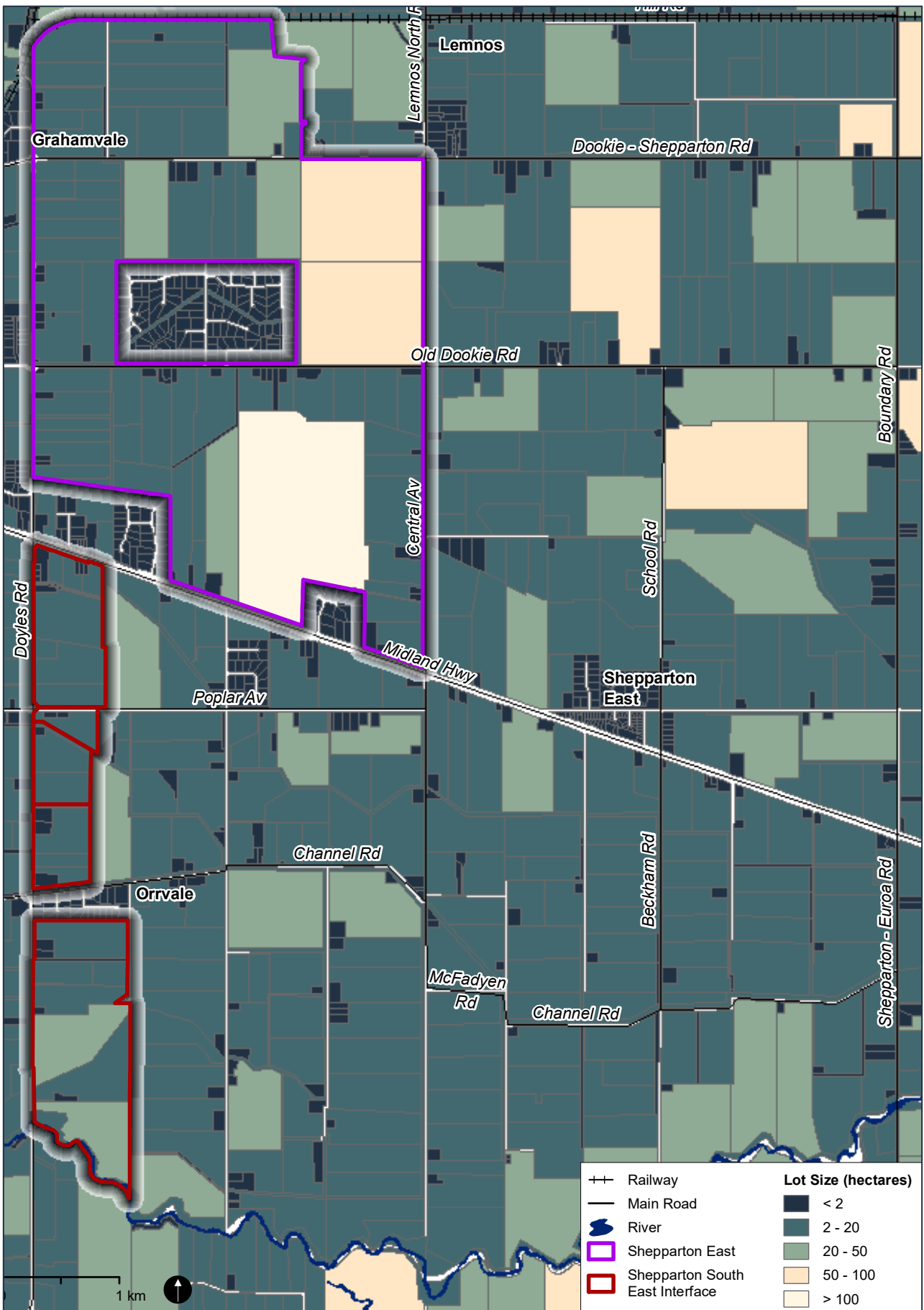


Figure 6: Lot sizes in Shepparton East¹²

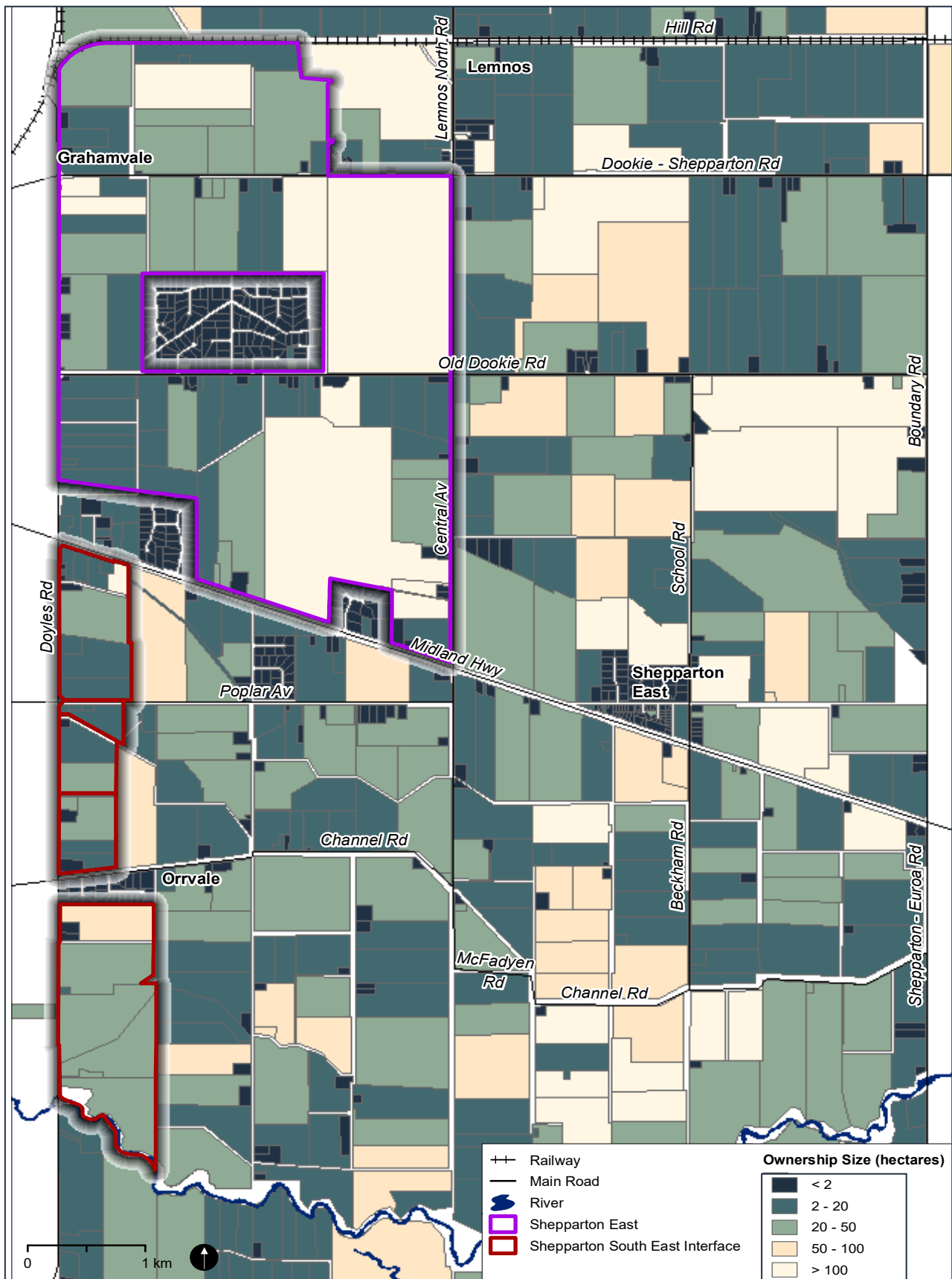


Figure 7: Land ownership in Shepparton East¹³

¹² Data provided by Greater Shepparton

¹³ Data provided by Greater Shepparton

LAND USE

Land use within Shepparton East is dominated by perennial horticulture (apples, pears and stone-fruit) with some annual horticulture (vegetables) (Figure 8). SPC Ardmona source pears, peaches and apples from a number of producers within Shepparton East for canning, juices and purees. Uncertainty regarding the future of SPC over the last 6 – 7 years has resulted in producers holding onto mature plantings and holding off on the establishment of new orchards. An inspection of the study area in January 2020, revealed recently established orchards as well as mature orchards. New orchards would indicate confidence in the productive potential of the area. There is also a dairy and a small amount of cropping and mixed grazing.

A number of properties have been classified as lifestyle/rural residential which may have been due to no apparent agricultural activity occurring at the time of the survey.

Uses of land adjacent to Shepparton East include:

- Industrial estate west of Doyles Road
- Residential estates: Dobsons Estate, Davies Drive, Mason Court, Orrvale Road.

Land use is similar within Shepparton South East though west of Doyles Road the land is still used for farming and there is a residential estate on Channel Road.

While not ideal from a land use conflict risk point of view, the residential estates are contained and well defined. House lot excisions have been generally clustered and as a result the balance land is relatively unfragmented.

LAND USE DATA

Land use data for the study area map was sourced from the 2019 'Regional Irrigated Land and Water Use Mapping in the Goulburn Murray Irrigation District Technical Report' compiled by DJPR. During consultation with landholders there were some queries regarding the accuracy of the land use classifications. Land use mapping data and the field inspection program were completed by visual inspection and, in some cases, by direct interaction with landholders or property managers. Some of the qualification and limitations associated with the data used to develop the map include:

- Properties that were inspected after significant rain events (of which there were a number in the later parts of the survey period) which had the potential to increase the uncertainty of the irrigation classification, land cover classification and therefore the land use category
- The determination of whether a dairy is in production or not is not transparent, as some dairies may have been temporarily not operating but still fully functional and capable of returning to a functioning dairy
- Integrating datasets such as the council property view of land use with information from GMW, DEDJTR and the Victorian Water Register, to the Land Victoria VicMap parcel dataset, can result in data mismatches. All attempts to correct data inconsistencies occurred during the linking of datasets.



Housing within the study area (RMCG)



Upgrade of Doyles Road (RMCG)



Coolstore (RMCG)



Freedom Foods on Doyles Road

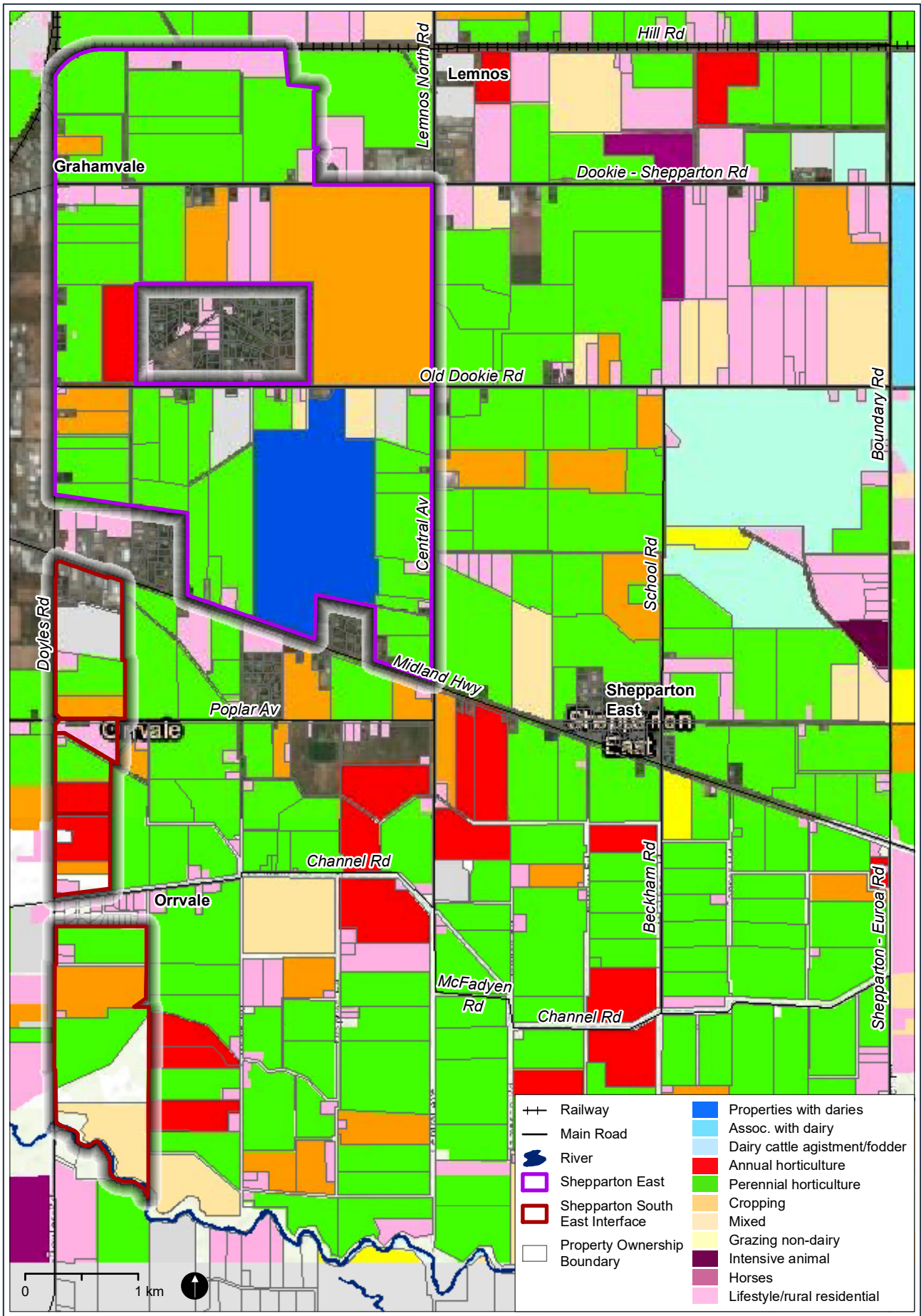


Figure 8: Land use within Shepparton East¹⁴
 SHEPPARTON EAST AGRICULTURAL LAND USE OPTIONS

LAND SUITABILITY

The study area has an ideal combination of natural attributes for high-value agriculture, including:

- Excellent soil types
- Mediterranean climate
- Access to a secure supply of high quality water.

SOIL TYPES

Soils within the GMID have been extensively mapped and classified according to their suitability for irrigation and horticulture. The study area contains a mix of Group 1 through to Group 6 (Figure 9). Group 1 and 2 soils (shown in yellow) are generally well suited to irrigation and most types of horticulture production (including perennial horticulture (apples, pears and stone fruit) and annual horticulture such as vegetable production. Group 3 and 4 soils shown as light and dark green can also be irrigated and are suitable for the production of apples, pears and some stone fruit. Group 5 and 6 soils shown in blue are better suited to production of fodder crops.

An assessment of alternative types of agriculture (Appendix 2) for this area found that perennial horticulture (provided noise issues can be managed) continues to be the most suitable option for this area given its:

- Ability to 'outcompete' other industries (such as dairy) for water due to the income generated per ML used
- Suitability to the soil types, geography and climate
- Ability to generate a relatively high income per effective hectare resulting in an ability to be viable on smaller farms
- Aesthetic value.

A range of vegetable crops are suited to this area (as shown by current production in Shepparton South East), however the types of vegetables and areas where they can be grown will be quite specific due to the required climatic conditions and soil types. In particular, heavier soils prone to water-logging can be problematic due to the need to frequently cultivate the soil. Tree crops such as almonds are not suitable due to the lower income per hectare, which require larger farm sizes to be viable.



Recently established orchard. Shepparton East (RMCG)

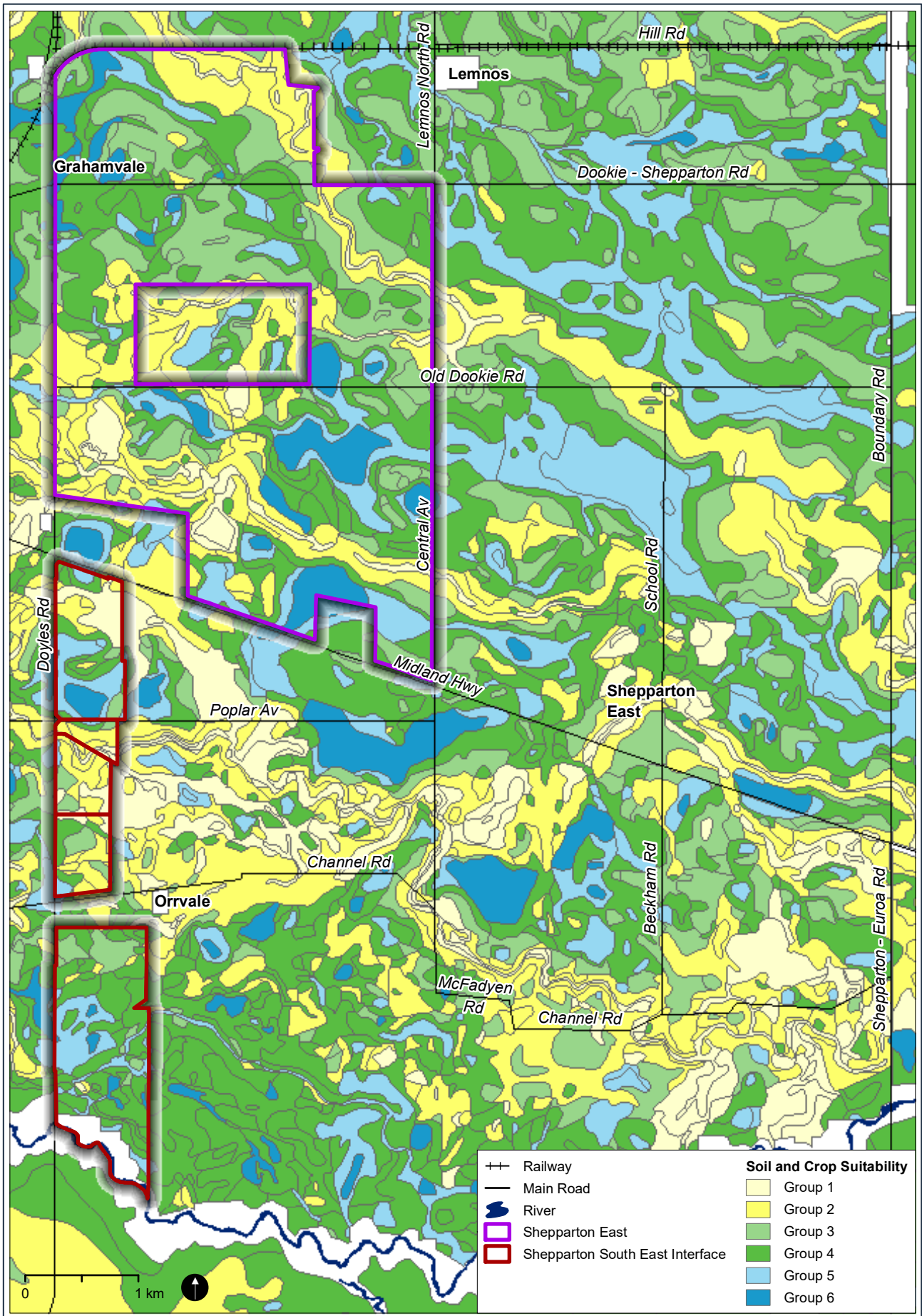


Figure 9: Soil capability and crop suitability of land within study area and Shepparton East¹⁵

CLIMATE AND CLIMATE CHANGE

The GMID has a Mediterranean climate with generally hot dry summers with an average temperature of 30°C between December and February (Bureau of Meteorology, <http://www.bom.gov.au>). In winter, June to August, the average temperature is 14°C with sufficient cold days to achieve the necessary chilling requirement for bud initiation in fruit crops. The average rainfall is around 450mm just over half of which falls between May and October.

The latest CSIRO projections for climate change indicate that the Murray cluster region¹⁶, which includes the GMID, may experience:

- Higher temperatures
- Hotter and more frequent hot days
- Less rainfall in the cool season
- No rainfall changes in the warm season
- Increased intensity of heavy rainfall events, more time in drought
- Increased evaporation rates, and reduced soil moisture.

For horticultural crops this may mean:

- Reduced winter chilling which is important for some fruit trees for setting fruit
- Greater risk of crop damage during hot spells
- A possible increase in area suitable for growing tropical and subtropical crops
- A possible decline in suitability for growing temperate crops
- Increased energy costs as temperatures increase energy requirements for activities such as post-harvest chilling
- Increased evapotranspiration infers more irrigation demand per ha and the area irrigated for a given volume will decrease
- Increased costs of irrigation water in dry years.

There are a range of climate change mitigation and adaptation strategies that farm businesses can adopt, including:

- Crop varieties, species or rootstocks with increased physiological tolerance of hot conditions
- Varieties with reduced chill requirements
- Varieties or species which are better able to exploit the fertilisation effect of increased atmospheric carbon dioxide to improve water use efficiency
- Crop varieties or species bred to resist current pest and disease risks and new risks presented by changing climate.

Strategic and tactical irrigation water management (water trading, carry over and other mechanisms) to secure water at affordable prices is increasingly adopted by farm businesses. The ability to buy water is strongly related to how much each mega litre (ML) generates at the farm gate, but this is not the whole story because the water buyer also considers the impacts of not irrigating on future years profits. This accounts for the cost of replanting and lost production for several years that applies to fruit/nut trees and vines. In extreme droughts this can result in horticulturists paying higher prices than the value of their current crop. More intensive production such as annual and perennial horticulture generates returns that are significantly higher than other agricultural enterprises and will be most likely able to afford water when supply is limited.

¹⁵ Data sourced from the 'Soils and Land Use in Part of the Goulburn Valley, Victoria' report (1962) Department of Agriculture (J.K.M. Skene and T.J. Poutsma)

¹⁶ The challenges and opportunities of changes to water availability on the food and fibre sector in the GMID phase 1 – summary for the community (2016) GBCMA

The outlook in the short to medium term is that:

- Water prices will remain high
- Horticulture will continue to 'out compete' other industries such as dairy for water
- Restructuring and declining farm numbers will continue¹⁷.

The scale of farming businesses in Shepparton East means that they have less flexibility to adapt to changing climate and manage irrigation water compared to larger scale horticultural businesses.



Protective shade cloth structure Shepparton East (RMCG)

IRRIGATION INFRASTRUCTURE

Irrigation water in the study area and Shepparton East is delivered by gravity from a G-MW supply channel. There are 298 customers (Water Use Licences) and 547 outlets in Shepparton East. It is understood that, apart from Channels 10 and 11 (Figure 3-6) irrigation infrastructure has been modernised.

There is currently a proposal, with the Commonwealth Government, seeking funding to modernise the remaining un-modernised sections of the G-MW water delivery system in Shepparton East (see Figure 3-7). The works proposed include channel automation, and the upgrade and rationalisation of 223 meter outlets. In addition to water savings, the benefits generated by the Shepparton East Project include improvements in the service standards to G-MW customers in Shepparton East and a reduction in G-MW whole-of-life and operating costs¹⁸. The area proposed for modernisation does not include the irrigation supply to the Shepparton East study area but does include irrigation supply to the Shepparton South East study area.

Modernisation of irrigation infrastructure enables growers to introduce more sophisticated irrigation systems which could support heightened density of plantings which translates to increased return per hectare¹⁹. Without modernisation, growers will have less flexibility to adopt new technology and will also be a disincentive to farm expansion through amalgamating properties. One of the benefits of modernisation is that farmers are able to control water distribution across the farm from a single outlet.

¹⁷ Northern Victoria Dairy – Water Availability and Production Projections – Draft Report (2019) RMCG

¹⁸ Victoria's Northern Water Infrastructure Prospectus – Continuing to deliver the Basin Plan (2018) DELWP

¹⁹ RMCG GMID Irrigation Sector Analysis (2016) consultant report prepared for GMW

KEY FINDINGS AND IMPLICATIONS

Shepparton East is located within the GMID. The GMID is the country's largest irrigation district and produces more fruit and dairy produce than any other region, as well as supporting significant general horticulture and mixed farming. The region has extensive and well established value chain businesses including food processors and manufacturers as well as industries providing support services.

The lot size pattern within the study area is typical of the surrounding lot arrangements with most lots between 2 ha and 20 ha in size. Land in the study area is generally owned as multi lots tenements of between 2 ha and 20 ha, while surrounding land is generally owned in multi lot tenements of 20 and 50 ha.

Land use within Shepparton East is predominantly perennial horticulture (apples, pears and stone-fruit) with some annual horticulture. Farm businesses are establishing new orchards affirming the high productive potential of the area founded on the areas soil types, climate and service infrastructure.

Uses of land adjacent to Shepparton East includes an industrial estate, separated by Doyles Road and residential estates on Dobsons Estate, Davies Drive, Mason Court, Orrvale Road. While not ideal from a land use conflict risk point of view, the residential estates are contained and well defined. House lot excisions have been generally clustered and as a result the balance land is relatively unfragmented.

Shepparton East has an ideal combination of natural attributes for high-value agriculture, including excellent soil type, Mediterranean climate and access to a secure supply of high quality water. The irrigation network servicing Shepparton East has been largely modernised. Modernisation facilitates farm amalgamation, adaptation to climate change, and adoption new technology and practices.

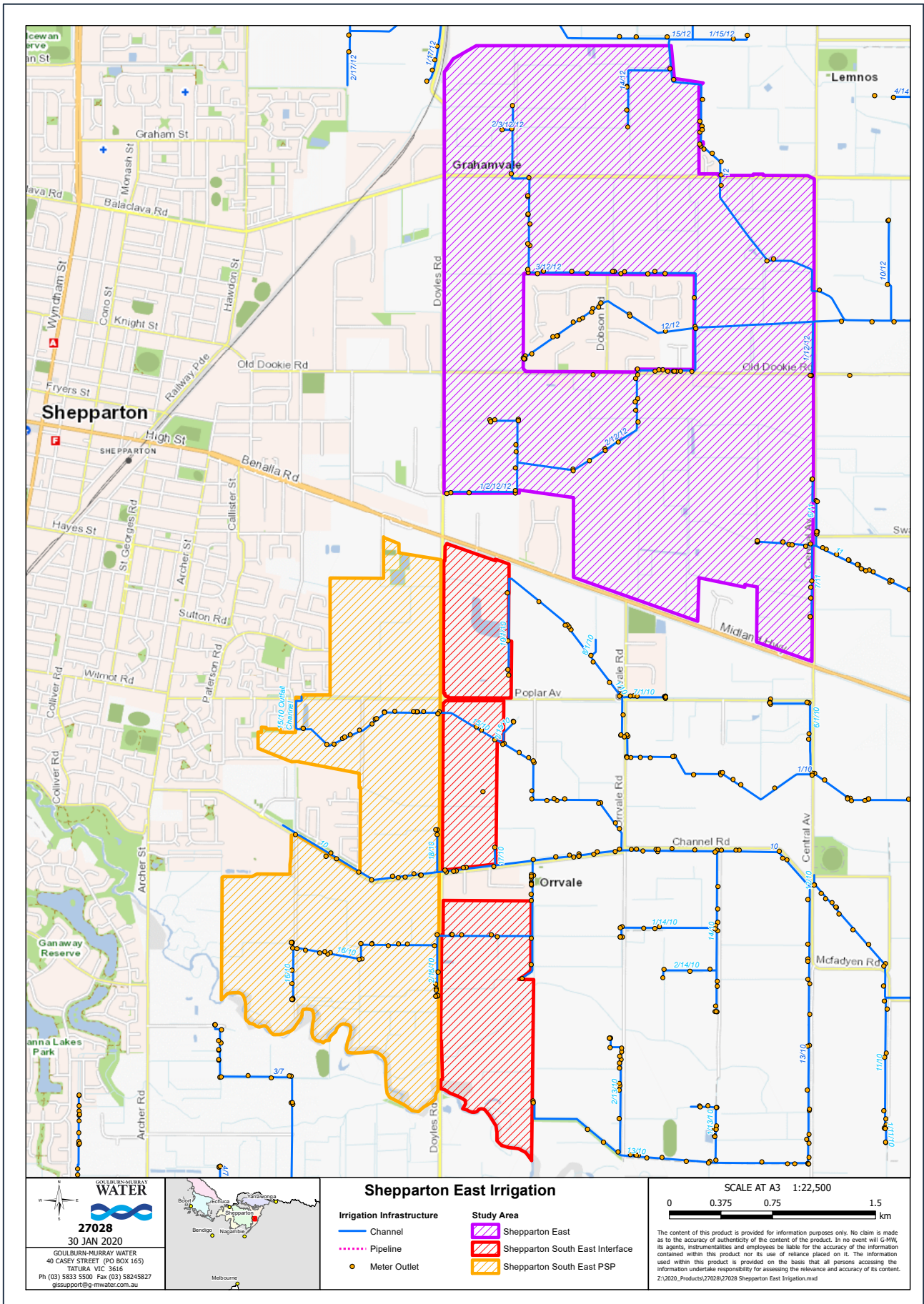


Figure 10: Shepparton East irrigation infrastructure

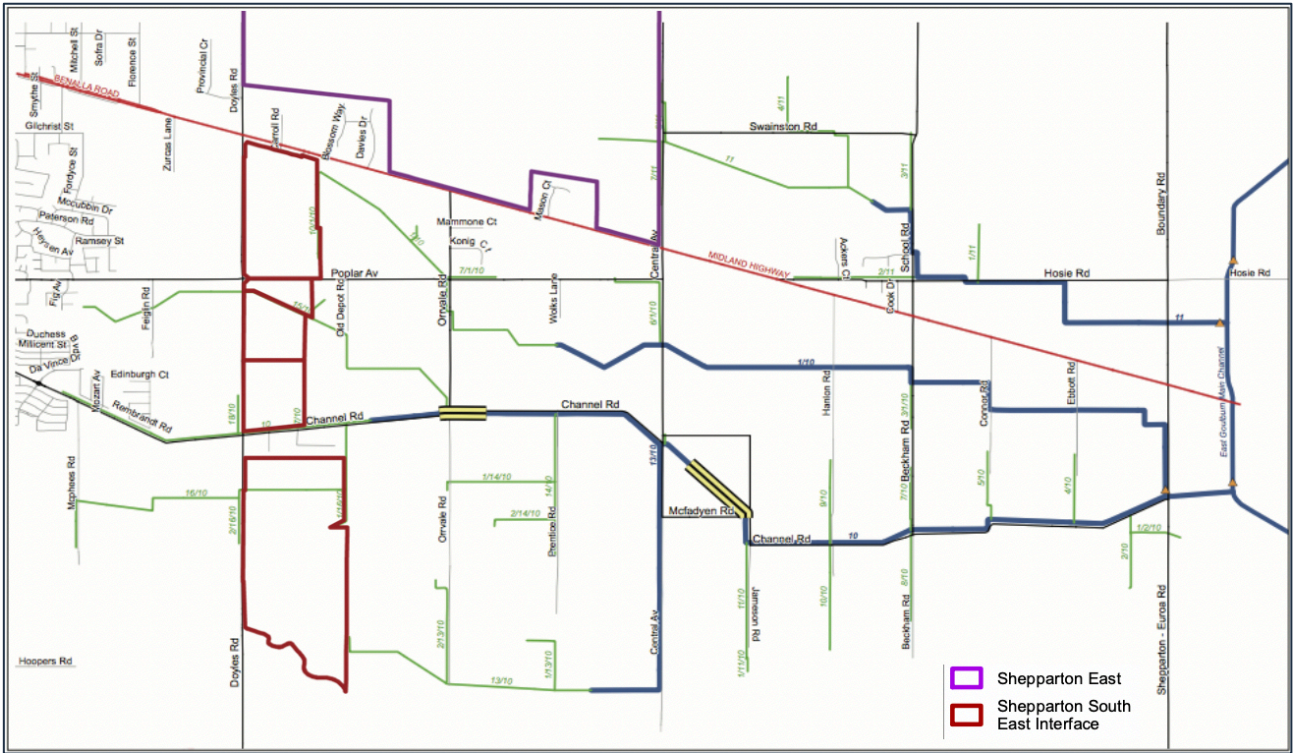


Figure 11: Proposed Shepparton East modernisation (existing automated channels in blue)

5 Agricultural viability

Shepparton East has a long history of successfully producing perennial horticultural crops such as pome and stone fruit. As discussed in Chapter 4, this and other types of agriculture are well supported by the soil types, the climate and local infrastructure. However, Shepparton East landholders have reported that agriculture is no longer viable. This section of the report assesses factors impacting the viability of agriculture in the district.

These factors include:

- Farm size
- Land values
- Land use conflict
- Planning policy.

FARM SIZE

Shepparton East landholders reported during consultation that one of the factors impacting farm viability was the size of properties in the district. Like other agricultural areas, the original subdivision of land was often based on what was considered an area large enough to support a family or “a living area”. For example, in 1887, during the establishment of the Mildura irrigation district, a ‘living area’ was considered to be 4 ha, but by 1919 during the establishment of Red Cliffs and expansion of Merbein, it was considered to be 6.5 ha. In the 1940’s when Robinvale was established it was 10 ha. In 1912, when Shepparton East was developed for irrigation, subdivision in the GMID ranged between 4 ha and 12 ha²⁰. Today, most land in the study area is held in ownerships of between 2 and 20 ha.

The increase in farm scale since 1912, is consistent with established trends in agriculture of increasing scale over time. Increase in farm scale is driven by declining terms of trade for agriculture (i.e. price of agricultural inputs rise while at the same time, prices received for agricultural products reduce). In addition to increasing farm scale, i.e. buying more land, farm businesses also invest in new technology, more efficient farm practices and productive crop varieties to maximise the productive potential of land.

To estimate what is a living area today, the *minimum* area required to generate \$500,000 gross sales was estimated for a range of horticultural crops based on average income data (Table 3)²¹. The estimates show that a living area for a stone-fruit business generating \$50,000/effective ha will require a minimum of 10 ha to be viable. A vegetable farm will require between 7 ha to 20 ha, depending on crop types. The average income per hectare for each enterprise has been calculated per effective hectare therefore most farms will also require additional land for access, storage of machinery and sheds. By comparison, the average area planted to vegetables in Victoria was 63 ha in 2017-18 (Table 4) and the average area planted to pome and stone fruit in the Murray Darling Basin was around 20 ha in 2015-16 (Figure 12).

Based on current land ownership and comparison with industry statistics, farm businesses in Shepparton East are considered to be at the *smaller* end of the spectrum for farm business size. Operating and maintaining a viable farm business at this scale requires a high degree of management expertise as there is less capacity for small business to absorb risk, compared to larger farm businesses.

Looking to the future, to remain viable, it will be *critical* that businesses in Shepparton East increase scale. This can be achieved by increasing the size of the farm or switching to higher value horticultural commodities or a combination of both. Higher value horticultural commodities include niche market products such as

²⁰ Parliamentary Standing Committee on Railways on the Stanhope Closer Settlement Area Connecting Railway (1914)

²¹ While individual cases and financial circumstances vary, on average a viable farm needs at least \$500,000 gross sales per annum to enable farming businesses to continue to grow and undertake necessary succession planning. The benchmark is based on RMCG’s ongoing Multi Industry Farm Business Analysis.

organics and specialty foods for restaurants. Protected horticulture (use of greenhouses and glasshouses) can also achieve higher income per hectare due to the ability to tightly control production factors. However, this type of enterprise is also highly capital intensive, requiring initial investment of approximately \$1 - 2 million per hectare. Protected horticulture may reduce some land use conflicts such as odour, noise from bird guns and frost fans, and spray impacts but there can be noise from ventilation and temperature moderation fans.

Table 3: Estimate of viable farm size

| ENTERPRISE | *AVERAGE INCOME/HA | FARM SIZE (HA) TO GENERATE \$500,000 |
|-----------------------|--------------------|--------------------------------------|
| Vegetables - lettuce | 68,189 | 7 |
| Vegetables - zucchini | 27,640 | 18 |
| Apples | 40,500 | 12 |
| Stone fruit | 50,000 | 10 |
| Canning pears | 17,600 | 28 |
| Dairy | 7,000 | 71 |

*Note: These statistics represent a snapshot in time and are average figures only. There will be individual cases where income per hectare differs from these figures and where a viable farm generates more or less than \$500,000 gross sales. Note also that income/ha is dependent on a range of factors, which may vary significantly between any season and any farm. It does not necessarily equate to profit. On average most primary producers will have a profit margin of approximately 10% of gross sales. Therefore, if a farm is generating gross sales of \$500,000 per annum this equates to \$50,000 profit. Some producers who have more efficient management practices may be able to increase this to 20%. This has been collected from a range of industry sources including ABARES, ABS, Dairy Monitor, Livestock Monitor, NSW DPI, AUSVEG, RMCG pers comms.

Table 4: Proportion of farms and production, vegetable-growing farms, by size, in Victoria 2017–18²²

| | UNITS | <5HA | 5 TO 20HA | 20 TO 70 HA | >70HA | AVERAGE / TOTAL |
|-----------------------------------|-------|------|-----------|-------------|-------|-----------------|
| Area planted to vegetables | ha | 1 | 13 | 46 | 235 | 63 |
| Proportion of farms | % | 6 | 48 | 27 | 19 | 100 |
| Proportion of production | % | 1 | 6 | 25 | 68 | 100 |
| Proportion of value of production | % | 3 | 6 | 17 | 74 | 100 |

²² <https://www.agriculture.gov.au/abares/research-topics/surveys/vegetables#detailed-physical-characteristics>

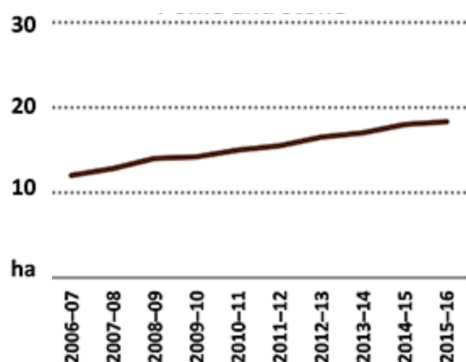


Figure 12: Trend in size of Australian pome and stone fruit farms²³

LAND VALUES

To test whether the proximity of Shepparton East to the Shepparton urban centre and the current policy settings are impacting the value of agricultural land in Shepparton East the capital improved value of properties in Shepparton East was mapped. The Capital Improved Value (CIV) is the total market value of the property, which includes the Site Value, and the value of buildings and any other improvements. The CIV was divided by the property area to provide a value/ha and comparison across all lots. The mapping shows that larger farming lots are valued at less than \$50,000/ha while small rural residential blocks are valued at over \$500,000/ha. Some large lots have a high CIV/ha because they have significant infrastructure e.g. dairy, shedding. The mapping also shows that the pattern of CIV/ha is consistent across the Shepparton East district. An online scan of the results of recent land sales found that no land sales have occurred recently in the area. Properties currently on the market in Shepparton East range between \$29,000/ha and \$34,000/ha. Both properties have established orchards and irrigation infrastructure. The data would suggest that the value of agricultural land is not overly inflated due to its proximity to Shepparton or demand for rural residential lifestyle development.

²³ <https://www.agriculture.gov.au/abares/research-topics/surveys/irrigation/horticulture#horticulture--production-in-the-murraydarling-basin>

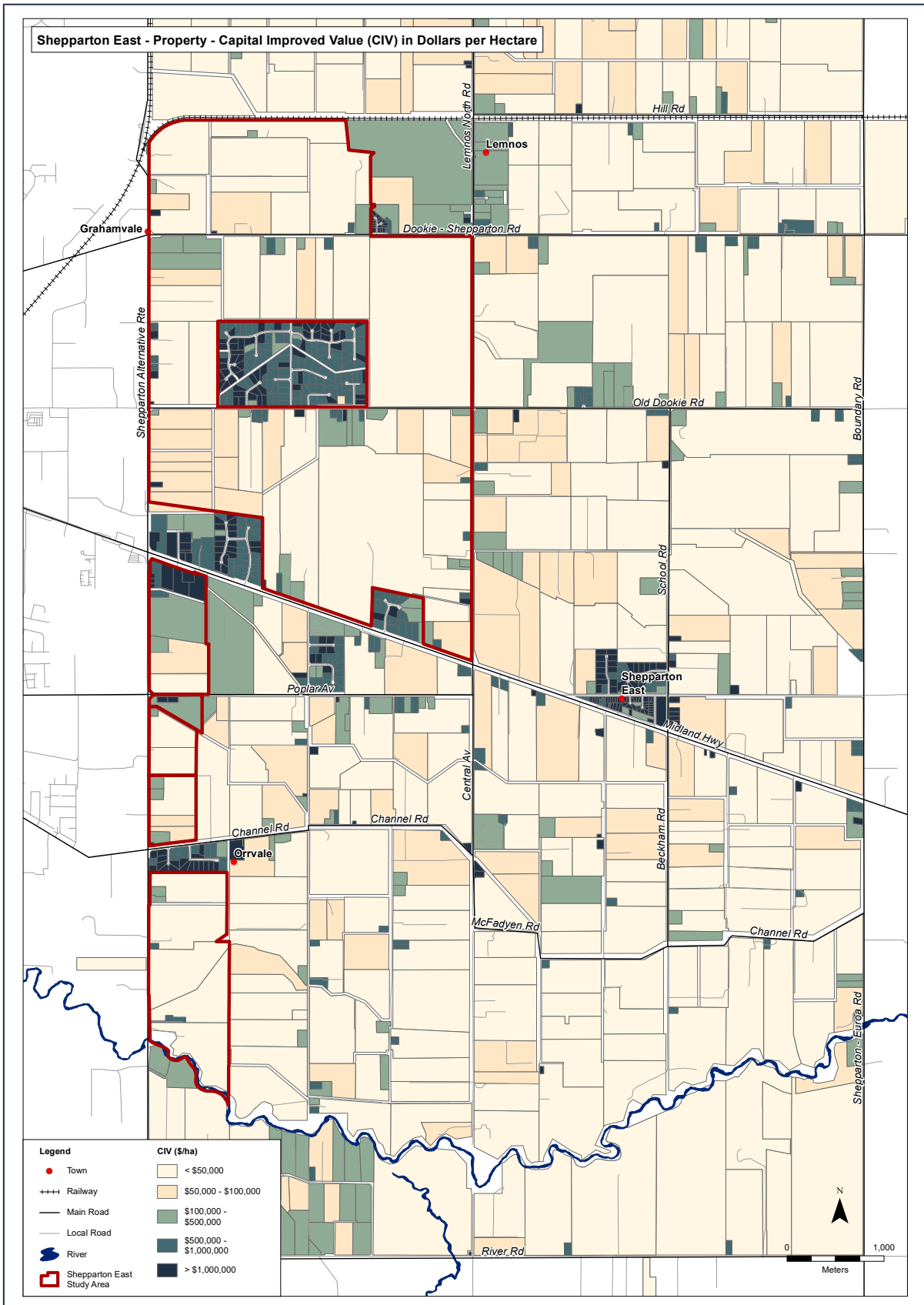


Figure 13: Capital improved value per hectare, Shepparton East

LAND USE CONFLICT

A review of recent complaints regarding agricultural practices in Shepparton (Section 3), found that complaints are received by Council from time to time with noise from scare gun and gas guns the primary cause of complaints from Shepparton East. There have been no ongoing disputes regarding the use of scare guns and gas guns.

A land use conflict risk assessment was undertaken to determine whether land use conflict is, or could, impact the viability of agriculture in Shepparton East. The assessment considered:

- The risks posed by non-agricultural neighbours on agriculture in Shepparton East
- The risk of posed by agriculture on non-agricultural neighbours.

The assessment identified a number of high priority risks but found that implementation of mitigation measures could significantly reduce the risk ranking such that were no residual high priority risks.

The assessment found that adoption of risk reduction measures could reduce high priority risks. From the perspective of agricultural businesses in Shepparton East, the cost of risk mitigation is not higher than for businesses elsewhere as the measures only require them to comply with best practice management guidelines and they are not required to adopt additional risk mitigation measures. While complaints are occurring, the risk assessment did not identify any high priority risks (once mitigation measures are applied) that reduce the viability of agriculture in Shepparton East.

PLANNING POLICY

For horticultural businesses, the preferred approach to increasing the farm footprint is to amalgamate adjoining lots which facilitates more efficient irrigation layouts and long row lengths. As discussed above, farm amalgamations have been occurring within Shepparton East since 1912. However, some current landholders have reported that they are reluctant to sell as they anticipate the conversion of their land to a residential or industrial use.

Currently, land within Shepparton East is identified in two studies and the MSS as being investigation areas for either residential or industrial development. The feedback from landholders was that this has reinforced uncertainty regarding the future land use of the area. The uncertainty has two effects: it is discouraging farming businesses that wish to continue farming from investing in farm amalgamation; it is discouraging farm businesses wishing to exit the industry from placing the farm on the market and making it available for purchase for amalgamation. As a result, most farms have not increased scale in recent years, and this would be impacting the viability of some businesses.

Leasing of land to increase farm size is a common and viable proposition for annual horticulture (vegetables) as the capital investment to make land ready to farm is lower. However, for perennial horticulture where significant upfront capital investment is required to establish orchards, leasing is not a viable option for increasing farm scale.

Operation of a perennial horticultural (such as apple, pear, stone-fruit) business, more than other types of agriculture, is based on long-term plans due to long lead times before full production is reached, significant upfront capital investment, and fluctuations in water availability.

If the vision is for agriculture to remain the primary land use in Shepparton for the long term, then the planning scheme must be unambiguous in this regard. While the zone and MSS at Clause 21.06 provide clear policy direction to this end, it is undermined by the inclusion of Shepparton East in residential and industrial investigation areas.

KEY FINDINGS AND IMPLICATIONS

Most farm businesses in Shepparton East are considered to be at the smaller end of the spectrum of farm business size. Operating and maintaining a viable farm business at this scale requires a high degree of management expertise as there is less capacity for small business to absorb risk, compared to larger farm businesses. It will be *critical* that businesses in Shepparton East are able to increase scale, by increasing the size of the farm, switching to higher value horticultural commodities or more intensive production systems such as protected horticulture.

The analysis of land values in Shepparton East indicates that the value of agricultural land is not overly inflated due to its proximity to Shepparton or demand for rural residential lifestyle development.

While the proximity of farm businesses to non-agricultural uses does increase the risk of land use conflict, the land use conflict assessment found that:

- there are no additional costs to farm businesses of mitigating high priority risks
- risks do not significantly reduce the viability of agriculture in this area
- there are guidelines and processes in place to assist in managing these risks.

The current policy direction for Shepparton East and Shepparton South East is for the land to be retained for agriculture, and the Zone schedules and local policy provide clear direction to support this outcome. The overarching strategic direction is also for the land to be retained for agriculture. However, Shepparton East is identified in two studies and the MSS as an investigation area for either residential or industrial development. This ambiguity in the direction for Shepparton East is creating uncertainty regarding the future land use of the area. As a result, most farms have not increased scale in recent years, and this would be impacting the viability of some businesses. If the vision is for agriculture to remain the primary land use in Shepparton for the long term, then the planning scheme must be unambiguous in this regard.

The size of farms in Shepparton East is considered to be the most significant factor impacting farm viability.

6 Land use conflict

The assessment of Rural Land Use Conflict follows the approach detailed in the Land Use Conflict Risk Assessment Guide²⁴ prepared by the NSW Department of Primary Industry. Land Use Conflict Risk Assessment (LUCRA) is a system to identify and assess the potential for land use conflict to occur between neighbouring land uses. The LUCRA aims to:

- Identify and address potential land use conflict issues and risk of occurrence before a new land use proceeds or a dispute arises
- Objectively assess the effect of a proposed land use on neighbouring land uses
- Increase the understanding of potential land use conflicts to inform and complement development control and buffer requirements
- Highlight or recommend strategies to help minimise the potential for land use conflicts to occur and contribute to the negotiation, proposal, implementation and evaluation of mitigation strategies.

There are four key steps in a LUCRA:

1. Gather information about proposed land use changes and associated activities
2. Evaluate the risk level of each activity
3. Identify risk reduction management strategies
4. Record LUCRA results.

RISK ASSESSMENT

The full assessment of potential land use conflicts is set out in Appendix 1. The high priority risks are summarised here:

- The high priority risks from agricultural management practices impacting non-agricultural neighbours are:
 - Spraying of orchards to control pest and disease
 - Use of scare guns to manage birds
 - Wind machines to manage frost
 - Odour from dairy effluent/manure
 - Odour from spreading of compost
 - Noise from operating farm machinery.
- The high priority risks from non-agricultural neighbours impacting agriculture are:
 - Local traffic
 - Pest plants and animals.

Risk reduction measures were considered for each risk and the risk ranking re-evaluated based on implementation of the mitigation measures. Implementation of the measures substantially reduced the risk ranking such that there are no high priority residual risks.

Mapping of potential land use conflict hotspots are shown in Figure 22. Lots less than 2 ha that may also present a risk of land use conflict are shown in Figure 23.

²⁴ Land Use Conflict Risk Assessment Guide (2011) NSW Department of Primary Industries

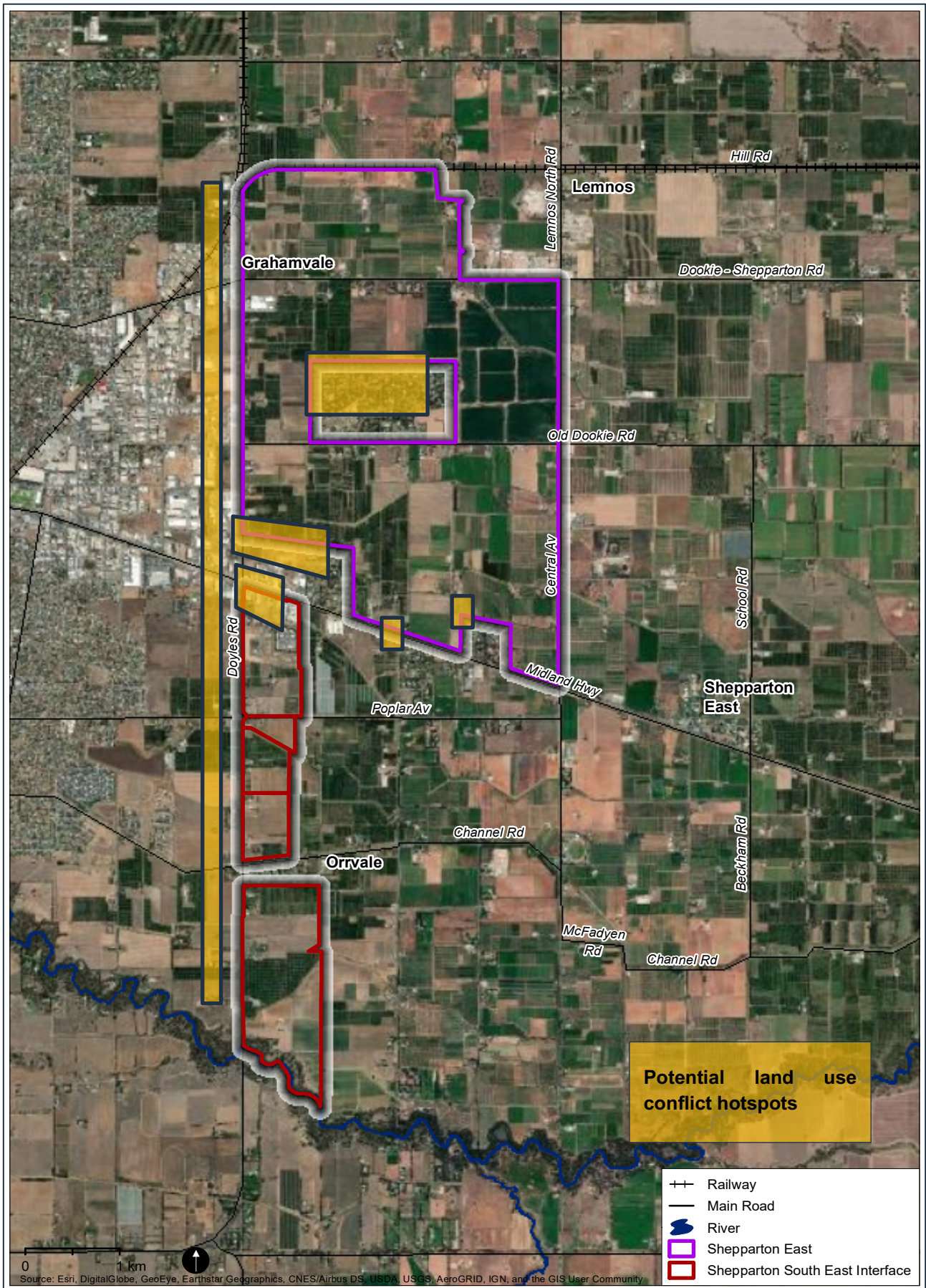


Figure 14: Potential land use conflict hotspots

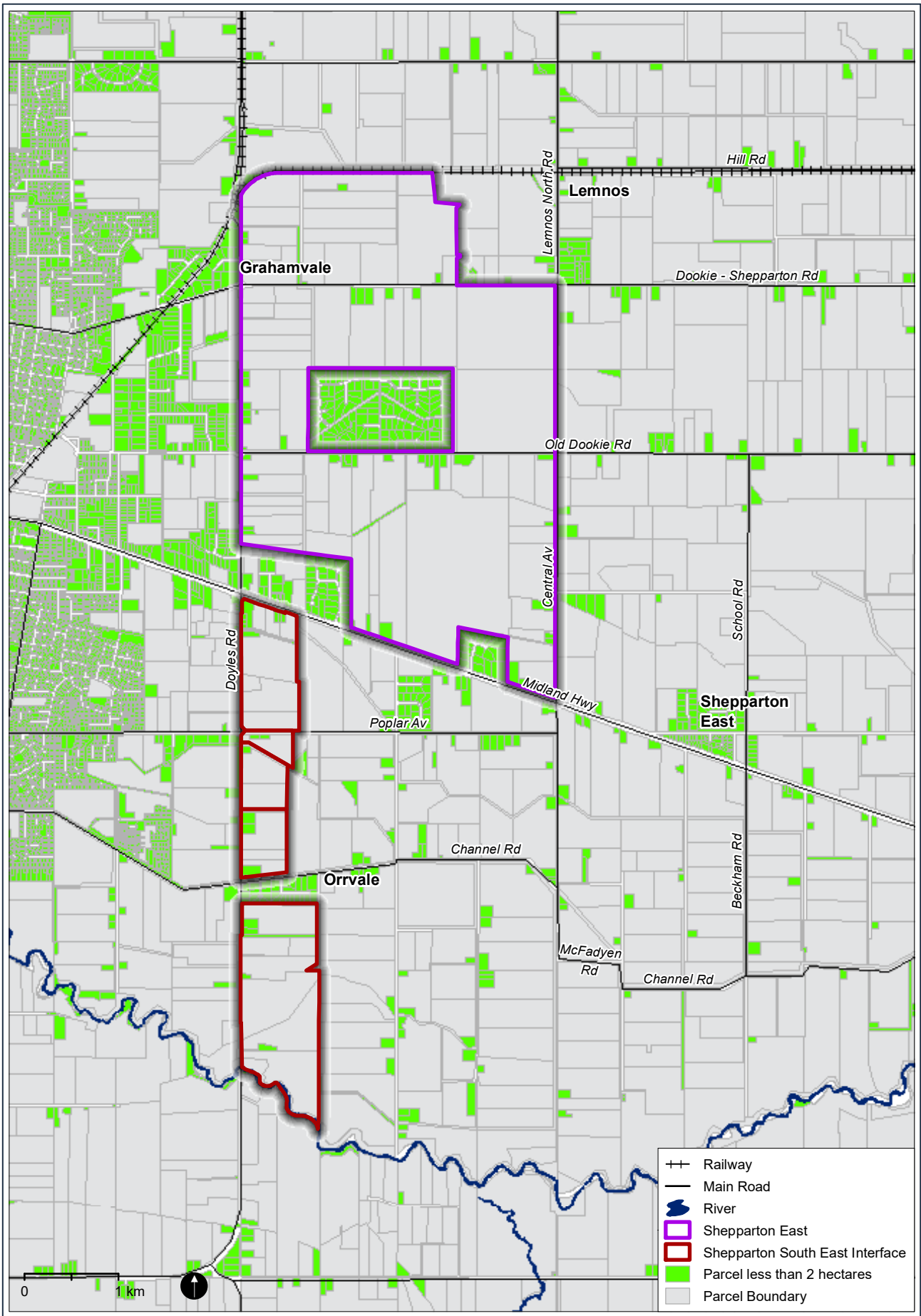


Figure 15: Lots less than 2ha

MITIGATION STRATEGIES

More detail on the mitigation strategies that were considered in the re-evaluation of the high priority risks are discussed here.

MANAGEMENT OF FRUIT DAMAGE

Production of horticultural crops require management of pest and disease, and climatic conditions in order to preserve tree health and fruit quality. For production of tree crops such as apples and pears this can frequently require the use of:

- frost fans to mitigate potential frost damage to tree crops during sensitive periods of growth
- scare guns to prevent birds from feeding on developing fruit
- insecticides and fungicides which are sprayed into the crop to manage insect pests and diseases.

There are a number of ways to either reduce the impact of these management techniques or to use alternative approaches that will achieve a similar effect without causing conflict.

Frost Fans

Frost fans are large fans used to circulate air over a wide area where crops such as apples and pears are grown. They are used when there is a risk of frost conditions and when crops are at a frost-sensitive stage of growth. Conflict can arise due to the noise the frost fans create which is usually at night and in the early morning when frost risk is highest. To minimise the potential for conflict the following EPA guidelines²⁵ are recommended:

- Only use frost fans when the temperature around plants is below 0°C and when the trees are at a critical growth stage
- Site fans so that recommended noise levels are met. Within the Farming Zone an outdoor noise level of 50 dB9A is permitted if less than 12 frost events is likely or 45 dB9A if greater than 12 frost events is likely. An indoor noise level of up to 30dB9A is permitted
- Talk to neighbours (within 1000m) of the fans to help them understand the likely noise levels, how often and when the fans will operate. This will help to set expectations.

Alternatives to frost fans can also be explored and could include:

- Planting of frost-resistant varieties
- Orchard layouts which avoid planting trees in susceptible areas or the use of dense windbreaks to 'dam' cold air
- Applying copper-based spray that reduces ice-nucleating bacteria on trees
- Irrigation.

Scare guns²⁶

Under the EPA's Noise Control Guidelines, scare guns are defined as devices for producing a loud explosive sound for the purpose of scaring away birds from crops and orchards. Scare guns, also known as gas guns or scatter guns, produce an explosive noise by the ignition of a charge of gas and air. Some scare guns rotate after firing so that the next blast is emitted in a different direction, which is intended to increase the surprise effect on birds.

²⁵ Noise from frost fans (2012) EPA Victoria publication number 1043.1

²⁶ <http://greater-shepparton.com.au/council/local-laws/environment-and-agriculture/scare-guns>

For the guns to be most effective they should be used when the birds are most actively feeding. This will normally be in the early morning and late afternoon; but this could be dependent on the species. Most scare guns can be fitted with a timer that enables them to be automatically turned on and off. Scare guns are not the only method of bird control available. Where scare guns cannot be used, other bird controls should be considered by the producer. These include:

Netting²⁷

Exclusion netting using drape-over or permanent nets has high up-front costs but may be appropriate where high-value crops are grown, and levels of damage are high. A range of netting options is available. Machines can be used to install and remove drape-over nets of varying width (for example, covering one, two or four rows). 'Lock-out' netting provides a continuous cover of netting by joining draped nets without the need for poles and cables. Nets can also be used on infrastructure to prevent birds roosting or nesting. If maintained, netting with ultraviolet stabilisers can provide between five and ten years of protection. Drape-over netting is more easily damaged than permanent netting and often does not provide as much protection. Permanent netting is easier to maintain and allows easier spraying of vines and trees. Netting overcomes many of the legal, environmental, social and animal welfare concerns of other techniques. The decision to net is mainly an economic one. Will the increase in returns from excluding birds be beneficial over the life of the netting? As an example, cost– benefit analyses on vineyard netting suggest that drape-over nets are cost-effective when damage is consistently greater than 10% and permanent nets are cost-effective when damage is over 25%. The value of the crop and the practicalities of netting must be considered.

Roosting deterrents

A variety of spikes, coils and wire products are available to exclude birds from perching on buildings and infrastructure. Electrified wires, which can be attached to the tops of vineyard trellises, are also available. These wires give birds a small electric shock but do not harm them. Monofilament lines have been successful for deterring larger birds from fish farms but are ineffective for deterring smaller birds from fruit or nut crops.

Chemical deterrents

There are several chemical deterrent products commercially available in Australia. Check with the Australian Pesticides and Veterinary Medicines Authority for up-to-date registration information (http://www.apvma.gov.au/pubcris/subpage_pubcris.shtml) and appropriate applications. Some deterrents are based on polybutene, which is a tactile roosting repellent; aluminium ammonium sulfate, which acts on a sense of smell and taste; or methiocarb, which is an insecticide that causes conditioned aversion. Polybutene is a sticky substance that irritates bird's feet and can prevent them from roosting on infrastructure; hence is applicable for buildings and urban areas. Aluminium ammonium sulfate may be applied to vegetables, nuts, fruit, orchard trees and vines, provided that the guidelines on the permit are adhered to (e.g. thorough washing before consumption). However, there is no evidence of its efficacy in deterring birds from feeding. Methiocarb is a secondary repellent that causes birds to become ill, creating a learned aversion to the food. This product may be applied only to ornamental plants, and it is not registered for use on edible fruit or nuts. Garlic and chilli sprays have been used to deter birds from feeding, but again, there is no evidence that they are effective.

²⁷ Managing Bird Damage to Fruit and other Horticultural Crops (2007) Bureau of Rural Sciences

Spray Drift²⁸

Horticultural producers commonly need to apply a range of insecticides and fungicides during crop development to manage pest and disease. The technology to apply chemical sprays is advanced and a trained and experienced applicator will be familiar with the best way to apply these products without causing spray drift. However, at times (due to certain climatic conditions and/or the use of inappropriate application equipment) spray drift can occur. Spray drift is the movement of pesticide dust or droplets through the air at the time of application or soon after, to any site other than the target area. Conflict can arise when this spray drift:

- harms human health
- harms companion animals or livestock
- damages the environment, nearby crops or land on other property.

There are a number of ways to minimise spray drift. These include:

- Reading and following the pesticide label instructions or conditions on the APVMA permit
- Ensuring the spray applicators are fully trained and accredited
- Checking weather conditions to avoid spraying when it's too hot or too windy or there are pesticide label constraints that cannot be complied with
- Checking for neighbouring susceptible crops and sensitive areas
- Avoiding spraying when there is a surface temperature inversion – strongest between midnight and sunrise – or when wind speeds are very low
- Notifying neighbours of your spray plan. Sometimes this is out of common courtesy, while at other times notification is required by law
- Selecting nozzles that produce medium to coarse or larger droplets and use them in accordance with the manufacturer's specifications
- Minimising boom height when spraying and slow down – high speeds significantly increase potential for drift.

Most primary producers want to do the right thing by their neighbours and the environment. The alternatives presented above for management of bird damage are either capital intensive (for netting) or not as effective as the use of current approaches (scare guns and frost fans). Therefore, while some alternatives should and can be considered, appropriate use (as set by the EPA guidelines) of current techniques is likely to be the best option. A communication and education program for residents within the area should also be conducted by Council to raise awareness by residents of farm management practices and the reason why these are done, how often they can expect to experience it and at what times of year.

MANAGEMENT OF TRAFFIC

Traffic and congestion has increased on the roads within the study area and Shepparton East due to an increased number of residents and industry. This is likely to increase with the planned road widening of Doyles Road. This increase in local traffic has led to safety concerns when roads are used by farm machinery and farm workers. Properties close to Doyles Road are most likely to be the most affected by this increase in traffic. Improved road design and signage could encourage commuter traffic on to the Midland Highway and New Dookie Road and to minimise traffic within the study area. Parking options for farm workers accessing properties along Doyles Road need to be explored. Options for minimising the transfer of dust onto properties neighbouring Doyles Road should also be considered.

²⁸ Managing Spray Drift Fact Sheet (2008) Grains Research and Development Corporation

KEY FINDINGS AND IMPLICATIONS

The land use conflict risk assessment considered:

- The risks posed by non-agricultural neighbours on agriculture in Shepparton East
- The risk of posed by agriculture on non-agricultural neighbours.

The assessment identified a number of high priority risks but found that implementation of mitigation measures could significantly reduce the risk ranking such that were no residual high priority risks.

From the perspective of agricultural businesses in Shepparton East, the cost of risk mitigation is not higher than for businesses elsewhere as the measures only require them to comply with best practice management guidelines and they are not required to adopt additional risk mitigation measures. While complaints are occurring, the risk assessment did not identify any high priority risks that reduce the viability of agriculture in Shepparton East.

7 Consultation

A number of agricultural producers within Shepparton East were consulted to identify, and confirm the challenges and opportunities for agriculture. During consultation a number of concerns regarding the viability of agriculture in this area were raised and are discussed in Table 5. Table 1

Table 5: Challenges to commercial agricultural production in Shepparton East

| CONCERN | EXPLANATION |
|---|--|
| Damage to fruit by birds | Landholders identified that managing damage to fruit caused by birds was hampered due to: <ul style="list-style-type: none"> ▪ Complaints from residents regarding the noise made by scare guns/shotguns ▪ Increased numbers of gum trees planted within residential areas which attract more birds to the area. |
| Water availability and security | Landholders were concerned about the current and future availability and security of water for Shepparton East. |
| Pest and disease pressure | Poor pest and disease management by residential areas has the potential to increase pest and disease pressure for commercial agriculture. In particular Queensland Fruit Fly (QFF) was identified as a concern. |
| Increased traffic on roads | Increasing traffic on roads within the Shepparton East area due to residents and industry has restricted access to properties by harvest/picking crews and hampered movement of vehicles. |
| Dust from industrial estate | Dust from nearby industrial properties (particularly along Doyles Road) has reduced the quality of fodder (Lucerne) crops which have become unpalatable to livestock (horses). |
| Theft | Landholders indicated that theft was an issue due to the close proximity of town. |
| Small farm size | The relatively small size of farms in the Shepparton East reduces the financial viability of commercial agriculture due to the economies of scale required. |
| Lack of direction/certainty regarding future of Shepparton East | A number of landholders expressed frustration around the apparent lack of direction provided by Council and other planning authorities as to the future of Shepparton East. |

Some primary producers in the area, although mindful of the concerns raised in Table 5, also felt that farming in Shepparton East is still quite buoyant despite the current climatic conditions. They also felt that certain qualifications such as guaranteed infrastructure, and security of water and farming land, were required for opportunities to be realised in the future.

“My family’s long-term plans are to stay within the fruit growing industry. We have sacrificed a lot to be where we are today as an agribusiness in the fresh fruit industry. We cannot continue to invest in our future without clear direction of where Shepparton is heading as a whole in the next 25 years. Our plans are not to just buy or lease mediocre orchard assets but to redevelop all of our farms into highly productive units using high density plantings and further infrastructure around crop protection. If Shepparton East is to continue to be the backbone of the Shepparton Farming economy it needs clear direction and help from COGS²⁹”.

²⁹ Written response to landholder survey.

8 Conclusions and recommendations

KEY FINDINGS

Shepparton East is located within the GMID, which is the country's largest irrigation district producing more fruit and dairy produce than any other region, as well as supporting significant general horticulture and mixed farming. The region has extensive and well established value chain businesses including food processors and manufacturers as well as industries providing support services.

The current policy direction for Shepparton East is for the land to be retained for agriculture and the Zone schedules and local policy provide clear direction to support this outcome. The overarching strategic direction is also for the land to be retained for agriculture. However, framework plans in the MSS identify Shepparton East as an investigation area for residential and industrial growth. This introduces uncertainty as to the long-term future of the area for agriculture. Adoption and implementation of the draft Growth Plan will resolve this uncertainty as it clearly states that land within Shepparton East is to be retained for agriculture.

Shepparton East has an ideal combination of natural attributes for high-value agriculture, including excellent soil types, Mediterranean climate and access to a secure supply of high quality water. Land use within Shepparton East is predominantly perennial horticulture (apples, pears and stone-fruit) with some annual horticulture. Farm businesses are establishing new orchards affirming the productive potential of the area. The irrigation network servicing Shepparton East has largely been modernised. Modernisation facilitates farm amalgamation, adaptation to climate change, and adoption of new technology and practices.

Soil based horticulture is likely to continue for the foreseeable future, being the most suited to the conditions in Shepparton East. Alternative horticulture, such as products for niche markets, may be introduced to the area, driven by consumer and market demands, and the scale of farm businesses in Shepparton East. Additionally, protected cropping may become a viable option for Shepparton East given the areas access to required services and labour supply. Protected cropping enables production of very high value horticultural products under stringently managed and controlled growing conditions.

Uses of land adjacent to Shepparton East includes an industrial estate, separated by Doyles Road and residential estates including Dobsons Estate, Davies Drive, Mason Court and Orrvale Road. While not ideal from a land use conflict risk point of view, the residential estates are contained and well defined. House lot excisions within the study area are generally clustered and as a result the balance land is relatively unfragmented. Complaints regarding noise from the use of scare gun and gas guns in Shepparton East are received by Council from residential neighbours from time to time. There have been no ongoing disputes. EPA guidelines provide clear standards and thresholds for operation of farm machinery, frost fans and scare guns and from the low number of complaints it would appear that farmers are operating within the guidelines. The risk assessment did not identify any high priority risks that compromise the viability of agriculture in Shepparton East.

Based on the current land ownership and a comparison with industry statistics, farm businesses in Shepparton East are considered to be at the smaller end of the spectrum of farm business size. Operating and maintaining a viable farm business at this scale requires a high degree of management expertise as there is less capacity for small business to absorb risk, compared to larger farm businesses.

An assessment of farm size, land values, land use conflict and planning policy on the viability of farming in Shepparton East found farm size to be the most significant factor currently impacting farm viability. The biggest barrier to increasing farm scale is the uncertainty created by ambiguous planning policy, in particular the identification of Shepparton East as investigation areas for residential and industrial development. If agriculture is to be maintained in Shepparton East, it is critical that businesses are able to increase scale, by increasing the size of the farm, switching to higher value horticultural commodities or more intensive production systems such as protected horticulture.

RECOMMENDATIONS

The purpose of this study was to identify:

- Viability of agriculture in Shepparton East
- Alternative farm management practices or alternative farming practices that are suited to the land's context
- Planning responses to the existing land use conflict between farming and rural residential practices.

Soil based horticulture is likely to continue as the primary agricultural use for the foreseeable future, being the most suited to the conditions in Shepparton East. Alternative horticulture, such as products for niche markets, may be introduced to the area, driven by consumer and market demands, and the scale of farm businesses in Shepparton East. Additionally, protected cropping may become a viable option for Shepparton East given the area's access to required services and labour supply. Protected cropping enables production of very high value horticultural products under stringently managed and controlled growing conditions.

The following measures are recommended to maintain and promote agriculture in Shepparton East. These measures seek to:

- Facilitate farm amalgamation
- Support horticultural businesses to adapt to changing conditions and adopt new technology
- Discourage uses that are incompatible with an agricultural area and may introduce land use conflict
- Better manage land use conflicts.

PLANNING POLICY

The recommendations for planning policy include:

- Removing reference to Investigation Area 4 at Clause 21.04-1 and Investigation Area 10 at Clause 21.06-4 Industry
- Retain the Farming Zone and Farming Zone 1 Schedules
- Retain the current policy guidelines at Clause 21.06-2 Subdivision and Clause 21.06-3 Dwellings
- Consider introducing additional policy guidelines for Section 2 uses that are *not* compatible with agriculture and ancillary to agriculture to reinforce the overarching objective of the Regional Rural Land Use Strategy and Clause 21.06-1 Objectives and Strategies. Policy guidance should seek to retain land for horticultural production. Uses not ancillary to horticultural production should be strongly discouraged. Uses ancillary to horticulture such as cool stores and packing sheds should be of a scale commensurate with the size of the lot and directly related to horticultural production on the lot. Light industrial uses e.g. transport depots and warehousing will be strongly discouraged. Repurposing of horticultural cool stores and packing sheds for a use not ancillary to horticultural production on the lot should be strongly discouraged and avoided.
- Consider introducing policy guidelines for assessment of horticultural structures (See Planning Practice Note 18: Considerations for horticultural structures prepared by DELWP and Planning

Guideline for Intensive Horticulture and Production Nurseries prepared by the Queensland Farming Federation³⁰).

ADVOCACY

Advocate for modernisation of the remaining irrigation infrastructure in Shepparton East that has not been part of the Connections Program.

EDUCATION AND COMMUNICATION

Implement a communication and media program to increase awareness and understanding of:

- EPA guidelines regarding appropriate use of scare guns and frost fans
- The use and importance of frost fans and scare guns and other farm management practices
- Appropriate methods for raising concerns regarding farm management practices.

TRAFFIC MANAGEMENT

Council to consider:

- Using road design and signage to encourage commuter traffic onto the Midland Highway and New Dookie Road and to minimise traffic within the study area.
- Exploring parking options for farm workers accessing properties along Doyles Road.
- Options for minimising transfer of dust to properties neighbouring Doyles Road during works to widen the road.

³⁰ <https://www.qff.org.au/wp-content/uploads/2016/11/QFF-Guide-to-Planning-Intensive-Hort-Prod.pdf>

Appendix 1: Risk evaluation

The risk evaluation and definitions are drawn from the Land Use Conflict Risk Assessment Guide¹.

A Risk Ranking Matrix (Table 4-1) is used to rank the identified potential land use conflicts. The risk ranking matrix assesses the environmental, public health and amenity impacts according to the:

- Probability of occurrence
- Consequence of the impact.

The risk ranking matrix yields a risk ranking from 25 to 1. It covers each combination of five levels of 'probability' (a letter A to E as defined in Table 4-2) and 5 levels of 'consequence', (a number 1 to 5 as defined in Table 4-3) to identify the risk ranking of each impact. For example, an impact with a 'probability' of D and a 'consequence' of 3 yields a risk rank of 9.

A rank of 25 is the highest magnitude of risk: A severe event that is almost certain to occur. A rank of 1 represents the lowest magnitude of risk: A rare event with negligible consequences. A risk ranking greater than 10 is regarded as high and priority is given to those activities listed as high risk.

Table 6: Risk Ranking Matrix

| | | PROBABILITY | | | | |
|-------------|---|-------------|----|----|----|----|
| | | A | B | C | D | E |
| Consequence | 1 | 24 | 24 | 22 | 19 | 15 |
| | 2 | 23 | 21 | 18 | 14 | 10 |
| | 3 | 20 | 17 | 13 | 9 | 6 |
| | 4 | 16 | 12 | 8 | 5 | 3 |
| | 5 | 11 | 7 | 4 | 2 | 1 |

Table 7: Probability definitions

| LEVEL | DESCRIPTOR | DESCRIPTION |
|-------|----------------|--|
| A | Almost certain | Common or repeating occurrence |
| B | Likely | Known to occur or 'it has happened' |
| C | Possible | Could occur or 'I've heard of it happening' |
| D | Unlikely | Could occur in some circumstances, but not likely to occur |
| E | Rare | Practically impossible |

Table 8: Consequence definitions

| LEVEL | DESCRIPTOR |
|--------------|---|
| 1 | Severe Severe and/or permanent damage to the environment Irreversible Severe impact on the community Neighbours are in prolonged dispute and legal action involved. |
| 2 | Major Serous and/or long-term impact to the environment Long terms management implications Serious impact on the community Neighbours are in serious dispute. |
| 3 | Moderate Moderate and/or medium-term impact to the environment and community Some ongoing management implications Neighbour disputes occur. |
| 4 | Minor Minor and/or short-term impact to the environment and community Can be effectively managed as a part of normal operations Infrequent disputes between neighbours. |
| 5 | Negligible Very minor impact to the environment and community Can be effectively managed as part of normal operations Neighbour disputes unlikely. |

Table 9: Initial risk ranking

| ACTIVITY | FREQUENCY | POTENTIAL CONFLICT | CONS. | PROB. | RISK RANKING |
|---|-------------------------------|---|-------|-------|--------------|
| Risks from agricultural management practices impacting non-agricultural neighbours | | | | | |
| Spraying of orchards to control pest and disease | Weekly | Spraying of existing orchards and pastures will be constrained by the proximity of neighbours resulting in a reduction in the number of days when spraying can be safely undertaken. | 4 | A | 16 |
| Use of scare guns to manage birds | Daily (during fruit ripening) | Use of scare guns (and management of bird damage) will be constrained due to complaints from neighbours. | 4 | A | 16 |
| Netting to manage damage caused by birds | Ongoing | Use of netting may be constrained due to reduction in visual amenity. | 5 | B | 7 |
| Wind machines to manage frost | Daily (during frost periods) | Use of wind machines (and management of frost damage) may be constrained due to noise impacts on neighbours. | 4 | A | 16 |
| Odour from dairy effluent/manure | Daily | Increase in complaints regarding odour of dairy effluent/manure. | 4 | B | 12 |
| Odour from spreading of compost | Quarterly | Use of compost for fertiliser could be constrained due to odour complaints from neighbours. | 4 | B | 12 |
| Machinery | Daily | Use of machinery (such as tractors and/or cool rooms) may be constrained due to impact of noise on neighbours. | 4 | A | 16 |
| Risks from non-agricultural neighbours impacting agriculture | | | | | |
| Local traffic | Daily | Increase in traffic throughout area impacting movement of farm machinery. | 4 | A | 16 |
| Domestic pets | On-going | Increase in the number of domestic pets and potential for loss and harm to stock. | 4 | D | 5 |
| Pest plants and animals | Quarterly | Increase in pest plant and animal infestations (such as QFF) due to poor land management skills and practices, introduction of weeds, escape of garden plants into native vegetation. | 4 | B | 12 |
| Trespass and theft | Weekly | Increased potential for trespass and theft/damage due to close proximity to community. | 4 | C | 8 |

Table 10: Revised risk ranking of high priority risks incorporating risk reduction measures

| ACTIVITY | RISK REDUCTION MEASURES | CONS. | PROB. | RESIDUAL RISK RANKING |
|---|---|-------|-------|-----------------------|
| Risks from agricultural management practices impacting non-agricultural neighbours | | | | |
| Spraying of orchards to control pest and disease | Following guidelines to minimise spray drift. | 4 | C | 8 |
| Use of scare guns to manage birds | Using scare guns appropriately and according to guidelines. Communication program with residents in area to improve awareness of, and need for, farm management practices. | 4 | C | 8 |
| Netting to manage damage caused by birds | Increase awareness of neighbours of the need for netting and other agricultural practices to manage bird damage to fruit | 5 | B | 7 |
| Wind machines to manage frost | Using wind machines according to EPA guidelines. Communication program with residents in area to improve awareness of, and need for, farm management practices. | 4 | C | 8 |
| Odour from dairy effluent/manure | Manage waste according to EPA guidelines. | 4 | C | 8 |
| Odour from spreading of compost | Manage waste according to EPA guidelines. | 4 | C | 8 |
| Machinery | Manage noise according to EPA guidelines. Communication program with residents in area to improve expectations regarding rural residential living. | 4 | C | 8 |
| Risks from non-agricultural neighbours impacting agriculture | | | | |
| Trespass and theft | Undertake community engagement and consultation activities to confirm access and prevent trespass. | 4 | C | 8 |
| Local traffic | Improved road design and signage to discourage traffic through the district. | 4 | C | 8 |
| Noise | Limit the hours when activities that generate noise can be undertaken. | 4 | C | 8 |
| Pest plants and animals | Undertake group pest control and eradication programs. | 4 | C | 8 |

Appendix 2: Viability assessment of horticulture enterprises for the GMID³¹

| HORTICULTURAL COMMODITY | | CAPSICUM | MUSHROOM | LETTUCE | CARROTS | ASIAN VEGETABLES | ALMOND | WINE GRAPES | STONE FRUIT/POME FRUIT |
|--------------------------------|---------------------------------------|--|---|--|---|--|--|---|---|
| Market attribute | | | | | | | | | |
| (i) Market trends | Domestic | Limited domestic demand | Domestic demand currently exceeds supply | Increasing demand for value added products – loose leaf | Stable | Increasing demand for pre-packaged leafy type vegetables | Increasing global demand – domestic production rapidly expanding | Demand declining | Stable |
| | Export | Stable | Minimal | Minimal | Stable – competition from China | Stable – competition from Asian countries | Stable – currently 50% of production | Stable | Stable – processing sector subject to world price |
| | Imports | Declining | Minimal – mostly used in processing | Minimal | Minimal | Minimal | Minimal | Increasing | May increase particularly from NZ |
| (ii) Credence values | Quality, Environment, Health, Welfare | Expectation for high QA and health compliance | Expectation for high QA and health compliance | Expectation for high QA and health compliance | Expectation for high QA and health compliance | Expectation for high QA and health compliance | Expectation for high QA and health compliance | Expectation for high QA and health compliance | Expectation for high QA and health compliance |
| (iii) Profitability | Costs of production | High value but high labour costs | High value but high labour costs | High value | Medium value | High value but high labour costs | Development of new technology has enhanced profitability | High value but returns declining due to oversupply | Medium value |
| | Capital costs | High entry costs for undercover production | High entry costs | Low entry costs | Low entry costs | Low entry costs | High costs for establishment | High costs for establishment | High costs for establishment |
| (iv) Competitiveness | | Highly competitive – can be large fluctuations in price and yield | | Highly competitive | Highly competitive | Highly competitive | Competitive – large economies of scale required | Highly competitive | Highly competitive |
| Overall Assessment | | Opportunity for value added product and increasing exports | Opportunity for value added product and specialty varieties | Opportunity for value added product | Opportunity for increasing economies of scale | Opportunity for value added product and increasing domestic production | Opportunity for increasing export with predicted increase in global demand | Minimal Opportunity | Moderate opportunity for domestic and some export |
| Natural Assets | | | | | | | | | |
| (i) Soil | Salinity | Minimal risk | N/A | Minimal risk | Minimal risk | Minimal risk | Minimal risk | Minimal risk | Minimal risk |
| | Acidity | Minimal risk - select soil with neutral pH | N/A | Minimal risk | Minimal risk | Minimal risk | Minimal risk | Minimal risk | Minimal risk |
| | Structure/drainage | Moderate risk – select well drained soils | N/A | Moderate risk - select well drained soils | Moderate risk - select well drained soils | Moderate risk - select well drained soils | High risk – select well drained soils | Minimal risk | Moderate risk - select well drained soils |
| | Fertility | Minimal risk – precise application of fertilisers | N/A | Minimal risk – precise application of fertilisers | Minimal risk – precise application of fertilisers | Minimal risk – precise application of fertilisers | Minimal risk – precise application of fertilisers | Minimal risk – precise application of fertilisers | Minimal risk – precise application of fertilisers |
| (ii) Climate | | Low temperatures (<100C) a risk Sensitive to frost and strong winds | N/A | High temperatures may be a risk Sensitive to storm events/hail damage Sensitive to severe frosts | High temperatures may be a risk Sensitive to storm events/hail damage | High temperatures may be a risk Sensitive to storm events/hail damage | Sensitive to severe frosts Prefers dry autumns | Winter chill levels not sufficient for all varieties Sensitive to severe frosts | High temperatures may be a risk Winter chill levels not sufficient for all varieties Sensitive to storm events/hail damage Sensitive to severe frosts |
| (iii) Water | Quality | Minimal risk | Requires exceptionally high quality | Minimal risk | Minimal risk | Minimal risk | Minimal risk | Minimal risk | Minimal risk |
| | Security | Require high security – purchase through water trade | Require high security – purchase through water trade | Require high security – purchase through water trade | Require high security – purchase through water trade | Require high security – purchase through water trade | Require high security – purchase through water trade | Require high security – purchase through water trade | Require high security – purchase through water trade |
| | Service delivery | Water on demand | Water on demand | Water on demand | Water on demand | Water on demand | Water on demand | Water on demand | Water on demand |
| | Usage (per ha) | Up to 4 ML | N/A | 2 – 3 ML | 4 – 6 ML | 2 – 3 ML | 12 ML per annum | 3 – 6 ML | 4 – 7 ML |
| (iv) Pest and disease pressure | | Moderate risk – powdery mildew can be common in dry production areas | High risk – strict adherence to hygiene practices required | High risk - use best practice management techniques | Moderate risk - use best practice management techniques | High risk - use best practice management techniques | Low risk – generally managed. Birds can be an issue | Low risk – generally managed | Moderate risk - use best practice management techniques |
| Infrastructure Assets | | | | | | | | | |
| (i) Labour | Skilled | General shortage | General shortage | General shortage | General shortage | General shortage | General shortage | General shortage | General shortage |
| | Unskilled | Medium to high risk – high level of labour input required | Medium to high risk – high level of labour input required | Medium risk | Medium risk | Medium to high risk – high level of labour input required | Low risk if mechanically harvesting | Medium risk | Medium risk |
| (ii) Transport | Road/Rail | High level of service | High level of service | High level of service | High level of service | High level of service | High level of service | High level of service | High level of service |
| (iii) Services | Electricity | High level of service | High level of service | High level of service | High level of service | High level of service | High level of service | High level of service | High level of service |
| | Technical support | Low risk –support available | Medium risk – high reliance on technical skills | Low risk –support available | Low risk –support available | Medium risk – specialty crops | Low risk –support available | Low risk –support available | Low risk –support available |
| | Business support | High level of support | High level of support | High level of support | High level of support | High level of support | High level of support | High level of support | High level of support |
| | Cool Chain/Storage | Low risk – may require modification for specific crop type | Low risk – may require modification for specific crop type | Medium risk – may require modification for specific crop type | Low risk | Medium risk – may require modification for specific crop type | Low risk | Low risk | Low risk |

³¹ Capability of the GMID to support increased production of horticultural crops (2010) RMCG report for Regional Development Victoria
SHEPPARTON EAST AGRICULTURAL LAND USE OPTIONS

| | | | | | | | | | |
|--|--------------|--|--|--|----------|--|----------|----------|----------|
| | Other inputs | Medium risk – may need to source material (such as seedlings) from outside of region | Low risk – will require material such as manure for production of mushroom compost | Medium risk – may need to source material (such as seedlings) from outside of region | Low risk | Medium risk – may need to source material (such as seedlings) from outside of region | Low risk | Low risk | Low risk |
|--|--------------|--|--|--|----------|--|----------|----------|----------|

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