ARUP

Cleanaway Operations Pty Ltd

Melbourne Energy and Resource Centre

Socioeconomic Technical Report

Reference: MERC-ARU-MEL-ENSO-RPT-0001

Revision 0 Final | 21 March 2023

Job number 287710-01

Arup Australia Pty Ltd | ABN 76 625 912 665

Arup Australia Pty Ltd
Sky Park One Melbourne Quarter
699 Collins Street
Docklands
VIC 3008
Australia
arup.com

ARUP

Document Verification

Project title	Melbourne Energy and Resource Centre
Document title	Socioeconomic Technical Report
Job number	287710-01
Document ref	MERC-ARU-MEL-ENSO-RPT-0001
File reference	

Revision	Date	Filename	
Revision 0 Final	21/03/23	**Filename**	210323_MERC Social Impact Assessment Revision 0 Final
		Description	Revision 0 Final

	Prepared by	Checked by	Approved by
Name	Lusia Time	Libby Gibson/Sara Golingi	Sara Golingi
Signature			

Issue Document Verification with Document ✓

Contents

Tables

Figures

Drawings

No table of figures entries found.

Pictures

No table of figures entries found.

Photographs

No table of figures entries found.

Attachments

No table of figures entries found.

Appendices

Abbreviations and glossary

Table 1: Abbreviations and glossary

Abbreviation	Definition
%	Percent
µg	Microgram
am	Ante Meridiem
A1	Waste Reception Hall
ABS	Australian Bureau of Statistics
APAC	Air Pollution Assessment Criteria
APCr	Air Pollution Control Residue
AQA	Air Quality Assessment
BATT	Best Available Technology and Techniques
BREF	Best Available Techniques Reference
C2	Boiler Halls
C&I	Commercial and Industrial
CDMP	Construction Dust Management Plan
CNVMP	Construction Noise and Vibration Management Plan
dB	Decibel
dBA	Decibel A
DELWP	Department of Environment, Land, Water and Planning
DLA	Development Licence Application
DPIE	Department of Planning and Environment
DRA	Dust Risk Assessment
EES	Environmental Effects Statement
EPA	Environment Protection Authority
EP Act	Environment Protection Act 2017
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
EU	European Union
FGT	Flue Gas Treatment
FZ	Farming Zone
GED	General Environmental Duty
GHG	Greenhouse Gas
HHRA	Human Health Risk Assessment
IBA	Incinerator Bottom Ash

Abbreviation	Definition
IED	Industrial Emissions Directive
km	Kilometres
LCA	Landscape Character Assessment
LCVIA	Landscape Character and Visual Impact Assessment
LGA	Local Government Area
m	Metres
m^3	Meters Cubed
MERC	Melbourne Energy and Resource Centre
MNES	Matters of National Environmental Significance
MSW	Municipal Solid Waste
MW	Mega-Watt
NO2	Nitrogen Dioxide
NVTR	Noise and Vibrations Technical Report
pm	Post meridiem
p/m	Per Month
p/w	Per Week
P&E Act	Planning and Environment Act 1987
PM	Particulate Matter
PSP	Precinct Structure Plans
R	Receiver
RAP	Registered Aboriginal Parties
RCZ	Rural Conservation Zone
SA2	Statistical Area 2
SO2	Sulfur Dioxide
SEIFA	Socio-economic Index for Areas
SIA	Social Impact Assessment
SUZ	Special Use Zone
SWRRIP	State Wide Waste and Resource Recovery Infrastructure Plan
t	Tonnes
tpa	Tonnes Per Annum
TIA	Traffic Impact Assessment
TMP	Traffic Management Plan
VCAT	Victorian Civil and Administrative Tribunal

Abbreviation	Definition
VPA	Victorian Planning Authority
WI	Waste Incineration
WSERRC	Western Sydney Energy and Resource Recovery Centre
WtE	Waste-to-energy/waste-to-energy facility
Project area	The area assessed under the planning approval. To include the whole of the property, defined by the title boundary, for the proposed development.
Proposal	The definition of activities to be assessed as part of the DLA (refers specifically to the waste-to-energy facility).
Site	Refers to land that the planning permit will apply to (i.e., 510 Summerhill Road and possibly the Merri Creek).
Study area	The area comprised of the relevant SA2s including Wollert, Whittlesea, Craigieburn Central, Craigieburn North, Mernda-North and Mernda-South.

Executive Summary

This report documents the findings of a socio-economic impact assessment carried out in support of a waste-to-energy (WtE) facility in Victoria, known as the Melbourne Energy and Resource Centre (MERC) (the Proposal), proposed by Cleanaway Operations Pty Ltd (Cleanaway). The Proposal will treat 380,000 tonnes per annum (tpa) of waste feedstock that would otherwise be sent to landfill. The Proposal involves the development of all onsite infrastructure to support the WtE facility, including site utilities, internal roads, parking, stormwater infrastructure, fencing and landscaping. It includes the establishment of a visitor and education centre to help educate the community around circular economy, recycling, resource recovery, the benefits associated with landfill diversion and the WtE process.

The Proposal and supporting technical studies were reviewed to identify and assess positive and negative social impacts. The assessment found that the Proposal would generate a range of positive and negative social impacts in its construction and operation phases. The impacts, and any relevant proposed mitigation measures are summarised below:

- Way of life:
  - High positive social impact on liveability due to an increase in employment and business opportunities (construction)
  - High positive social impact on liveability as an increase of local employment opportunities will allow additional time for people to partake in recreational activities (construction)
  - High positive social impact on way on liveability associated with an increase in community initiatives supported by the Community Benefits Fund (operation)
  - Moderate negative social impact on people's way of life due to an increase in traffic and congestion (construction)
  - Moderate negative social impact due to changes in the amenity (operation)
  - Recommended mitigation measures (construction and operation): implement a Traffic Management Plan (TMP) (for both construction and operation)
- Community:
  - High positive social impact on the business community due to high employment opportunities (construction and operation)
  - High positive social impact on the local business community through support for industry (operation)
  - High positive social impact on the community's aspirations for more sustainable living and the provision of additional education facilities (operation)
  - Moderate negative social impact on community values due to loss of sense of place, noise, environmental impacts, and anticipation of negative impacts (construction)
  - Recommended mitigation measures (construction and operation): there are opportunities to undertake further engagement with the two local councils and community groups throughout the lifecycle of the Proposal. Stakeholder mapping and community engagements plans are recommended.
- Access to infrastructure, services and facilities:
  - High positive social impact on access to social infrastructure and facilities as the Proposal becomes a key asset of community infrastructure (operation)
  - High positive social impact associated with road upgrades to improve access for the broader residential and business community (operation)
  - High positive social impact due to improved local facilities supported by the Community Benefits Fund (operation).
- Health and wellbeing:

  - Moderate negative social impact on people's health and wellbeing from construction noise and vibrations (construction)
  - Moderate negative social impact on health and wellbeing due to an increase in air emissions (operation)
  - Recommended mitigation measures (construction): implement a Construction Environmental Management Plan, implement a Construction Noise Management Plan, implement emergency response measures such as fire systems, implement a Construction Dust Management Plan, develop and undertake an ambient air quality monitoring program in collaboration with EPA Victoria, implement a Construction Noise and Vibration Management Plan, implement universal work practices and apply minimum working distances in line with international standards and guidelines
  - Recommended mitigation measures (operation): implement a Construction Environmental Management Plan, water management solutions, implement an Environmental Air Pollution Management Plan, apply a silencer, manage approved working hours, apply acoustically rated louvre throughout the site, and limit noise levels.
- Surroundings:
  - Moderate negative social impact due to changes in the visual amenity (construction and operation)
  - Moderate negative social impact on perceptions due to personal and property rights (construction and operation).

1. Introduction

This Socio-economic Impact Assessment (SIA) provides an assessment of the likely socio-economic impacts associated with the proposed Melbourne Energy and Resource Centre (MERC). It also documents recommended mitigation measures to avoid, minimise or manage impacts. This SIA is to support the Planning Permit process for the Proposal. Further, the report identifies any associated economic impacts to determine whether the project will deliver a net community benefit.

This section provides an introduction to the Proposal and the applicant, the regulatory context for the socio-economic assessment, and the study area.

1.1 Proposal description

Cleanaway Operations Pty Ltd (Cleanaway) is an Australian waste management, recycling, and industrial services company. Cleanaway is developing a waste-to-energy (WtE) facility in Victoria known as the Melbourne Energy and Resource Centre (MERC) (the Proposal).

The Proposal will be designed to thermally treat 380,000 tonnes per annum (tpa) of waste feedstock that would otherwise be sent to landfill, primarily consisting of residual Municipal Solid Waste (MSW) and residual Commercial and Industrial (C&I) waste. The Proposal will also incorporate maturation and processing of bottom ash to recover recyclable metals, with the intent to utilise the remaining ash as an aggregate in construction.

Residual waste is waste that is left over from recycling and resource recovery operations and waste from source separated collections. Source separation involves separating waste into common material streams or categories for separate collection. Waste processed at the site will be subject to a Waste Acceptance Protocol to ensure only appropriate waste is used as feedstock.

The WtE process would generate approximately 46.3MW gross of electricity, 4.7MW of which would be used to power the facility itself and the associated on-site by-product and residue handling processes, with 41.6MW (328,700 MWh/year) exported to the grid as base load electricity. In addition to supplying electricity to the grid, there is also potential to supply energy in the form of heat and/or process steam to local industrial users.

Some residual materials are produced because of the WtE process, including Incinerator Bottom Ash (IBA), boiler ash and flue gas treatment residue. The boiler ash and flue gas treatment residue are typically combined and together are referred to as Air Pollution Control residue (APCr). Overall, the WtE process typically leads to about 90% reduction in the volume, or 80% reduction in mass (tonnes), of waste that would otherwise go to landfill. If IBA is reused as an alternative construction product to virgin materials, this percentage increases further to approximately 95% reduction in volume and mass of waste that would otherwise go to landfill. The final volume of waste diverted from landfill is dependent on the classification and market for the residues and by-products generated by the WtE facility.

The Proposal includes the construction and operation of an IBA maturation and processing facility on site. The purpose of this facility is to store the IBA to mature (stabilise) it, before mechanically processing IBA from the WtE facility into an aggregate for reuse. As part of this process, both ferrous and non-ferrous metals will be recovered from the IBA for recycling and sale to market.

The Proposal also includes a stabilisation facility for APCr, a necessary treatment step to immobilise leachable components of the APCr prior to removal from site by vehicle and disposal at an appropriately licenced landfill.

The Proposal will use best available techniques and technologies in the engineering design, operation, maintenance, and monitoring activities associated with the MERC. Moving grate technology has been chosen as the means to thermally treat incoming waste to recover energy and other resources. Current international best-practice techniques, including automated combustion controls and advanced flue gas

treatment technology will be applied so that air emissions meet stringent emission standards. The moving grate combustion system is a common form of thermal WtE technology in which the waste is fed through the combustion chamber on a travelling grate. This enables efficient and complete combustion of the waste, with primary combustion air introduced from below the grate and secondary combustion air introduced directly into the combustion zone above the grate. Moving grate technology has been used globally for over 100 years, and in that time the technology has been subject to continual improvement responding to regulatory, industry and public demands. There are approximately 500 similar operational examples across Europe alone, the majority of which use the moving grate-type technology being proposed for the MERC.

The Proposal involves the building of all onsite infrastructure required to support the WtE facility, including site utilities, internal roads, weighbridges, parking and hardstand areas, stormwater infrastructure, fencing and landscaping. The Proposal will also include a visitor and education centre to help educate and inform the community on the circular economy, recycling, resource recovery, the benefits of landfill diversion and the WtE process. The intent behind this education is to drive a shift in community thinking and actions around waste management.

The Victorian Waste to Energy Framework (2021) recognises the role of WtE to divert waste from landfills, helping Victoria transition to a circular economy. *Recycling Victoria* recognises a role for WtE investment and supports WtE facilities where they meet best-practice environment protection requirements. This includes reducing waste to landfill, supporting waste avoidance, reusing and recycling, and demonstrating social license with affected communities. The Victorian Environment Protection Authority (EPA) Energy from Waste Guideline (Publication 1559, 1 July 2017) also notes that efficient recovery of energy from the thermal processing of waste is considered a resource recovery as opposed to a waste disposal option.

The EPA VIC Guideline: Energy from Waste stipulates that *'Proponents of EfW proposals…will be expected to demonstrate that the siting, design, construction and operation of EfW facilities will incorporate best practice measures for the protection of the land, water and air environments as well as for energy efficiency and greenhouse gas emissions management. Facilities should be able to provide evidence of how they minimise and manage emissions (including pollutants, odour, dust, litter, noise and residual waste) in accordance with relevant statutory requirements.*'

The WtE facility has been designed to meet the European Industrial Emissions Directive (IED) (2010) and the associated Best Available Techniques Reference (BREF) Document for Waste Incineration published December 2019, which sets the European Union environmental standards for waste incineration. The facility will also comply with the technical criteria set out in the EPA Victoria Guideline: Energy from Waste publication 1559.1.

The purpose of this specialist assessment is to demonstrate compliance with the various authority requirements, develop community support and social license.

1.2 Regulatory context and state of knowledge

This section sets out the legislation, policy and guidelines applicable to Victoria that are relevant to a socio-economic assessment. Together, these documents form the current 'state of knowledge' for socio-economic matters in relation to the Proposal.

1.2.1 Commonwealth Legislation

Table 2 outlines the Commonwealth legislation relevant to this assessment.

Table 2: Commonwealth legislation guidelines and standards relevant to the assessment

Document	Description	Relevance
Commonwealth		
Environment Protection and Biodiversity Conservation	The EPBC Act (1999) provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places	If there is, or is likely to be, a significant impact on a protected matter, whether direct and/or indirect, the Proposal is required to be referred

Document	Description	Relevance
Act (EPBC Act) 1999 (Cth)	— defined in the EPBC Act as Matters of National Environmental Significance (MNES). Where MNES have the potential to be impacted by a proposal, the proponent is required to self-assess the Proposal against the Significant Impact Guidelines 1.1: MNES or species-specific referral guidelines to confirm if the action has the potential to cause significant impact. The Act Requires the Minister for Planning to consider social and economic matters.	to the Commonwealth government under the provisions of the EPBC Act. The Proposal must consider social and economic matters, including impacts, as these will later be assessed by the Minister for Planning and may be binding on the outcome of an application.

1.2.2 State Legislation

Table 3 outlines State legislation, policies and plans that are relevant to the Proposal and the socio-economic assessment.

Table 3: State legislation guidelines and standards relevant to the assessment

Document	Description	Relevance
State		
Planning and Environment Act (P&E Act) 1987	The P&E Act 1987 is a key piece of planning legislation that provides the legal framework for Victoria's planning system. It includes procedures for preparing and amending the planning schemes and establishes the planning permit process, including setting assessment timeframes for planning authorities, requirements around public notice of permit applications, and procedures for appeal processes through the Victorian Civil and Administrative Tribunal (VCAT).	The Act identifies the legal weighting of subordinate instruments that the Proposal is subject to, including the Victoria Planning Provisions, planning schemes, regulations and Ministerial directions. Of particular relevance are: • Ministerial Direction 11: Strategic Assessment of Amendments, which sets the criteria for a social & economic impact assessment. • Planning Practice Note 46 – breaks down Ministerial Direction 11 and provides greater guidance in what matters to address in a social and economic impact assessment. Ministerial Direction 9: Metropolitan Planning Strategy, which requires consideration of the Metropolitan Planning Strategy, (i.e., Plan Melbourne).
Environment Effects Act 1978	The Environment Effects Act 1978 provides for assessment of proposed projects (works) that are capable of having a significant effect on the environment. The Act does this by enabling the Minister administering the Environment Effects Act to decide that an Environment Effects Statement (EES) should be prepared.	The Proposal may be deemed to trigger the requirement for an EES referral and may require an EES. An EES is typically required when: • There is a likelihood of regionally or State significant adverse effects on the environment. • There is a need for integrated assessment of potential environmental effects (including economic and social effects) of a proposal and relevant alternatives. • Normal statutory processes would not provide a sufficiently comprehensive, integrated and transparent assessment. The Proposal may trigger referral due to greenhouse gas (GHG) emissions criteria.

Document	Description	Relevance
The Environment Protection Act (EP Act) 2017	The main purposes of the EP Act include: • Setting out the legislative framework and placing a general environmental duty (GED) for the protection of human health and the environment from pollution and waste • Establishing a permissions scheme that enables EPA to issue or grant development licences, operating licences, pilot project licences, permits (including in relation to tunnel boring machine spoil) and registrations • Providing a framework for the management of waste.	The Act gives enhanced powers and tools to prevent and minimise the risks of harm to human health and the environment from pollution and waste. It also provides the ability to pursue stronger sanctions and penalties to hold environmental polluters to account. The Act states that '*A person who is engaging in an activity that may give rise to risks of harm to human health or the environment from pollution or waste must minimise those risks, so far as reasonably practicable.'*
Public Health and Wellbeing Act 2008	The Public Health and Wellbeing Act 2008 outlines the State's role in promoting, protecting and reducing inequalities in public health and wellbeing.	The most relevant sections of the Act are: Part 2, Section 4, Objective 1(b): *public health and wellbeing includes the absence of disease, illness, injury, disability or premature death and the collective state of public health and wellbeing.* Part 2, Section 4, Objective 2(c): *reducing inequalities in the state of public health and wellbeing.*
Victorian Planning Policy Framework	Victorian Planning policy context provides a framework for integrated policy decision making with regard to how land is used and developed across the State. This framework is consistent across the State and is contained within municipal planning schemes.	The most relevant clauses for this assessment are: Clause10, Settlement: *Planning is to allow for sustainable development that takes full advantage of existing settlement patterns, and invest in transport and communication, water, sewerage and social facilities.* Clause 11.02-2S, Structure Planning: *To facilitate the fair, orderly, economic and sustainable use and development of urban areas.* Clause 15, Built environment and heritage: *Creating quality-built environments supports the social, cultural, economic and environmental wellbeing of our communities, cities and towns. Land use and development planning must support the development and maintenance of communities with adequate and safe physical and social environments for their residents, through the appropriate location of uses.*
North Growth Corridor Plan	Developed by the Victorian Planning Authority (VPA), the purpose of Growth Corridor is to provide a clear strategy to help guide the delivery of key housing, employment and transport infrastructure across identified growth areas within Melbourne (North, West, Sunbury and South East). The North Growth Corridor Plan identifies broad transport networks, industrial and	As identified above, the proposed development is located within the North Growth Corridor. Land within the North Growth Corridor provides good accessibility to the CBD and other major employment precincts. It also provides excellent transport connectivity (road, rail, freight and public transport including Melbourne Airport) across Melbourne. The site is within an investigation area, with a potential biodiversity link identified to the north.

Document	Description	Relevance
	employment zones, residential areas and recreation precincts over a 30–40-year period.	
Plan Melbourne 2017-2050	This metropolitan planning strategy manages Melbourne's growth and change over the next three decades. Integrating long-term land use, infrastructure and transport planning, Plan Melbourne 2017-2050 sets out the strategy for supporting jobs and growth, while building on Melbourne's legacy of distinctiveness, liveability and sustainability.	The proposed development is within the northern growth area (discussed further above) identified in the plan. This provides an overview of the strategic planning aspirations for the broader context within which the Proposal sits. This helps to understand how the proposed development may be expected to contribute to the broader strategies and aspirations of the region. The most relevant outcomes outlined in the Plan include: Outcome 1: *Melbourne is a productive city that attracts investment, supports innovation and creates jobs.* Outcome 6: *Melbourne is a sustainable and resilient city.* Outcome 7: *Regional Victoria is productive, sustainable and supports jobs and economic growth.*
Local		
Whittlesea Planning Scheme	This is the Planning Scheme for the City of Whittlesea. The purpose of the scheme is: • To provide a clear and consistent framework within which decisions about the use and development of land can be made • To express state, regional, local and community expectations for areas and land uses • To provide for the implementation of State, regional and local policies affecting land use and development • To support responses to climate change.	As the Proposal site is located within the City of Whittlesea LGA, this provides an overview of the planning considerations of the local context within which the Proposal sits. This helps to understand what factors may be of importance to the local community and their socio-economic aspirations.

Table 4 provides a summary of the relevant environmental duties identified in the EPA 2017, to minimise risks of harm to human health and the environment as a result of pollution or waste.

Table 4: Summary of environmental duties relating to the socio-economic assessment (EPA 2017)

Duty	Requirements
A person who is engaging in an activity that may give rise to risks of harm to human health or the environment from pollution or waste must minimise those risks, so far as reasonably practicable.	Minimise those risks, so far as reasonably practicable.
A person must not engage in conduct that results in material harm to human health or the environment from pollution or waste.	Avoid engaging in conduct that results in material harm to human health or the environment from pollution or waste.
If a pollution incident has occurred as a result of an activity (whether by act or omission) and	Restore the affected area to the state it was in before the pollution incident occurred, so far as reasonably practicable.

Duty	Requirements
the pollution incident causes or is likely to cause harm to human health or the environment, a person who is engaging in that activity must, so far as reasonably practicable, restore the affected area to the state it was in before the pollution incident occurred.	The person who is engaging or has engaged in an activity that results in a notifiable incident must notify the Authority, as soon as practicable, after the person becomes aware or reasonably should have been aware of the occurrence of the notifiable incident.
A person in management or control of contaminated land must minimise risks of harm to human health and the environment from the contaminated land so far as reasonably practicable.	Minimise risks of harm to human health and the environment from the contaminated land so far as reasonably practicable. This includes (but is not limited to): a) Identification of any contamination that the person knows or ought to reasonably know of b) Investigation and assessment of the contamination c) Provision and maintenance of reasonably practicable measures to minimise risks of harm to human health and the environment from the contamination, including undertaking clean-up activities where reasonably practicable d) Provision of adequate information to any person that the person in management or control of the management land reasonably believes may be affected by the contamination, including – i. Sufficient information to identify the contamination and ii. The results of investigation and assessment referred to in paragraph (b); and iii. The risks of human health and the environment from the contamination. e) Provision of adequate information to enable any person who is reasonably expected to become a person in management or control of the contaminated land to comply with the duty to manage contaminated land.

1.3 Study area

The study area for a SIA is defined as the potential area of social influence for social impacts as a result of a proposal. The study area has been defined based on the following considerations:

- The location and context of the MERC site in relation to the surrounding land uses
- The nature and scale of the Proposal and the potential direct and indirect social impacts
- ABS SA2 boundaries, LGA boundaries and other administrative boundaries.

1.3.1 Study area components

With consideration to social influence factors outlined above, this SIA focuses on the following areas:

- Project area – the site boundary, as shown on Figure 1 – described further in Section 1.3.2.
- Study area – informed by the anticipated spatial extent of impacts and a 5km buffer around the project area. The study area is defined by the combination of six ABS 2021 census SA2 areas that intersect the 5km buffer, being: Wollert, Whittlesea, Craigieburn Central, Craigieburn-North, Mernda-North, and Mernda-South, as shown on Figure 1 – described further in Section 1.3.3.

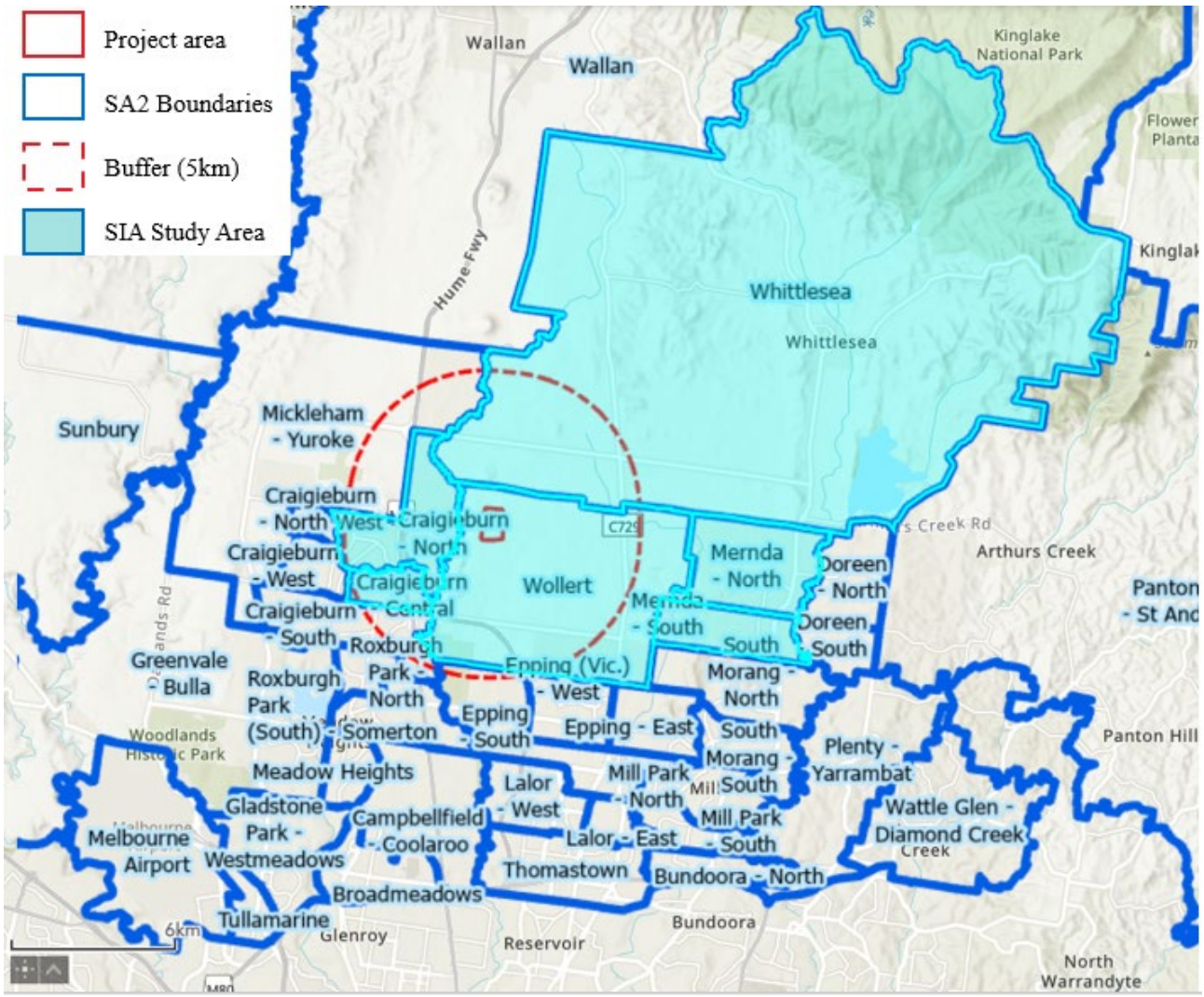

Figure 1: Project area, 5km buffer, and study area

1.3.2 Project area

The project area is located in the City of Whittlesea LGA at 510 Summerhill Road, Wollert (Crown Allotment 10B PP 2819). It sits within the North Growth Corridor identified in Plan Melbourne 2017-2050 and is subject to the associated North Growth Corridor Plan (Victoria Planning Authority, 2012). The majority of the site is located in the Farming Zone (FZ) identified in the City of Whittlesea Planning Scheme; however, it is identified within the investigation area of the North Growth Corridor Plan.

Further information on the existing and planned land uses on the project area and its surrounds is provided in Section 2.1 of this report.

1.3.3 Study area

As mentioned above, the study area for the SIA was defined through consideration of the spatial extents applied in other assessments to support the Planning Permit and DLA for the Proposal, the spatial extent of impacts previously assessed for other similar WtE facilities and the spatial distribution of land uses surrounding the project area were considered. Based on these considerations, combined with a discussion with the Department of Transport and Planning (formerly recognised as the Department of Environment, Land, Water and Planning (DELWP)) and the EPA, a 5km buffer from the project area was considered and agreed as a suitable area for the impact assessment.

While this suggests a 5km study area for the SIA, social impacts are unlikely to align directly to a geometric radius, particularly noting urban development patterns and clustering of land uses, presence of linear

infrastructure, natural landforms and administrative boundaries. In addition, it is noted that some data required to understand the social baseline for the area (i.e.: demographic data) is only obtainable for statistical areas, which do not perfectly align with a 5km buffer. As such, it was also considered that the study area should include existing communities (particularly residential areas) that interact with the 5km buffer. This involved a review of population distribution across ABS SA2 boundaries that intersect with the 5km buffer. ABS SA2 boundaries were used for this exercise as this is the most granular level at which baseline data is most widely publicly available.

This exercise identified that there are six SA2 communities relevant to the SIA, as shown in Figure 1:

- Wollert
- Whittlesea
- Craigieburn Central
- Craigieburn-North
- Mernda-North
- Mernda-South.

1.3.4 Other relevant areas

Social impacts may affect different areas at different times. While many social impacts would predominantly occur within, or adjacent to the Proposal, there is potential for flow-on impacts in the surrounding area, as a result of construction and/or operation. Additionally, relevant socio-economic information has been drawn for the local government plans. This SIA considers relevant information regarding potential development impacts and opportunities for the following broader areas:

Regional: encapsulating the Whittlesea and Hume LGAs (noting that the project area is located in Whittlesea, but the study area includes both Whittlesea and Hume). The Proposal will have a role in the waste management for the LGA. Planning intent and community aspirations have been drawn from plans for these LGAs to understand community values, aspirations and concerns.

Victoria: covering the state of Victoria, related to the Proposal's role within the State Wide Waste and Resource Recovery Infrastructure Plan (SWRRIP). Socio-economic data for the state of Victoria has also been used as a comparison to the data analysed for the study area.

2. Existing conditions

This section provides information relevant to the existing socio-economic environment broadly relevant to the Proposal. The following activities and sources were used to inform the existing conditions:

- Review of relevant policies, guidelines and plans to identify relevance and directions for the assessment (see Section 1.2)
- Analysis of aerial photography and land use data to understand the settlement pattern and existing land uses within the identified study area (see Section 1.3)
- Review of key legislation, strategic planning policies and documents, having regard to zoning maps relevant to the study areas, to identify planned future priorities and land uses (see Section 2.1.3)
- Identification of local businesses, community facilities, social infrastructure, open space (from desktop review of aerial imagery and publicly available GIS mapping) (see Section 2.1.4)
- Preparation of a community profile through analysis of population and demographic data such as population size and growth, families and housing, diversity, employment and income, and socio-economic advantage/disadvantage, drawing on sources such as the 2021 ABS census, ABS population projects and ABS business data at national, State, LGA and SA2 levels (see Section 2.2)
- Identification of existing community values through a review of community plans to identify values, aspirations, and concerns (see Section 2.7).

2.1 Land use

Consideration of the existing and planned land use for the project area and study area is important to understand potential impacts on the community. The following describes the land uses in the project area and study area. In summary, there is currently limited urban land uses on and surrounding the project area, and distinct pockets of residential and industrial estates in the study area. However, intensification of commercial and industrial uses is anticipated in the future as indicated in the North Growth Corridor Plan. Further information on land use planning and permissible uses is provided within the Planning Permit.

2.1.1 Current land use and ownership

Aerial photography indicates the project area contains rural residential buildings and infrastructure. It is accessible directly from Summerhill Road, via the offramps of two state-controlled roads, the Hume Highway and State Route 55. Cleanaway Pty Ltd owns the site as well as the residential properties that exist on the site. The study area contains a mix of uses, including rural, rural residential, residential, industrial and commercial. The nearest residential areas to the project area include Whittlesea (approximately 1.2km north-east), Wollert (approximately 1.9km east) Craigieburn-North (approximately 3km west) and Mickleham-Yuroke (approximately 1.6km north-west).

2.1.2 Land use zoning

- The majority of the project area falls within the FZ identified in the Whittlesea Planning Scheme. The purpose of this zone is to provide for the use of land for agriculture and to encourage the retention of employment and populations to support rural communities and to implement the Municipal Planning Strategy and Planning Policy Framework
- A small portion of land in the north of the project area is zoned Rural Conservation Zone 1 (RCZ1). The purpose of this zone is to protect and enhance the natural environment and natural processes
- Land to the west of the project area is within FZ, as is land to the southeast

- Land to the east of the project area is zoned Special Use Zone Schedule 4 (SUZ4) – 'Earth and Energy Resources', as is land to the southwest. The purpose of this zone is to provide for the use and development of land for earth and energy resources industry. This zone allows (with a permit) uses including materials recycling, refuse disposal, transfer station, and utility installation.

2.1.3 Strategic planning

A PSP is a long-term plan for urban development, which outlines how the land is anticipated to be developed, and how and where services are planned to support the development of new communities. The site sits within the Northern Quarries Investigations Area (PSP 1069) of which structure planning is yet to be undertaken. However, the Donnybrook to Woodstock PSP[1] identifies PSP 1069 as an area with a mix of existing and future uses, comprising of utilities, quarries, conservation areas and future urban areas.

The Shenstone Park PSP[2] is identified within the Proposal's 5km buffer and aims to facilitate a high-quality urban environment through landscaping, strong connections to transport and community facilities. The Shenstone Park PSP proposes a mix of residential, employment, recreational and community uses that integrates with the neighbouring Wollert and Donnybrook-Woodstock PSPs. The neighbourhood is anticipated to become an urban extension to the Donnybrook to Woodstock and English Steet areas, which will contribute to the development of the North Growth Corridor.

The project area and parts of the study area are within the North Growth Corridor. The North Growth Corridor Plan[3] states that in Wollert, 215ha of land is identified for industrial uses which is situated alongside the proposed E6 road reservation for general industrial uses. It recognises that this area is expected to provide more local business uses, as well as freight-based industry. The project area is well situated to service nearby residential and commercial uses. This includes local employment, waste services, and electricity provision.

2.1.4 Businesses

In June 2021, there were 5,040 local businesses identified within the study area. Most of the businesses were in the transport, postal and warehousing (29%) and construction (23%) industries[4] (Australian Bureau of Statistics, 2021). Wollert had the highest proportion of local businesses across the SA2s, accounting for 31%, while Craigieburn Central and Mernda-North both had the lowest proportions of 11%. Further detail on businesses in the study area is provided in Table 5.

Table 5: Local businesses

Local businesses	Number of total businesses in the study area	% of total businesses in study area
Accommodation and Food Services	198	3.9%
Administrative and Support Services	330	6.5%
Agriculture, Forestry and Fishing	93	1.8%
Arts and Recreation Services	33	0.7%
Construction	1,164	23.1%

[1] Victoria Planning Authority, *Donnybrook-Woodstock Precinct Structure Plan* (2017).

[2] Victoria Planning Authority, *Shenstone Park Precinct Structure Plan* (2022).

[3] Victoria Planning Authority, *The North Growth Corridor Plan* (2012).

[4] Australian Bureau of Statistics, *'Counts of Australian Businesses, including Entries and Exits* (2021).

Local businesses	Number of total businesses in the study area	% of total businesses in study area
Currently Unknown	0	0.0%
Education and Training	58	1.2%
Electricity, Gas, Water and Waste Services	17	0.3%
Financial and Insurance Services	116	2.3%
Health Care and Social Assistance	242	4.8%
Information Media and Telecommunications	47	0.9%
Manufacturing	102	2.0%
Mining	0	0.0%
Other Services	220	4.4%
Professional, Scientific and Technical Services	403	8.0%
Public Administration and Safety	38	0.8%
Rental, Hiring and Real Estate Services	229	4.5%
Retail Trade	212	4.2%
Transport, Postal and Warehousing	1,445	28.7%
Wholesale Trade	93	1.8%
Total	**5,040**	**100%**

Key community assets identified within, and surrounding the study area include, but are not limited to:

- **Oil and gas facilities**, such as Wollert Petrol Station and City Gate
- **Industry, utilities and infrastructure facilities**, such as Wollert Compressor Station, Aurora Sewage Treatment Plant, Craigieburn Sewage Treatment Plant and Mountain View Quarries – Donnybrook
- **Aged care centres**, such as Moran Roxburgh Park and Arcare Craigieburn
- **Sport and recreation facilities**, such as John Laffen Memorial Reserve, Tuttle Recreation Reserve and Highgate Recreation Reserve
- **Schools**, such as Craigieburn Primary School, Craigieburn Secondary School and Whittlesea Secondary College
- **Libraries**, such as Lalor Library, Mill Park Library and Thomastown Library
- **Hospitals**, such as Craigieburn Health Service Hospital.

Further information on social and business community assets located within the project area and study area is provided in Figure 2.

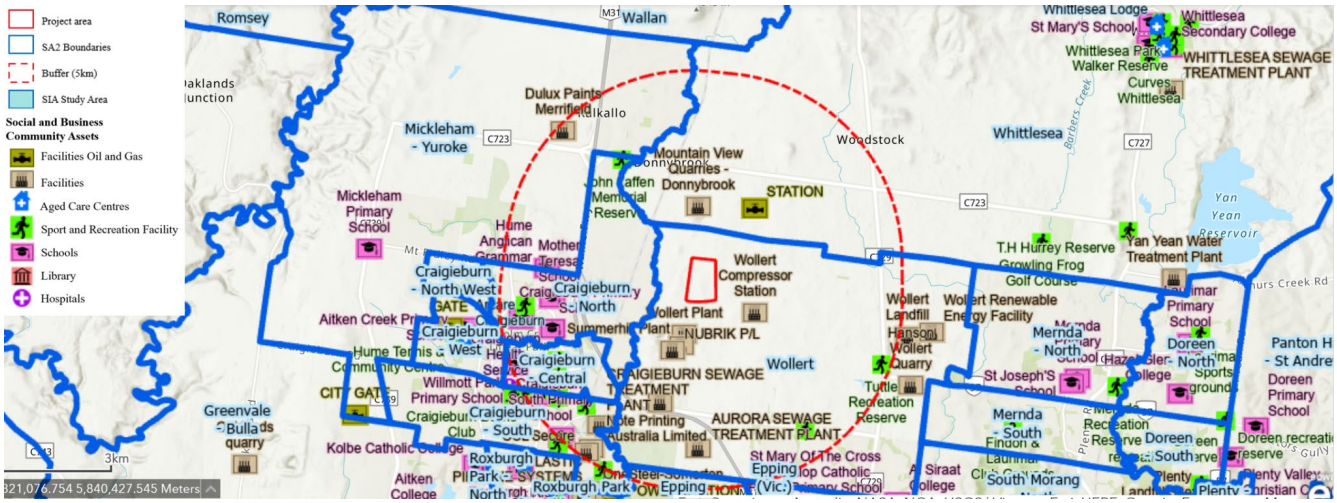

Figure 2: Social and Business Community Assets, study area

2.2 Community profile

The community profile for the study area has been established by drawing upon data available for the relevant SA2s (Wollert, Whittlesea, Craigieburn Central, Craigieburn-North, Mernda-North and Mernda-South). This section outlines the findings for the study area; however, Appendix A provides data for each of the SA2s.

The socio-economic data for the study area is compared to Victoria-wide averages for context. Data has been collected from the 2016 ABS census data (Australian Bureau of Statistics, 2016) and 2021 ABS census data (Australian Bureau of Statistics, 2021a), due to the staged delivery of the 2021 ABS census data, with additional data expected to be released early to mid-2023. Additionally, data from the Department of Transport and Planning (DTP) has also been sourced for population projections (Department of Environment, Land, Water and Planning, 2019) .

It should be noted that whilst the 2016 ABS census identifies the Mernda SA2 as a single SA2 area, the recently released 2021 ABS census data splits Mernda into two SA2s (identified as Mernda-North and Mernda-South). Therefore, data for the Mernda SA2 (2016) and the Mernda-North and Mernda-South SA2 (2021) has been reviewed.

2.2.1 Place of birth, top responses

The ABS census data[5] indicates:

- Whilst the top responses for place of birth vary across the SA2s, Australia consistently scores the highest across all SA2s, followed by Southern Asia
- Approximately 56% of residents within the study area were born in Australia, which is comparably lower than Victoria's state-wide average of 65%
- Other top responses that are common across the SA2s include South-Eastern Europe, Middle East, and Maritime South-East Asia.

[5] Australian Bureau of Statistics, *2021 Census All persons QuickStats* (2021).

2.2.2 Population

Based on the 2021 ABS census data[6]:

- The study area has a combined population of 78,852 people, with an even split of 49.8% (39,233) males and 50.2% (39,619) females (as identified in Table 6)
- In Victoria, this split is also even with 49.2% males and 50.8% females.

Refer to Appendix A.1 for a breakdown of data for each SA2.

Table 6: Population (2021 ABS census data)

Area	Males		Females		Total
Study area	39,233	49.8%	39,619	50.2%	78,852
Victoria	3,200,963	49.2%	3,302,528	50.8%	6,503,491

2.2.3 Aboriginal and Torres Strait Islander populations

The Registered Aboriginal Party (RAP) of the study area, and broader study area, are identified as the Wurundjeri Woi Wurrung Cultural Heritage Aboriginal Corporation. The Wurundjeri Willum people hold strong connections to land now recognised as the City of Whittlesea which borders the Wollert SA2.

Based on the 2021 ABS census data[7]:

- About 779 people identify as Aboriginal and Torres Strait Islander people in the study area, making up 1% of the overall population (as identified in Table 7)
- Similarly, Victoria has a proportion of 1% of Aboriginal and Torres Strait Islander people
- Mernda-North has the highest proportion of Aboriginal and Torres Strait Islander peoples in the study area of 1.5%, while Wollert has the lowest proportion of 0.6%.

Refer to Appendix A.2 for a breakdown of data for each SA2.

Table 7: Aboriginal and Torres Strait Islander peoples' populations (2021 ABS census data)

Area	Aboriginal and/or Torres Strait Islander Peoples	
Study Area	779	1.0%
Victoria	65,646	1.0%

2.2.4 Population projections

Based on 2019 DELWP data[8], between 2021 to 2036:

- The study area is projected to have a combined population of 163,359 (as identified in Figure 3) with an annual growth rate of 5% (increase of 84,507 people)
- Victoria is anticipated to reach a total population of 8,722,766. When compared to the study area, Victoria's annual growth is slightly lower at 2% (increase of 2,219,275 people)

[6] ABS, 2021 *QuickStats* (2021).

[7] Ibid.

[8] Department of Environment, Water, Land and Planning, *Victoria in Future* (2019).

- Within the study area, Whittlesea will have the highest growth rate of around 10%, while Craigieburn Central will experience the lowest annual growth rate of less than 1%. Refer to Appendix A.3 for a breakdown of data for each SA2.

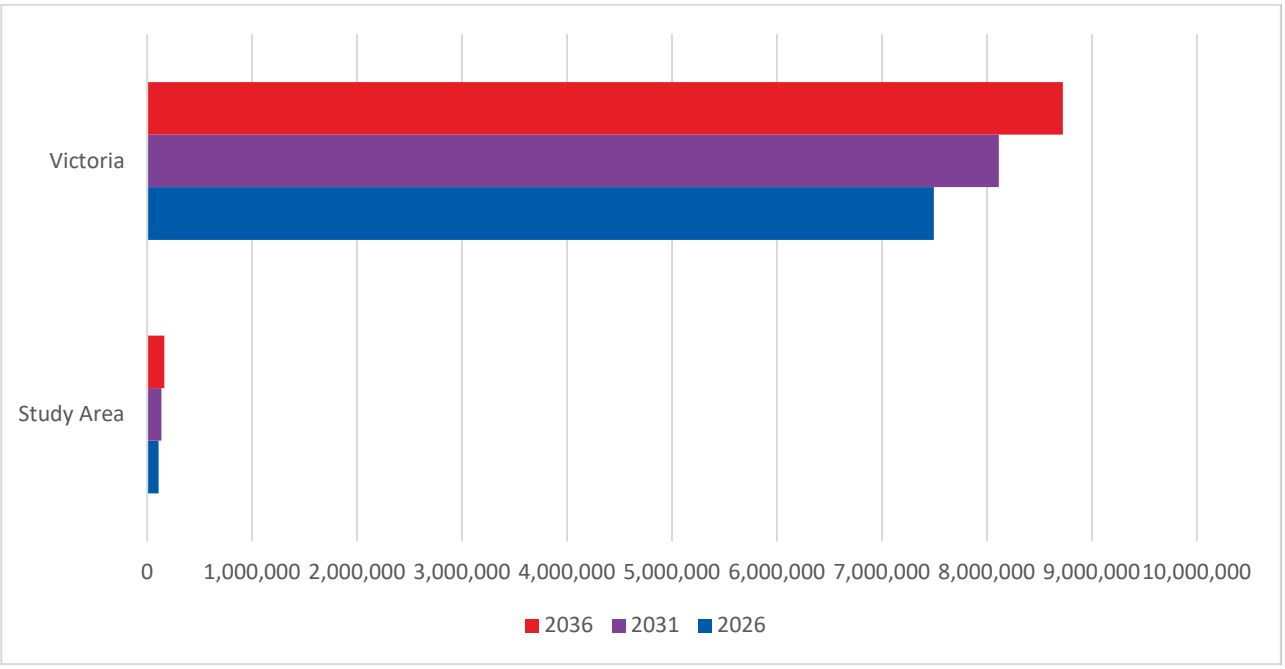

Figure 3: Population projections (2019 DELWP data)

2.2.5 Age distributions

The study area has a slightly younger median age when compared to Victoria as a whole. Based on 2021 ABS census data[9]:

- Whittlesea has the highest median age of 37 years, whilst Wollert has the lowest median age of 30 years. These are both below the Victorian median age of 38 years
- The 30 to 39 years age bracket is the largest age group in both the study area and Victoria. In the study area, this age bracket accounted for 21% of the population, which is high when compared to the study Victoria's state-wide average of 15%
- The study area has a higher proportion of people aged 14 years and under, when compared to Victoria. The SA2 with the largest population of 0-9 years is Wollert with approximately 22%, with almost double of that of the Victoria wide percentage of 12%
- The study area has a large working-age population (15-64 years of age), with Wollert having the largest proportion of working-age groups when compared to the other SA2s and Victoria as a whole
- In comparison, the SA2 with the largest proportion of residents aged 70 and over is Whittlesea, consistent with Victoria, at 12%.

This data indicates a high proportion of young families, first homeowners, and labour force. This may suggest the need for local employment and training opportunities. Additional information of age distributions for the study area, SA2s and Victoria is provided in Figure 4.

[9] ABS, 2021 *QuickStats* (2021).

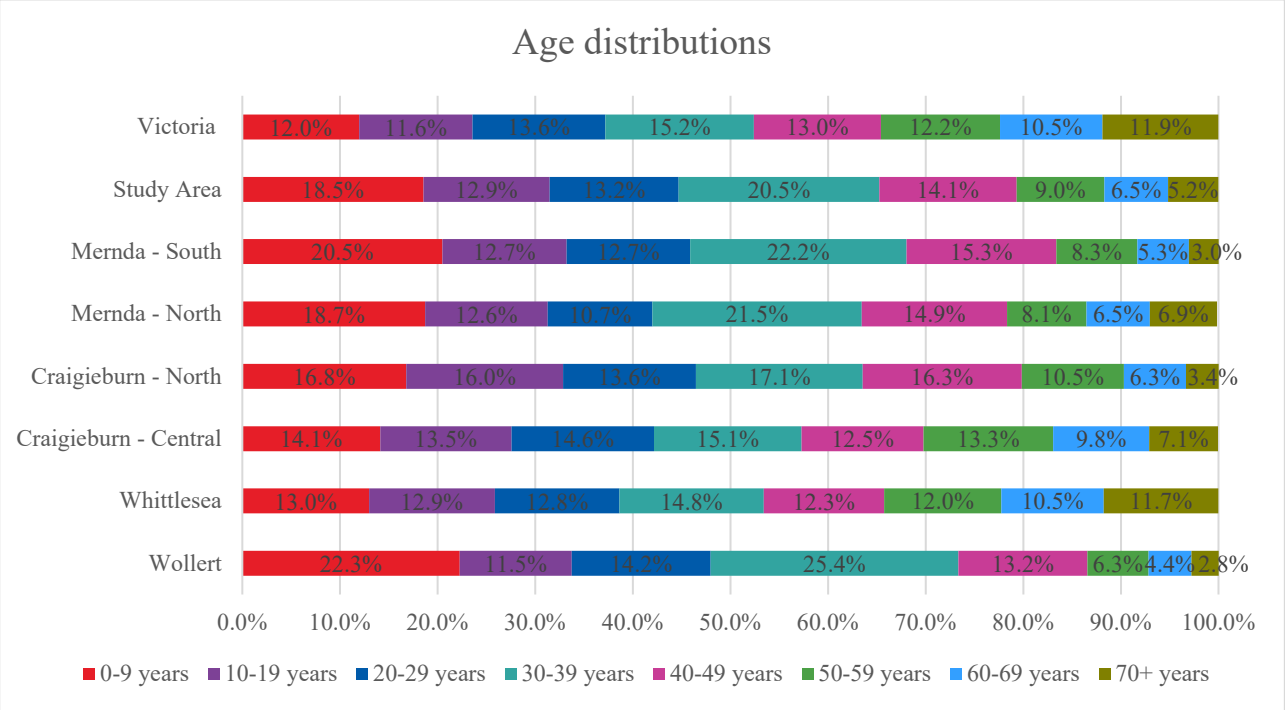

Figure 4: Age distributions across the Study Area, SA2 and Victoria

2.2.6 Ancestry, top responses

Ancestry data provides an indication of the cultural groups that exist within a community. It is not necessarily connected with an individual's birthplace but relates to the cultural groups they most likely identify with.

Based on 2021 ABS census data[10] the most common ancestries recorded among the SA2s were mostly consistent including: Indian, Australian, English, Italian, Irish and Punjabi.

2.3 Employment and business

2.3.1 Employment status

The 2021 ABS census data[11] indicates that the employment status across the study area varies considerably. This would include:

- Within the study area, approximately 93% of people are employed. In comparison, Victoria's state-wide average is comparably higher at 95% (as identified in Table 8)
- Whittlesea has the highest proportion among the SA2s of around 97% of people who are employed, while Craigieburn Central has the lowest of just over 92%
- Across the six SA2s, Craigieburn Central has the highest unemployment rate of about 8%, while Whittlesea has the lowest of 3%.

Refer to Appendix A.4 for a breakdown of data for each SA2.

[10]ABS, 2021 *QuickStats* (2021).

[11] Ibid.

Table 8: Employment status (2021 ABS census data)

Area	Unemployed		Employed	
Study Area	2,369	6.1%	36,755	93.9%
Victoria	167,667	5.0%	3,162,893	95.0%

2.3.2 Occupations

Based on 2021 ABS census data[12]:

- The most common occupation type identified within the study area and Victoria is professionals, accounting for 18% in the study area and 25% in Victoria (as identified in Table 9).
- Within the study area, technicians and trade workers is identified as the second highest occupation with 15%, followed by personal service, 14%
- In comparison, the second highest occupation in Victoria is managers with 14%, which is followed by technicians and trade workers of 13%
- Generally, technicians and trades workers are identified within the top five responses of occupation throughout the study area. This is mostly prevalent in Whittlesea, with a proportion of 20%.

Refer to Appendix A.5 for a breakdown of data for each SA2.

Table 9: Occupations, top responses (2021 ABS census data)

Area	Occupation, top responses		
Study area	Professionals	6,668	18.1%
	Technicians and Trades Workers	5,539	15.1%
	Community and Personal Service Workers	4,980	13.5%
	Clerical and Administrative Workers	4,833	13.1%
	Machinery Operators and Drivers	3,632	9.9%
Victoria	Professionals	790,960	25.0%
	Managers	442,109	14.0%
	Technicians and Trades Workers	399,460	12.6%
	Clerical and Administrative Workers	392,444	12.4%

[12] ABS, 2021 *QuickStats* (2021).

Area	Occupation, top responses		
	Community and Personal Service Workers	347,570	11.0%

2.3.3 Employment by industry

Based on 2021 ABS census data[13]:

- Health care and social assistance is identified as the most common industry based on employment across both the study area and Victoria. This could be attributed to the local hospital facility, Craigieburn Health Service Hospital in Craigieburn North. Other health care providers located across the relevant SA2s comprise of medical centres, clinic centres, specialist centres and ambulance stations, e.g., Whittlesea Family Medical Centre, Lakes Boulevard Medical and VICSES Craigieburn Unit
- The three most common employment by industry within the study area are health care and social assistance with 16%, construction with 11% and retail trade with 10% (as identified in Table 10)
- In comparison, the three most common industry of employment across Victoria include health care and social assistance with 14%, followed by construction and retail trade with an even proportion of 9% each.

Refer to Appendix A.6 for a breakdown of data for each SA2.

Table 10: Employment by industry, top responses (2021 ABS census data)

SA2	Employment by industry, top responses		
Study area	Health Care and Social Assistance	5,947	14.1%
	Construction	4,204	11.4%
	Retail Trade	3,516	9.6%
	Manufacturing	3,084	8.4%
	Transport, Postal and Warehousing	3,028	8.2%
Victoria	Health Care and Social Assistance	445906	14.1%
	Construction	297981	9.4%
	Retail Trade	297471	9.4%
	Education and Training	277100	8.8%
	Manufacturing	220823	7.0%

[13] ABS, 2021 *QuickStats* (2021).

2.4 Housing and income

2.4.1 Household compositions

Household data can provide an indication of how families are structured within a community. Based on 2021 ABS census data[14]:

- The study area has a higher proportion of family households with 83% compared to Victoria which has 70% (as identified in Table 11)
- For single (or lone) person households and group households, the study area generally has lower proportions compared to Victoria's state-wide average
- Mernda-South has the highest proportion of family households of 86%, while Craigieburn Central has the lowest of 78%
- For single (or lone) person households, Whittlesea has the highest proportion of about 20% while Mernda-South has the lowest with about 12%
- Craigieburn Central has the highest proportion of group households with 3%, while Whittlesea has the lowest, at 2%.

Refer to Appendix A.7 for a breakdown of data for each SA2.

Table 11: Household compositions (2021 ABS census data)

Area	Family households		Singe (or lone) person households		Group households	
Study Area	20,257	83%	3,641	14.9%	506	2.1%
Victoria	1,676,129	70.1%	619,542	21.9%	94,559	4.0%

2.4.2 Dwelling conditions

The 2021 ABS census data indicates:

- There is a high occupancy rate of private dwellings in the study area with 95%, above the Victoria average of 89% (as identified in Table 12)
- Mernda-South has the largest percentage of occupied dwellings in the study area, accounting for 97%, while Whittlesea has the lowest, with 93%. This is still relatively high when compared to Victoria
- Approximately 6% of dwellings across the study area were unoccupied in 2021, significantly below the Victorian average of 11%.

Refer to Appendix A.8 for a breakdown of data for each SA2.

Table 12: Dwelling conditions (2021 ABS census data)

Area	Occupied private dwellings		Unoccupied private dwellings	
Study Area	24,404	94.5%	1433	5.5%
Victoria	2,390,232	88.9%	298,029	11.1%

[14] ABS, 2021 *QuickStats* (2021).

2.4.3 Dwelling structure

Dwelling structures are an important determinant for any community as higher density dwellings are likely to attract young adults while separate dwellings are more likely to attract prospective families.

The 2021 ABS census data[15] reveals:

- The study area has a high proportion of separate dwellings with 89%, substantially above the Victoria state-wide average of approximately 74% (as identified in Table 13)
- Of the six SA2s, the proportion of separate dwellings is mostly prevalent within Mernda-South with 95%, while Mernda-North has the lowest proportion, at 85%
- The study area has a lower proportion of semi-detached, row, terrace, or townhouses with 9%, below Victoria's average of 14%
- Across the SA2s, Mernda-North has the highest proportion of semi-detached, row or terrace houses and townhouses with 13%, while Craigieburn Central has the lowest proportion, at 4%
- The proportion of flats or apartments within the study area is around 2%, which is significantly below the Victoria wide average, approximately 12%
- The SA2 with the largest proportion of flats or apartments is Craigieburn Central, with approximately 4%, while Mernda-South recorded none.

Refer to Appendix A.9 for a breakdown of data for each SA2.

Table 13: Dwelling structure (2021 ABS census data)

Area	Separate house		Semi-detached, row or terrace house, townhouse, etc		Flat or apartment		Other dwelling	
Study area	28,250	89.3%	2,804	8.9%	549	1.7%	27	0.1%
Victoria	1,755,423	73.5%	332,251	13.9%	289,120	12.1%	10,455	0.4%

2.4.4 Tenure types

2021 ABS census data[16] identifies:

- There is a smaller proportion of homes owned outright in the study area when compared to Victoria (18% and 32% respectively, as identified in Table 14)
- Whittlesea has the largest proportion of homes owned outright with 33%, while Wollert has the smallest proportion of 11%
- The proportion of people who own their homes with a mortgage in the study area is 55%, which is significantly higher than Victoria's state-wide average of 36%
- Across the six SA2s, Wollert has the highest proportion of homes owned with a mortgage of 55%, while the lowest proportion is in Craigieburn Central, with 42%
- Within the study area, about 25% of residents are renting, which is lower than Victoria's state-wide average of 29%

[15] ABS, 2021 *QuickStats* (2021).

[16] Ibid.

- Mernda-North has the highest proportion of rented households with 4%, while Craigieburn-North and Mernda-South have the lowest proportions at 1%.

Refer to Appendix A.10 for a breakdown of data for each SA2.

Table 14: Tenure types (2021 ABS census data)

Area	Owned outright		Owned with a mortgage		Rented		Other tenure type		Tenure type not stated	
Study Area	4,275	17.5%	13,468	55.1%	5,978	24.5%	324	1.3%	379	1.6%
Victoria	768,730	32.2%	862,658	36.1%	681,419	28.5%	41,752	1.7%	35,676	1.5%

2.4.5 Rent weekly payments

Rent weekly payments and mortgage monthly repayments data sets are key indicators of housing affordability as they are used to determine rental/mortgage affordability stress within a community. The 2021 ABS census data indicates that such data is important for housing policy and planning, as well as for studying the housing conditions within communities.

Based on 2021 ABS census data[17]:

- The median rent average for the study area is $376 per week (p/w), which is comparably higher than Victoria's state-wide average of $370 p/w (as identified in Table 15)
- The SA2 with the highest median rent p/w is Wollert of $391, while the lowest median rent is Craigieburn Central of $350 p/w
- About 58% of rental households within the study area pay rent that is less than or equal to 30% of their household income. This is lower than Victoria's state-wide average of 61%
- The study area has a higher proportion of renter households with rent payments greater than 30% of their household income, with 33.6%. This proportion is slightly lower across Victoria of 31%
- Of the six SA2s, Mernda-South has the highest proportion of renter households with rent payments less than or equal to 30% of their household income, accounting for 63%. In comparison, Craigieburn Central has the lowest proportion, with 53%
- Across the SA2s, Craigieburn Central has the highest proportion of renter households making rent payments greater than 30% of their household income of 38%. In comparison, Mernda-South has the lowest proportion with 29%.

Refer to Appendix A.11 for a breakdown of data for each SA2.

Table 15: Rent weekly payments (2021 ABS census data)

Area	Median rent	Renter households where rent payments are less than or equal to 30% of household income		Renter households where rent payments are greater than 30% of household income		Unable to determine	
Study Area	$376	3,483	58.1%	2,017	33.6%	496	8.3%
Victoria	$370	413,492	60.7%	210,437	30.9%	57,493	8.4%

[17] ABS, 2021 *QuickStats* (2021).

2.4.6 Mortgage monthly repayments

Based on 2021 ABS census data[18]:

- The study area has a median mortgage payment of $1,868 per month (p/m), which is slightly above Victoria's state-wide average of $1,859 p/m (as identified in Table 16)
- Wollert and Whittlesea have the highest median mortgage repayments of $2,000 p/m, while Craigieburn Central has the lowest of $1,517 p/m
- About 71% of the study area have mortgage repayments less than or equal to 30% of their household income. This is comparably lower than Victoria's state wide average of 74%
- Within the study area, Mernda-North has the highest proportion of residents whose mortgage repayments are less than or equal to 30% of their household income, of about 75%. In comparison, Wollert has the lowest proportion in this category, of about 68%
- Within the study area, Craigieburn-North has the highest proportion of mortgage households with mortgage repayments greater than 30% of the household income, accounting for about 20%. In comparison, Mernda-South has the lowest proportion in this category with about 16%.

Refer to Appendix A.12 for a breakdown of data for each SA2.

Table 16: Mortgage monthly repayments (2021 ABS census data)

Area	Median mortgage repayments	Owner with mortgage households where mortgage repayments are less than or equal to 30% of their household income		Owner with mortgage households where mortgage repayments are greater than 30% of their household income	
Study Area	$1,868	9,505	70.7%	2,651	19.7%
Victoria	$1,859	637,758	73.9%	133,287	15.5%

2.4.7 Household income

Household income is considered a major determinant of economic well-being for most people and households. It is used to identify households that are most/less likely to suffer from extremely low levels of economic well-being. Household income is calculated using data sourced from the Survey of Income and Housing within the 2021 ABS census data[19], providing data on household weekly income.

- The SA2 with the largest proportion of households with a median weekly income of less than $650 is Craigieburn Central, matching the Victorian average, both around 16% (as identified in Table 17)
- In comparison, the SA2 with the lowest proportion of households with a median weekly income of less than $650 is Mernda-South, with 7%
- The SA2 with the largest proportion of households with a median weekly income of more than $3,000 is Mernda-South, once again matching the Victorian average, both 24%
- In comparison, the relevant SA2 with the lowest proportion of households with a median weekly income of over $3,000 is Craigieburn Central, at 15%.

Refer to Appendix A.13 for a breakdown of data for each SA2.

[18] ABS, 2021 *QuickStats* (2021).

[19] Ibid.

Table 17: Household median weekly income (2021 ABS census data)

Area	Less than $650 total household weekly income	More than $3,000 total household weekly income
Wollert	8.7%	20.0%
Whittlesea	15.3%	23.0%
Craigieburn Central	15.8%	14.9%
Craigieburn-North	10.4%	22.8%
Mernda-North	12.7%	21.7%
Mernda-South	7.0%	23.7%
Victoria	16.4%	24.2%

2.4.8 Median weekly income, people aged 15 years and over

The 2021 ABS census data[20] indicates that the study area generally has a smaller median weekly family income than Victorian averages. It also indicates that there are variations in median weekly incomes across the study are, discussed below.

Based on 2021 ABS census data:

- The average median weekly personal income of the study area is $796, which is slightly lower than Victoria's state-wide average of $803 (as identified in Table 18)
- The average median weekly household income in the study area is $1,887, which is higher compared to Victoria's average of $1,759
- Mernda-South and Mernda-North are the only SA2s within the study area to have higher median weekly personal incomes than Victoria
- Across the six SA2s, Craigieburn Central is the only SA2 to have a lower average median household income when compared to Victoria.

Refer to Appendix A.14 for a breakdown of data for each SA2.

Table 18: Median weekly income (2021 ABS census data)

Area	Personal	Family	Household
Study Area (average median)	$796	$2,021	$1,887
Victoria	$803	$2,136	$1,759

[20] ABS, 2021 *QuickStats* (2021).

2.4.9 Unpaid work and care

Based on 2021 ABS census data[21]:

- Around 12% of residents within the study area provided unpaid assistance, being slightly below Victoria's state-wide average of 13% (as identified in Table 19)
- Within the study area, Craigieburn Central had the highest proportion of unpaid assistance undertaken, accounting for 14%. In comparison, Craigieburn North has the lowest proportion, of 11.8%.

Refer to Appendix A.15 for a breakdown of data for each SA2.

Table 19: Unpaid work and care (2021 ABS census data)

Area	No unpaid assistance provided		Provided unpaid assistance		Not stated	
Study Area	48,271	82.6%	6,857	11.7%	3,331	5.7%
Victoria	4,316,118	80.9%	689,210	12.9%	328,706	6.2%

2.5 Vulnerable groups

2.5.1 Socio-economic index for areas

The socio-economic index for areas (SEIFA) is an index provided by the ABS[22] that determines the socio-economic conditions of the people residing within a particular community. This is based on census data including income, educational attainment, unemployment status and dwelling types. All areas are given a quintile rank from one to five. Quintile one indicates the most disadvantaged area, while quintile five is the most advantaged area. Victoria does not have an average SEIFA ranking; therefore, it has not been included within this section.

The 2021 ABS census data indicates:

- Generally, all the relevant SA2s have a quintile ranking of three, except for Craigieburn Central which has the lowest quintile ranking, one.

Additional information on SEIFA indexes for the SA2s and Victoria is provided in Table 20.

Table 20: Socioeconomic index for areas (2016 ABS census data)

Area	Quintile ranking with Australia	Quintile ranking within Victoria
Wollert	3	3
Whittlesea	3	3
Craigieburn Central	1	1
Craigieburn-North	3	3
Mernda	3	3

[21] ABS, 2021 *QuickStats* (2021).

[22] Australian Bureau of Statistics, *Statistical Area Level 2, Indexes, SEIFA* (2016).

2.5.2 Long-term health conditions

People who experience a profound or severe disability are defined as needing help or assistance in one or more of the three core activity areas of self-care, mobility and communication because of a long-term health condition (six months or more), a disability (six months or more), or old age.

2021 ABS census data indicates[23]:

- Generally, the study area has lower proportions across long-term health conditions, when compared to Victoria. The study has around 15% of residents with one long-term health condition, while Victoria has a state-wide average of 19% (as identified in Table 21)
- Among the six SA2s, Whittlesea has the highest proportion of residents with one long-term health condition (19%,) while Wollert has the lowest of 11%
- About 2% of residents in the study area are diagnosed with three or more long-term health conditions, lower than the Victoria average of 3%
- Across the six SA2s, Whittlesea has the highest proportion of residents with three or more long-term health conditions, comprising of 3%, while Wollert has the lowest of just over 1%
- Around 73% of residents in the study area record having no long-term health conditions, above Victoria's state-wide average of 65%
- Wollert has the highest proportion of 79% of residents with no long-term health conditions, while Whittlesea identifies as having the lowest proportion, of 62%.

Refer to Appendix A.16 for a breakdown of data for each SA2.

Table 21: Long-term health conditions (2021 ABS census data)

Area	One condition		Two conditions		Three or more conditions		None of the selected conditions	
Study Area	11,547	14.6%	3,148	4.0%	1,413	1.8%	57,257	72.6%
Victoria	1,224,496	18.8%	371,819	5.7%	186,237	2.9%	4,228,219	65.0%

2.5.3 Languages

Identifying the main languages used at home is important as it recognises the diversification of cultures and heritages that exist within the study area. Residents who do not speak English well, or at all, are considered a vulnerable group as they may have trouble understanding the Proposal, as well as the associated impacts and opportunities.

Language proficiency

Based upon 2021 ABS census data[24]:

- Around 4% of residents within the study area do not speak English well, while in Victoria this proportion is slightly lower at 3% (as identified in Table 22)
- Among the SA2s, Craigieburn North has the largest proportion of people who do not speak English well with 5%, while Whittlesea has the lowest, of 1%

[23] ABS, 2021 *QuickStats* (2021).

[24] Ibid.

- An additional 2% of residents within the study area do not speak English at all, which is double Victoria's state-wide average of 1%
- In the study area, Craigieburn North has the highest proportion of people who do not speak English at all with 2%, while Whittlesea has the lowest, at 0.5%.

Refer to A.17 for a breakdown of data for each SA2.

Table 22: Language proficiency (2021 ABS census data)

Area	Speaks English only	Uses other language and speaks English: Very well	Uses other language and speaks English: Well	Uses other language and speaks English: Not well	Uses other language and speaks English: Not at all
Study Area	48.2%	30.5%	11.2%	3.8%	1.6%
Victoria	67.2%	16.4%	7.0%	3.3%	1.1%

Languages used at home

Language diversity can influence social cohesion and awareness. Households with lower levels of English can be considered more vulnerable as they are more likely to experience poor communication and interaction.

Based on the 2021 ABS census data[25]:

- Generally, English is the most common language used at home across the study area and Victoria (as identified in Table 23)
- Besides English, the top three most common languages used at home within the study area include Indo-Aryan with 19%; Middle Eastern Semitic Languages with 7%; followed by Dravidian with 4%
- Around 28% of residents speak Indo-Aryan within Wollert (the highest within the study area). This is significantly higher than the lowest proportion identified in Whittlesea, with 7%
- Other than English, the three most common languages used at home in Victoria consist of Indo-Aryan with 5%; Chinese with 5%; followed by Mon-Khmer with 2%.

Refer to Appendix A.18 for a breakdown of data for each SA2.

Table 23: Language used at home (2021 ABS census data)

Area	Languages used at home, top responses		
Study Area	English	38,012	48.2%
	Indo-Aryan	14,978	19.0%
	Middle Eastern Semitic Languages	5,383	6.8%
	Dravidian	2,761	3.5%
	South Slavic	1,975	2.5%

[25] ABS, 2021 *QuickStats* (2021).

Area	Languages used at home, top responses		
Victoria	English	4,369,804	67.2%
	Indo-Aryan	333,083	5.1%
	Chinese	319,993	4.9%
	Mon-Khmer	136,411	2.1%
	Middle Eastern Semitic Languages	118,272	1.8%

2.5.4 Recent migrants

Recent migration can also be an indicator of how settled, cohesive, or vulnerable a community might be. 2021 ABS census data indicates[26] the following:

- Within each of the SA2s, at least half of the population reported arriving in Australia between the years 2011 to 2020
- Around 50% of residents in the study area reported arriving in Australia between 2011 to 2020, with an additional 0.5% of residents arrived in Australia between January to August 2021 (as identified in Table 24)
- Between 2011 to 2020, Mernda-North experienced the highest growth of migrants at 51%, while Wollert experienced the lowest, at 49%. Generally, this would indicate that at least half of their populations identify as recent migrants
- In comparison, Victoria experienced a higher proportion of people who migrated to Australia between the years of 2011 to 2020, with around 58%. An additional 0.9% of residents reported arriving in Australia between January 2021 to August 2021.

Refer to Appendix A.19 for a breakdown of data for each SA2.

Table 24: Migrants (2021 ABS census data)

Area	Arrived 1 January 2021 – 1 August 2021		Arrived 2011 – 2020		Not stated
Study Area	129	0.5%	13,080	49.7%	512
Victoria	10,802	0.9%	659,055	57.5%	44,602

2.6 Vehicle ownership and travel methods

2.6.1 Vehicle ownership

2021 ABS census data[27] indicates:

- The study area has a high level of motor vehicle ownership per household (as identified in Table 25)

[26] ABS, 2021 *QuickStats* (2021).

[27] Ibid.

- Whilst the proportion of households in the study area who own one motor vehicle is less than the proportion across Victoria, the study area generally has a higher ownership of two or more motor vehicles per household when compared to the rest of Victoria
- The study area has a below average level of households who do not own a vehicle (when compared to the wider Victoria average). This is mostly prevalent in Craigieburn Central, with around 5% of residents who do not own a vehicle.

Refer to Appendix A.20 for a breakdown of data for each SA2.

Table 25: Vehicle ownership (2021 ABS census data)

Area	1 motor vehicle		2 motor vehicles		3+ motor vehicles		None	
Study Area	7,296	29.9%	11,106	45.5%	5,046	20.7%	595	2.4%
Victoria	856,243	35.8%	880,945	36.9%	440,086	18.4%	179,348	7.5%

2.6.2 Method of travel to work, employed persons aged 15 and over.

Based on 2021 ABS census data[28]:

- Across the study area and Victoria, the most common methods of travel to work include 'car, as driver' (number one), 'car, as passenger' (number two) and 'train' (number three, as identified in Table 26)
- About 60% of people travel to work by 'car, as driver' within the study area, above the Victoria's state-wide average of 50%
- Craigieburn Central has the largest proportion of people who travel to work by 'car, as driver', with 63%, while this proportion is lower in Mernda-North, of just less than 58%
- Categories including 'worked at home' and 'did not go to work' were identified as other common responses across the study area and Victoria.

Refer to Appendix A.21 for a breakdown of data for each SA2.

Table 26: Method of travel to work, employed persons aged 15 and over (2021 ABS census data)

Area	Top responses		
Study Area	Car, as driver	22,195	60.4%
	Car, as passenger	1,470	4.0%
	Train	1,422	3.9%
	Worked at home	6,615	18.0%
	Did not go to work	3,772	10.3%
Victoria	Car, as driver	1,590,175	50.3%
	Car, as passenger	110,919	3.5%

[28] ABS, 2021 *QuickStats* (2021).

Area	Top responses		
	Train	90,749	2.9%
	Worked at home	814,082	25.7%
	Did not go to work	353,067	11.2%

2.6.3 Key findings of baseline conditions

An assessment of the current baseline conditions in the study area and wider Victoria included the following key findings:

- By 2036, the study area is anticipated to have a combined population of 163,359 with an annual growth rate of 5% (increase of 84,507 people). The annual growth rate of the study area is comparably higher than the average annual growth rate across Victoria. There is opportunity for the Proposal to provide local jobs through the operation and construction phase, and also provide community services associated with the waste management facility, e.g., waste management for Victoria and education regarding circular economy, recycling, resource recovery and landfill diversion.
- The study area has a large working-age population (15-64 years of age), with Wollert having the largest proportion of working-age groups when compared to the other SA2s and Victoria as a whole. This would indicate a high proportion of young families, first home owners, and labour force residing within the study area. The Proposal could provide local employment and training opportunities to these younger families, in addition to being a facility which would educate these families on managing waste.
- Professionals, technicians and trades workers and community and personal service workers are identified as the most common occupations in the study area, while construction, manufacturing and transport, postal and warehousing are within the top five employment sectors.
- In combination with the occupation and employment by industry numbers, the study area has a slightly lower unemployment rate compared to Victoria. There is potential to utilise local labour during the construction phase of this Proposal, combined with upskilling and retraining opportunities. This could lead to additional benefits such as reducing travel time and having more time to spend on recreational activities.
- The study area has slightly higher proportions of people who do not speak English well, or at all, compared to Victoria. This should be considered in the planning of community consultation regarding the Proposal. Further, the educational facility component of the Proposal should consider language interpretation opportunities to maximise educational opportunities around managing waste, to enhance the Proposal's function as a community asset.
- In the study area the two most common methods of travel to work are by car as a driver or by car as a passenger. The Proposal provides the potential to provide local employment opportunities, which may help to decrease these numbers which would result in less car-dependency and improvements in the environment.

2.7 Community values, aspirations and fears

Local government plans and strategies prepared with input from community can provide insight into the values, aspirations and concerns of a community. The community's goals are priorities for the following local governments which are summarised for the following LGAs:

- Whittlesea City Council (relevant for Mernda-North, Mernda-South, Whittlesea and Wollert)
- City of Hume Council (relevant for Craigieburn Central and Craigieburn-North).

2.7.1 Whittlesea Community Plan 2021-2025

The vision underpinning this plan is "Whittlesea 2040: A place for all"[29] (City of Whittlesea, 2021). This vision was developed through Council's research, workshopped priorities, and discussions with community groups and organisations across the City. It will be used to guide the work of Whittlesea Council and future partnerships with the community and others.

Four goals were developed to support the vision which are used as key directions for Council's work with key stakeholders. These include:

- Goal 1: Connected community - including a socially cohesive, healthy, safe, and inclusive community
- Goal 2: Liveable neighbourhoods – including well-designed neighbourhoods and vibrant town centres, with diverse housing and a smart, connected transport network
- Goal 3: Strong local economy – including increased employment, education opportunities, and successful, innovative businesses
- Goal 4: Sustainable environment – including natural landscapes, leaders in clean, sustainable living, walking and cycling paths, climate ready, easily accessible and health and support services, good educational institutions and new public infrastructure.

Council engaged with people across the City of Whittlesea to assist with shaping the City in the next four years. Across all engagement activities, the residents and local businesses were strongly in favour of:

- More parks and playgrounds and improving the maintenance of those they already have
- Roads as a priority, including safety, roadworks and maintenance
- Support for local business, helping them grow with grants, incentives and marketing assistance
- Biodiversity, including planting more trees, conserving habitats and looking after wildlife
- Improving waste management, especially promoting recycling and practical systems for hard rubbish and green waste
- Presentation of the City, including clean streets and addressing dumped rubbish.

2.7.2 Whittlesea 2040 Plan

Community engagement activities carried out to prepare the Whittlesea 2040 Plan[30] (City of Whittlesea, 2018) identified a range of hopes held by the community. Of relevance to the Proposal, are:

- To be involved and have a say
- Investment in local business and innovation
- Natural assets, greenery and wildlife that is cared for
- Cleaner, more sustainable living
- Leadership and investment in sustainability initiatives
- Enough quality infrastructure to meet the City's growing needs.

[29] City of Whittlesea, *Community Plan 2021-2025* (2021), 14.

[30] City of Whittlesea, *Whittlesea 2040: A place for all* (2018).

2.7.3 Draft Hume City Council Plan 2021-2025

The vision was written by the community, for the community, and will shape Council's long-term directions, priorities and values. It outlines the community's aspirations for Hume City's future and all of Council's integrated strategic planning documents aim to provide support for the delivery of this vision (Hume City Council, 2020a). The community vision is: *"A sustainable and thriving community with great health, education, employment, infrastructure, and a strong sense of belonging*."[31]

This vision is supported by three themes which provides guidance for Council and the community to work together to achieve long-term aspirations:

1. A community that is resilient, inclusive, and thriving. Objectives relating to this theme include providing opportunities for learning, employment, business growth, and promoting healthy, inclusive and respectful communities
2. A city that cares about our planet, is appealing and connected. Objectives relating to this theme include enhancing the natural environment and demonstrating environmentally sustainable leadership
3. A Council that inspires leadership, is accountable, and puts the community first. Objectives relating to this thee include engaging and empowering community through advocacy and engagement, delivering transparent governance and assets that respond to community needs, and facilitating innovation and partnerships.

2.7.4 Hume Horizons 2040 (under review)

The community's aspiration for 2040 is: "*Hume City will be renowned for its liveability. It will be home to a community living in harmony, where residents will value and celebrate their unique cultures and identities, respecting themselves and each other without bias or prejudice."*[32]

There are five key themes and strategic objectives set out in Hume Horizons 2040 (Hume City Council, 2020b), which indicate community aspirations:

- Theme 1: A well-educated and employed community – There are excellent employment opportunities and a commitment to lifelong learning, providing access to education at all stages of life
- Theme 2: A healthy and safe community – Hume City is a healthy, safe and welcoming community where all residents are encouraged to live active and fulfilling lives
- Theme 3: A culturally vibrant and connected community – Hume is a City of great cultural diversity and a leading example of how people can work together to celebrate what makes them different and foster a sense of belonging for all
- Theme 4: A sustainably built and well-maintained City with an environmentally engaged community – Thoughtful planning, innovative design and timely and sustainable provision of physical and social infrastructure are central in developments across Hume City
- Theme 5: A well-governed and engaged community – The community is well-informed and engaged in decision making, helping to create a community that is highly engaged and well-connected.

2.7.5 Key findings of community values, aspirations and fears

An assessment on the community's current values, aspirations and fears identified the following as key findings:

- Based on community engagement activities in Whittlesea, the community aspires to and values a community which enhances sustainability through cleaner environments. This would include improving biodiversity by planting more trees, conserving habitats and taking care of wildlife

[31] Hume City Council, *Draft Council Plan 2021-2025* (2020), 24.

[32] Hume City Council, *Hume, what's you dream? A community plan for 2040* (2020), 24.

- The Whittlesea community values investment into local businesses, leadership, having a say regarding development, and implementing key infrastructure assets such as roads and parks whilst improving the existing infrastructure assets
- Consistent with the community values and aspirations of Whittlesea, the Hume community aspires to and values a community that is sustainable through thoughtful planning, innovative design and improving social infrastructure
- The Hume community values a community that is inclusive, offering extensive opportunities for the community to grow through education, business and employment, and health.

3. Assessment of impacts

This section details the assessment of the potential positive and negative impacts of the Proposal associated with the construction and operation phase. It is detailed as follows:

- Overview of the approach to identifying and evaluating the potential impacts (Sections 3.1 and 3.2)
- Overview of the assessment findings (Section 3.3)
- Assessment of the construction impacts (Section 3.4)
- Assessment of the operation impacts (Section 3.5)
- Summary of the impact evaluation (Section 3.6)
- Proposed mitigations of impact (Section 3.7).

3.1 Identifying impacts

Based on the existing environment and the Proposal description, the potential environmental impacts that are assessed in this chapter comprise of:

- **Way of life** (including liveability, employment and traffic, congestion and mode of travel)
- **Community** (including demographic composition and vulnerable groups and business community)
- **Access to infrastructure, services and facilities** (including social infrastructure and facilities and utilities infrastructure)
- **Health and wellbeing** (including human health risk and air quality impacts)
- **Surroundings** (including land use and zoning, future development and personal and property rights).

3.2 Method of evaluating impacts

Noting that there is no guideline for SIA for Victoria, the social impact matrix set out in the NSW DPIE SIA Guideline was used to inform the evaluation of the construction and operational impacts associated with the Proposal. This matrix considers the likelihood of impacts (as shown in Table 27) against the potential consequence (as shown in Table 28) to give an overall rating (as summarised in Table 29).

Table 27: Likelihood of impact

Likelihood of impact	Impact probability categories
Rare	May occur only in exceptional circumstances - can be assumed not to occur during period of the Proposal (Probability <10%).
Unlikely	Event is unlikely to occur, but it is possible during period of the Proposal (Probability 10-30%).
Possible	Event could occur during period of the Proposal (Probability 30-70%).
Likely	Event likely to occur once or more during period of the Proposal (Probability 70-90%).
Almost certain	Very likely to occur as a result of the proposed Proposal construction and/or operations; could occur multiple times during relevant impacting period (Probability > 90%).

Table 28: Consequence level

Consequence level	Description
Minimal	No change to the social environment. Impacts are likely to be beneath detection levels.
Minor	Impacts are noticeable but acceptable and tend to be short term, or temporary and at a local scale. The social environment is changed (i.e., decreased amenity) and people who live and work in the area (or its surrounds) may become annoyed by impacts associated with the Proposal. It is expected that the community can/will adapt to changes over time and that negative public perceptions of the Proposal are easily managed.
Moderate	Impacts tend to range from long term to short term and occur over medium scale or localised areas. The social environment is changed (i.e., decreased amenity) and people who live and work in the area (or its surrounds) may be moderately annoyed by impacts associated with the Proposal. It is expected that the community has some capacity to adapt and cope with change and that negative public perceptions of the Proposal can be managed.
Major	Impacts tend to be permanent, or otherwise long to medium term and occur over large or medium scale areas. The social environment is damaged, and people no longer want to live and work in the area (or its surrounds). The community has limited capacity to adapt and cope with change and the public negativity of the Proposal is difficult to manage.
Catastrophic/ transformational	Impacts tend to be permanent, or irreversible, or otherwise long term and occur over large-scale areas. People can no longer safely live or work in the region because of impacts associated with the Proposal. The social environment is irrevocably damaged. The community has no capacity to adapt and cope with change and there is a great level of public negativity surrounding the Proposal.

Table 29: Impact evaluation matrix

		Consequence				
		Minimal	**Minor**	**Moderate**	**Major**	**Catastrophic/ transformational**
Likelihood	**Almost certain**	High	High	Extreme	Extreme	Extreme
	Likely	Moderate	High	High	Extreme	Extreme
	Possible	Low	Moderate	High	Extreme	Extreme
	Unlikely	Low	Low	Moderate	High	High
	Rare	Low	Low	Moderate	High	High

3.3 Overview of findings

The assessment identified a range of social impacts. Many of the impacts were assessed to have a low social impact. Those assessed to have a moderate, high or extreme social impact are outlined in Table 30.

Table 30: Moderate and high social impacts identified

Construction		Operation	
Way of life			
−	Moderate negative impact on people's way of life due to increase in traffic.	−	Moderate impact on perceived reduced liveability due to changes in the amenity.
+	High positive impact on employment opportunities.	+	High positive impact to liveability due to an increase of community initiatives and infrastructure, supported by the Community Benefits Fund.
+	High positive impact on liveability and way of life due to increased local employment opportunities (improved way of life, reduced commutes).	+	Moderate positive impact associated with an increase of local employment opportunities.
Community			
−	Moderate negative impact on community values due to loss of sense of place, noise, environmental impacts, and anticipation of negative impacts.	+	High positive impact to the local business community through support for industry.
+	Moderate positive impact on demographic composition related to increased employment (improved employment and socio-economic status).	+	High positive impact on the community's aspirations for more sustainable living and provision of educational facilities.
+	High positive impact on the business community due to employment opportunities during construction.	+	High positive impact on the business community due to employment opportunities during operation.
+	Moderate impact on surrounding land use/development potential which would align with the aspirations of the area.		
Access to infrastructure, services, and facilities			
−	Low negative impact on social infrastructure due to an increase in amenity, including noise, air, and vibrations.	+	High positive impact to access to social infrastructure and facilities as the Proposal becomes a key community asset.
−	Low negative impact on utilities infrastructure and services as energy production increases.	+	High positive impact associated with road upgrades. This will improve accessibility for the broader residential and business community.
+	High positive impact due to improved local facilities supported by the Community Benefits Fund.	+	High positive impact due to improved local facilities, backed by the Community Benefits Fund.
+	High positive impact on social infrastructure and facilities as the Proposal becomes a key asset of community infrastructure.		
Health and wellbeing			
−	Low impact on health and wellbeing from construction noise and vibrations.	−	Low impact on health and wellbeing due to increased air emissions.

Construction		Operation	
Surroundings			
−	Moderate negative impact on visual amenity.	−	Moderate negative impact on visual amenity.
		+	Moderate positive impact on new land use and development potential which aligns with the aspirations of the area.
Personal and property rights			
−	Moderate impact on perceived property values of living near a waste facility.	−	Moderate impact on perceived property values of living near a waste facility.

3.4 Construction

3.4.1 Way of life

Liveability

Amenity impacts as a result of the construction (e.g., noise, air quality, or visual impacts) may affect some residents closest to the project area. This may result in residents making slight changes such as keeping windows or doors shut whilst construction works are underway. However, the nearest existing residential communities are approximately 3km away, and while there are areas zoned for residential uses as close as 1km from the project area, these are expected to not have a substantial residential population during the proposed construction. Generally, impacts on liveability are expected to be unlikely during the construction phase, short-term and minimal in consequence where experienced, therefore, indicating a low social impact on people's way of life. It is anticipated that any concerns that residents may have regarding the facility's implications on liveability and way of life will more likely relate to the operation of the facility, rather than construction, and are discussed further in Section 3.5.1.

Employment

The baseline analysis in section 2.3.2 identified that many people in the study area are employed as technicians and trades workers, and that the study area has a slightly higher unemployment rate that Victoria.

The construction of the Proposal will require trades and construction personnel, sub-contract construction personnel and engineering, functional and administrative staff. While workforce size will vary across the day and throughout the phases of the project, it is estimated that the Proposal will create around 800 construction jobs over the 3-year construction period. This would provide local employment opportunities, which aligns with outcomes 1, 6, and 7 outlines in Plan Melbourne. This is likely to occur, with moderate consequences, therefore indicating a high positive social impact.

This could lead to the following additional high positive impacts (likely to occur, moderate in impact):

- Improved financial status
- Improved positive mental and emotional health and wellbeing outcomes
- Enhance people's way of life by through:
  - Improved employment/financial status and/or
  - Reduced commutes to other employment areas located further away. This would provide more time for other activities such as recreation and exercise. Positive social impacts relating to improved liveability due to local employment opportunities are likely and moderate in consequence, which would result in an overall high positive impact

- Opportunities to upskill and retrain the local and future labour force, which would result in supporting the wider economic and social development of both Whittlesea City and Hume City. This could result in increasing the diversity and inclusion of the community, allowing equal access of incomes for both skilled and unskilled jobs.

Traffic, congestion and mode of travel

The Traffic Impact Assessment (TIA) (Traffix Group, 2022) does not include an assessment of the construction phase. As such, this section draws upon the Western Sydney Energy Resource and Recovery Centre (WSERRC) TIA findings (developed by Cleanaway and Macquarie Capital) based on the assumption that construction traffic volumes would be similar for this Proposal. This suggests that while social impacts associated with traffic and congestion during construction are likely, it would be minimal in consequence, therefore the social impact would be moderate. The following are the key social impacts associated with traffic and access: Construction vehicles are likely to access the project area to/from the south, via Hume Highway. This would result in a slight increase of vehicles using the immediate site and only slightly increase journey time during construction, however, it is unlikely to cause major disruptions to people's daily routines or surrounding business operations, and therefore unlikely to have significant effects on the community's way of life of accessing public facilities and services.

Construction vehicles could result in a reduction to the existing amenity through the generation of noise, emissions and vibrations. However, this is unlikely to impact the health and wellbeing of the community.

The TIA recommends the following as potential mitigation measures:

- To prepare a construction traffic management plan (CTMP) which will include measures to reduce the anticipated construction traffic. This will direct construction transport routes/access to the site away from any residential areas and sensitive receptors
- A road upgrade at Summerhill Road between Merri Creek and the eastern site access to be at a sealed standard with a pavement width of 6.5m. This would extend the length of Summerhill Road by 1.6km
- To implement a traffic control treatment at Merri Creek bridge where there is only capacity for traffic in one direction.

3.4.2 Community

Demographic composition and vulnerable groups

It is not expected that the construction of the Proposal will have significant effects on broader elements of the socio-demographic profile of the community (gender, age, ethnicity etc). While the construction of the Proposal would generate employment opportunities, the baseline data indicates the study area has a large existing working age population and a significant proportion of people employed as technicians and trades workers. This would give local residents local job opportunities. Further, the site is on the metropolitan fringe, and is easily accessed by major roads. Therefore, the construction of the Proposal is unlikely to require an influx of a construction workforce moving into the study area that may result in a subsequent shift in the demographic composition of the community. On the other hand, the employment opportunities created by the Proposal may improve employment prospects for the local community, which could lead to improved socio-economic status of the community, noting that unemployment rate in 2021 was higher than that across Victoria. These positive impacts are possible, minor in consequence, and therefore considered to have a moderate positive social impact.

The air quality, and noise and vibration impact assessments indicate they are unlikely to result in social impacts (refer to Section 3.4.4 of this report). Further, given that the baseline data indicates the study area does not have a large population that is typically vulnerable to vibration or air quality impacts associated with construction (e.g., young people, elderly etc.), the impacts on vulnerable group are unlikely. As such, these impacts on the community's demographic composition and vulnerable groups community in the study area are unlikely and would be minimal where experienced, which indicates a low negative social impact.

Business Community

The Proposal will likely have direct positive impacts on the business community as a result of providing construction opportunities. In addition, it is unlikely there would be any negative impacts on neighbouring or nearby businesses during construction. Construction vehicles accessing the project area are expected to do so via the offramps of two state-controlled roads and then proceed away from areas of areas of local employment. This is along routes that traverse through areas zoned for employment uses but are expected to still be relatively undeveloped during the period of construction.

The Proposal is anticipated to result in many economic benefits with the generation of 800 new jobs during the construction phase and 50 additional ongoing jobs. In addition to the employment benefits described in Section 3.4.1, the construction activity would support local businesses (e.g., plant and equipment hire), and lead to the creation of new business and employment opportunities within the supply chain. Social impacts associated with the business community during construction are considered to be likely with moderate consequences, which would result in a high positive social impact.

Community fears and aspirations:

The construction of the facility has the possibility to generate some negative effects upon community values. Any impacts are likely to be related to the impact on the character and amenity of the project area and its surrounds. During construction, some local residents may likely experience a loss of sense of place. However, the Proposal is within an area that is earmarked for transition to urban development and would therefore be consistent with existing plans for the area and the transitioning character of the study area. In addition, small impacts associated with increased noise would be possible, and other potential environmental impacts, and the anticipation of negative (known, unknown or perceived) impacts, which could cause stress in local residents.

These potential effects are expected to be short-term and localised in nature and are anticipated to be managed through communications and engagement. Impacts of the Proposal's construction on the community's fears and aspirations are possible, but expected to be minor, and therefore the social impact would be considered to have a moderate negative social impact.

It is anticipated that fears that residents may have regarding a waste facility being established in the study area are more likely relate to the operation of the facility, rather than its construction, and are discussed further in Section 3.5.2.

3.4.3 Access to infrastructure, services and facilities

Social infrastructure and facilities

No direct impacts to social infrastructure and community facilities are anticipated due to construction of the Proposal. While there may be amenity impacts during the construction phase of the Proposal, there are no social infrastructure and facilities that might be more sensitive to amenity impacts within proximity to the Proposal. Therefore, it can be assumed there will be minimal consequences on social infrastructure during the construction phase, which would indicate a low social impact. A road upgrade recommended in the TIA report (see Section 3.4.1) at Summerhill Road is likely to provide a positive impact for the broader residential and business community by improving accessibility.

In addition, the development of a visitor and education facility will help to educate and inform the community around waste management, including circular economy, recycling, resource recovery and the WtE process. Improved local facilities such as the visitor and education centre will be supported by the Community Benefits Fund. Therefore, social impacts associated with social infrastructure and facilities would be likely and moderate in consequence. This would indicate a high positive social impact on the community.

Utilities infrastructure

The Proposal may have possible effects on utilities infrastructure and service provision during construction, as the Proposal involves establishing onsite utilities, which would require connection to the network. In

addition, the Proposal includes energy production, which will be connected to the grid. These works may result in a temporary disruption to utilities and service provision within the study area, particularly immediately adjacent to the project area. There are possible social impacts on household and business routines and service provision temporarily and given the nature of the current surrounding land uses, the extent of this would be limited with a minor consequence. Therefore, the social impact would be considered low. Agreement with the utility owners would be obtained before works commence and would be planned to minimise the need to cut off supplies. Any disruptions to services due to utility adjustments would be discussed with key stakeholders and communities would be notified of outages in advance of works.

3.4.4 Health and wellbeing

Human health impacts

Human health is based on the complete, physical, mental and social wellbeing of a person. The Human Health Risk Assessment (HHRA) (Enrisks, 2022) provides an assessment of health impacts during construction, including air, noise and other matters such as water, soil contamination, chemicals management and groundwater. Generally, no health issues of concern associated with the construction of the Proposal have been identified within the HHRA. Key findings during construction include:

- Air quality: Dust emissions may potentially reach two close residential areas located around 350m from the site.
- Noise: There is potential for the noise criteria to be exceeded at residential receptors without noise mitigation measures during all construction scenarios.
- Other matters (water, soil contamination, groundwater, dangerous goods/chemical hazards):
  - Transportation of storage and dangerous goods will be limited to materials such as diesel and construction-related materials. Spills are likely to occur during construction
  - Construction activities are not expected to impact on existing soil quality or change groundwater condition on the site
  - Water on the site is expected to be managed through soil and stormwater management plans.

Based on key findings identified in the HHRA, social impacts relating to human health would be considered possible, however minimal in consequence which would indicate a low social impact rating.

Air quality impacts

Prolonged exposure to construction impacts such as noise and dust can affect people's health. However, because of the site's distance to the closest residential receiver (3km to existing, 1km to the nearest potential residential area) the construction of the facility is unlikely to impact on the community's health and wellbeing. Social impacts during construction as a result of changes to air quality are considered to be unlikely for the Proposal, and where experienced, minimal in consequence, and therefore have a low negative social impact.

An Air Quality Assessment (AQA) (Katestone, 2022a) has been undertaken to identify potential impacts during both construction and operation. It found:

- Construction is anticipated to take approximately 36 months, which could create potential dust emissions from land clearing, the handling of materials, windblown dust of exposed areas, vehicle movements and exhaust emissions from diesel generators.

A Dust Risk Assessment (DRA) found the overall sensitivity of construction as medium based on the following:

- The overall human health sensitivity is considered to be low - Particulate Matter (PM) concentrations (PM10 and PM 2.5) are expected to be limited below approved concentration levels (18.3micrograms(µg),/), /m^3)

- The overall dust sensitivity is considered to be medium (due to presence of sites of cultural significance/sensitivity, e.g., Curly Sedge Creek, which could be negatively impacted by dust)
- The overall ecological sensitivity is considered to be medium (due to the presence of sites of ecological concern (including streams/creeks as well as habitats for Golden Sun Moths/Growling Grass Frogs outside the site, which could be negatively impacted by dust).

Noise and vibration impacts

A preliminary assessment of the noise impacts during the construction phase was carried out for the Proposal by using the WSERRC project noise impact report as a guide (refer to the Noise and Vibrations Technical Report (NVTR)).Social impacts during construction as a result of noise and vibrations are considered to be possible and minor in consequence, resulting in a moderate social impact.

The NVTR (Arup, 2022f) considers three constructions stages including demolition, earth works and filling, and construction (including roads and landscaping). The report found:

- Noise from construction equipment is expected during all three construction stages
- Vibration impacts are expected to have effects on surrounding development no more than 100m from the site. The NVTR states the closest receiver (R4) is located about 120m south of the MERC site boundary, indicating minimal social impacts on the community.

For all construction work, the contractor would be expected to prepare a detailed construction noise and vibration management plan (CNVMP) which would include a community engagement strategy and noise mitigation strategies. Overall, this will help to reduce the social impacts relating to noise and vibrations, particularly people's way of life and health and wellbeing.

3.4.5 Surroundings

Landscape character and visual amenity impacts

Construction activities would involve developing the proposed waste infrastructure and services, and removing existing vegetation as required, buildings and tanks. The Landscape Character and Visual Impact Assessment (LCVIA) (Arup, 2022e) identifies the following potential impacts on landscape character during construction:

- In the rural agricultural setting: partial loss is expected on the existing character and features, particularly the views over the landscape which contributes to the rural agricultural setting. Construction resources including sites workshops, cranes and maintenance equipment would become more prevalent
- In the suburban residential setting: there would be no direct physical impacts in this setting, however elevated components including the stack would increase the industrial characteristics in this area
- In the quarry residential setting: an increase in construction cranes are expected, however this is unlikely to affect the character of this area. Construction materials including heavy machinery are expected in this area.

Social impacts associated with the landscape character would therefore be possible and anticipated to have minor consequences. Therefore, the social impact is considered to be moderate.

In relation to visual amenity, the LCVIA report identifies the following key findings during the construction phase:

- Of the five viewpoints, viewpoint 1 (looking east towards the site) and viewpoint 2 (looking south-east towards the site) are likely to cause the greatest social impacts, as the site will become the dominant feature of the view from these angles

- Viewpoints 3 (looking north-east towards the site), 4 (looking south-west towards the site) and 5 (looking east towards the site) are likely to have no impacts on the community due to the site being well-screened from these points
- Visual receptors within and adjacent to the Proposal would include motorists, tourists and visitors, and residents and industry businesses. There would be no significant impacts on these key receptors, however, this would mostly occur when traversing through the area from viewpoints 1 and 2.

Overall, changes to visual amenity are likely with moderate consequences. Therefore, the social impact associated with visual amenity impacts would be high which would require implementation of mitigation measures.

Land use and zoning

As identified in the Whittlesea Planning Scheme, the Proposal is predominantly situated within the FZ, with a small portion of land in the north identified in the RCZ1 (further discussed in Section 2.1.2). The Proposal will not cause any disruptions to the operation and functionality of the land identified in the FZ.

Therefore, there are no anticipated impacts as a result of the Proposal with regard to land use and zoning. Potential positive impacts associated with the alignment between the Proposal and aspirations for the area would be likely and minimal in consequence, therefore indicating a high positive impact.

Future development

There is a range of development occurring in the area. The Proposal has considered these known developments and integrates positively with the development intent for the area. It is not considered that the construction of the Proposal will impact on the viability of development anticipated in the area.

For development that has commenced or where construction programmes overlap, there may be a possible, but minor impact around the programming of construction activities and the exacerbation of potential effects of construction, for example increased construction noise and traffic volumes. This would result in a moderate social impact and may intensify the potential social impacts associated with changes to movement and access and reduced amenity.

In addition, there is a possibility of an overlap of development which would result in issues with sourcing construction workers, materials and equipment. However, as construction makes up a large proportion of the workforce and businesses in the study area, this would have a minimal consequence, with a low social impact.

Personal and property rights

No acquisition of property is required for the Proposal and impacts to personal rights are not foreseen. The Community and Stakeholder Report outlines the Phase One Community Engagement which took place on 11 November 2022. Around 50 community members participated in engagement activities through focus groups, surveys and interviews. The results found that around 40% of participants felt somewhat comfortable about having a WtE facility built near their homes, while the rest of the participants experienced mixed views. Additionally, focus group participants' immediate response were around impacts on liveability including increase in traffic and safety concerns. Therefore, negative perceptions around living near a waste facility are possible, and minor in consequence, resulting in a moderate negative social impact.

3.5 Operation

3.5.1 Way of life

Liveability

Operation of the Proposal is likely to have sustained benefits throughout its life. In particular, Cleanaway are developing a Community Benefits Fund which will support community initiatives within the study area and broader area, specifically in the northern suburbs of Melbourne. The Fund will be provided to for the Community Reference Group to administer and may be used for community initiatives and environmental projects, which could include initiatives such as tree planning and green space connectivity, sporting infrastructure and recreational spaces. More broadly, for Victoria, the Proposal will result in reduced landfill volumes, waste disposal, and reduced emissions associated with traditional electricity generation and landfill. Therefore, social impacts are likely, and moderate in consequence which would have a high positive social impact.

However, it is noted there can be perceptions regarding the impact of living near a waste facility. This is a possible impact, moderate in consequence on the basis that it was identified there are people in the community who have expressed dissatisfaction with the development. Based on feedback from the community, it is likely the Proposal will have an impact on community perceptions.

Employment

The baseline analysis in section 2.3 identified that many people in the study area are employed as technicians and trades workers.

The Proposal is expected to generate a total of 50 operational staff, with a maximum of 30 operational staff on site at any one time. This would also allow for both day and night shifts. As the Proposal provides additional jobs in the area, this could result in improving the livelihood of the community by enabling better access to direct operational jobs, improving people's way of life by reducing their travel time to work. This could lead to greater positive health and wellbeing outcomes by allowing people more time to spend on outdoor/recreational activities and the site is likely to be a cleaner environment with better air quality. The creation of new jobs during the operational phase indicates this Proposal aligns with outcomes 1, 6 and 7 of the Plan Melbourne.

Therefore, it is anticipated that social impacts relating to local employment and business opportunities would be likely, and moderate in nature. This would indicate a moderate positive social impact on the community.

Traffic, congestion and mode of travel

The TIA (Traffix Group, 2022) report indicates that social impacts relating to traffic and congestion during the operational phase are likely but minor in consequence. During operation, most waste trucks are expected to access the project area to/from the south via the Hume Freeway on land identified as special use zone and urban growth zone. The report identifies 140 truck movements to/from the site per day (between Monday to Friday). This is split evenly between arrivals (70 movements) and departures (70 movements), with 10% of the daily truck movements occurring within AM and PM peak hour traffic. In addition to the arrival and departure truck movements being spread throughout the day, the existing traffic volumes at Summerhill Road between Amaroo Road and the Merri Creek (proposed waste truck route) are low and indicate spare capacity. Therefore, traffic impacts during operation would be likely however minimal in consequence, having a low negative impact on the community's way of life and their access to public facilities and services. Other traffic impacts considered relatively minor would include a reduction to the existing amenity through the generation of noise, emissions and vibrations, however, this is unlikely to impact the community's way of life, and any effect would be minimal in consequence and therefore considered to have a low negative social impact.

The TIA report identifies the proposed route access at Merri Creek bridge as a single width lane bridge with no signed load limit. The report recommends the implementation of a traffic management plan (TMP) to

allow vehicle movements safely across the bridge in one direction at a time. This is unlikely to impact the local community, however, will improve the surroundings by addressing public safety and security.

Overall, the operation of the facility is unlikely to impact on traffic, congestion and mode of travel, and the consequence would be minimal, therefore the social impact is considered to be low.

3.5.2 Community

Demographic composition and vulnerable groups

The Proposal will create 50 new highly skilled jobs locally, supporting the development of new skill sets and employment opportunities in the region. This is considered unlikely to impact on the demographic composition of the area given the existing working profile in the area and any effect would be minimal in consequence, which would indicate a low social impact.

Whilst the project does not involve any property acquisition, some people could feel strongly about living near a WtE facility and could choose to relocate. However, any occurrence of this would be minor, noting there is no substantial residential community in the immediate vicinity of the Proposal, and would therefore not shift the demographic profile of the area. This is considered to be rare and minor in consequence, and therefore considered to have a low social impact. Dispelling misconceptions and fears associated with WtE facilities will be a key objective of community engagement. Fears and aspirations are discussed further below.

Business community

The Proposal will align with other businesses in the area, which are or will be predominantly industrial in focus. It would provide a supportive environment for existing local businesses and the creation of new businesses – in reinforcing the study area's character as an area for sustainable industry. It would also provide essential infrastructure to support local, regional and state-wide business activities.

The Proposal will generate approximately 50 additional jobs during the operation phase, with a maximum of 30 staff on site at any one time, allowing for both day and night shifts. This is likely to have some benefits on the livelihood of the community by slightly increasing employment opportunities for the study area. Social impacts on the business community would be likely, and minor in consequence, resulting in a high positive impact.

Community's fears and aspirations

As presented in the baseline, the community's aspirations include being a healthy, vibrant community supported by infrastructure and services, living in well-designed neighbourhoods where the landscape and nature are protected. There is also a desire for leadership and investment in sustainability initiatives and cleaner, more sustainable living.

The Proposal will treat residual MSW and residual C&I waste streams that would otherwise be sent to landfill – typically leading to about 95% reduction in the volume of waste that would otherwise go to landfill and reducing impacts associated with landfill whilst generating energy. It will include a visitor and education centre to help inform the community on the circular economy, recycling, resource recovery and WtE as a waste solution technology. The intent behind this education is to drive a shift in community thinking and actions around waste management.

Overall, the Proposal will reduce emissions and other pollutants, providing better environmental outcomes for Melbourne, improving the region's long-term sustainability and health outcomes of its communities. Whilst the Proposal would result in some amenity impacts, these are considered to be less significant that the amenity impacts associated with landfills. Therefore, amenity impacts associated with community's fears and aspirations would be possible and minor in consequence, which would indicate a low social impact.

The Proposal will also provide for education opportunities through a world-class visitor and education Centre experience and facility tour. This will benefit local and regional schools and education facilities by providing a local learning destination. The visitor and education centre would also act to educate the broader

region on waste management, presenting the opportunity to shift negative perceptions of WtE facilities, including concerns regarding air quality and health impacts. The Proposal could set a benchmark and lead the development of WtE facilities in Australia. Social impacts on the community's aspirations would be likely and moderate in nature, which would indicate a high positive social impact.

3.5.3 Access to infrastructure, services and facilities

Social infrastructure and facilities

There are no anticipated direct impacts of the Proposal on social infrastructure within the study area during operation. Amenity impacts from operation of the facility are also expected to be unlikely and minimal in consequence and can be considered to have a low social impact on the community.

The Proposal will play a regional and State-wide role in waste management. It will help support the achievement of landfill diversion targets, preserve the limited landfill capacity available for the disposal of materials with no other management option and delay the need to establish new landfill sites. This has proven highly challenging for the Melbourne region, however, will result in many environmental benefits. Further, the proposed visitor and education centre will also provide a facility to educate and inform the community on the circular economy, recycling, resource recovery and WtE process. The intent behind this education is to inform the community and to drive a shift in community thinking and actions around waste management. Improved local facilities including the visitor and education centre will be supported by the Community Benefits Fund. Therefore, social impacts associated with social infrastructure and facilities would be likely and moderate in consequence. This would indicate a high positive social impact on the community.

Utilities infrastructure

Once operational, there may be occasional instances where public utilities may be impacted through future upgrades or maintenance work, although these are expected to be rare and minimal in consequence. Therefore, this would be considered to be a low social impact.

3.5.4 Health and wellbeing

Human health impacts

The HHRA (Enrisks, 2022) provides an assessment of health impacts during operation, by providing a review of other reports including air, noise and other matters such as water, soil contamination, chemicals management and groundwater. Generally, no health issues of concern associated with the operational phase of the Proposal have been identified in the HHRA. Key findings during operation include:

- Air and water emissions:
  - No unacceptable impacts have been identified in relation to long-term exposures through inhalation and after deposition onto soil and uptake into home grown produce.
- Noise:
  - Noise limits have been predicted with the assumption of no mitigation measures in place as per the current plans
  - Noise level exceedance is expected to occur at R4, with no noise mitigation
  - Predicted noise levels at the sensitive receivers are considered to comply with all adopted noise criteria except for R4 for the worst case 15-minute scenario during the day.
- Other matters
  - Water on the site is expected to be managed through soil and stormwater management plans
  - Emergency response measures such as fire systems, infrared sensors, appropriate facility design and an emergency response plan will be implemented to manage fuel and any spills or leaks of dangerous goods stored on the site.

Based on key findings from the HHRA, social impacts associated with human health during operation can be managed with an appropriate plan in place. Therefore, it would be considered likely and minimal in consequence, which would indicate a low social impact rating.

Air quality impacts

It is recognised that the community may have concerns regarding the impacts on air quality that may result from operation of the facility. There is potential, therefore, for concerns regarding perceived impacts associated with the Proposal and perceived health impacts, which could cause stress or anxiety to community members.

The AQA (Katestone, 2022a) found:

- The majority of polluting emissions during operation are expected from the FGT stack. Emissions from other sources including vehicle exhausts, emergency diesel generators (~2 MW electrical, for emergency and temporary use only), delivery of waste fuels, and removal of waste ash are considered to be either insignificant or sufficiently controlled to be considered insignificant
- Existing ground-level concentrations (PM10 and PM2.5) are not expected to increase due to the Proposal
- During operation, the majority of key pollutants (e.g., sulfur dioxide (SO2) and nitrogen dioxide (NO2) are predicted to comply with relevant Air Pollution Assessment Criteria (APAC) levels.

The AQA found that the nearest and most disadvantaged area to the Proposal is about 800m west of the site with an index of relative socioeconomic disadvantage (IRSD) quintile of three (one representing the most disadvantaged). Therefore, while there are no significant vulnerable communities in the study area, this impact is expected to be possible and minor in nature. This would indicate a potential moderate negative social impact on the community which would require the implementation of mitigation measures.

Noise and vibration impacts

Social impacts associated with noise and during the operational phase are expected to be indirect. The NVTR (Arup, 2022f) outlines that noise exceedance during operation is expected at receiver R4 (475 Summerhill Road), which will require mitigation. Based on the NVTR, the primary operational noise source which comprise of:

- A number of buildings, such as the Incinerator Bottom Ash (IBA) process building and the main WtE process building
- Outdoor plant and equipment, including air cooled condensers and an exhaust stack
- Emergency and maintenance equipment, including an emergency diesel generator that is tested once a month and an odour control system used to maintain air pressure during the boiler maintenance
- Vehicular traffic, including heavy vehicles travelling to/from the site to deliver waste and light vehicles travelling to/from the staff/visitor entrance.

The NVTR identifies the Noise Protocol noise limits are specified between 10pm to 7am. As the delivery periods are proposed between 6am to 6pm, the anticipated noise levels during the night-time will comply with the evening criteria. The Proposal's operational noise is unlikely to cause major disruptions on people's health and wellbeing, including sleep, discomfort and reduced cognitive performance, with a minor consequence. Therefore, the social impact associated with noise level operations is considered to be low.

3.5.5 Surroundings

Landscape character and visual amenity impacts

The Proposal identifies potential embedded design mitigation techniques to alleviate possible impacts on landscape character and visual amenity. This would include providing perimeter planning on the site

boundary which would partially screen views into the site. The main building, stack and plume will be prominent features above the existing and proposed vegetation levels.

There are no anticipated direct impacts of the Proposal on the landscape character and visual amenity of the study area during both day-time and night-time operations. The LCVIA (Arup, 2022e) found:

- The Proposal is recognised as a prominent feature within the surrounding landscape and will become an extension to the existing and future industrial land uses in the area
- The Proposal is unlikely to disrupt the existing character of the area, as it will be surrounded by other industrial and quarry operations.

In relation to changes in the visual amenity during operations, the following key findings have been identified within the LCVIA report:

- Consistent with the construction phase, viewpoints 1 and 2 (north-east from the site) are likely to cause the greatest change to the visual amenity, due to an increase in light emittance. However, this is unlikely to cause major disruptions on people's surroundings appreciation of the surrounding environment
- Visual receptors within and adjacent to the Proposal would include motorists, tourists and visitors, and residents and industry businesses. There would be no significant impacts on these key receptors, however, this would mostly occur when traversing through the area from viewpoints 1 and 2.

Overall, social impacts associated with visual amenity during operation are possible, however minor in consequence, resulting in a moderate social impact.

Land use and zoning

There are no anticipated negative impacts as a result of the Proposal with regard to land use and zoning. The proposed development is consistent with the existing and anticipated land uses and built form in the surrounding area, characterised by industrial and energy related uses. This would then benefit the community by reinforcing the area's role and character as an emerging industrial and energy precinct. Therefore, potential positive impacts associated with the alignment between the Proposal and aspirations for the area would be possible and minor in consequence, therefore indicating a moderate positive impact.

When operational, the Proposal will not directly impact on any of the identified residential properties within the study area. These properties may experience amenity impacts, as summarised previously.

Future development and cumulative impacts

The Proposal has been planned and designed to align with the planned development and strategic aspirations for the study area. It is not considered that the Proposal would have a substantial operational impact with regard to the identified future developments within the study area.

There is, however, some potential for indirect amenity and access impacts associated with operations of the Proposal, similar to those outlined previously. This would be in minimal in consequence, and therefore, the social impact would be low.

Personal and property rights

Cleanaway have already acquired the land required for the Proposal, therefore, further impacts to personal and property rights would not be expected. However, local residents and property owners may have perceptions that a waste facility in their suburb/region could have impacts on the liveability of the community (as described earlier in section 3.4.5), further resulting in devaluing surrounding properties. This could be possible and minor in consequence, and the social impact of this perceived impact would be considered moderate.

3.6 Summary evaluation of impacts

This SIA has identified a range of positive and negative social impacts during the construction and operation of the Proposal. Table 31 provides a summary and evaluates the negative impacts associated with the construction and operation of the Proposal. Additionally, Table 32 summarises the potential positive impacts. It is noted that some of the impacts outlined may differ from the impacts set out in the relevant technical reports as this SIA focusses on social impacts and may use a different impact evaluation methodology to those technical reports.

3.6.1 Negative impacts

Table 31: Evaluation of negative impacts

Impact	Initial Impact		
	Likelihood	Consequence	Impact Rating
Construction			
Way of life			
Potential impact on liveability due to changes in the amenity (e.g., construction noise or air quality effects) as described in Section 3.4.1.	Unlikely	Minimal	Low
Potential impact on people's way of life due to increase in traffic and congestion as described in Section 3.4.1.	Likely	Minimal	Moderate
Community			
Potential impact on demographic composition and vulnerable groups as described in Section 3.4.2.	Unlikely	Minimal	Low
Potential impact on local business associated with traffic impacts as described in Section 3.4.2.	Unlikely	Minimal	Low
Potential impact on community values due to loss of sense of place, noise, environmental impacts, and anticipation of negative impacts as described in Section 3.4.2.	Possible	Minimal	Moderate
Access to infrastructure, services and facilities			
Potential impact on social infrastructure due to an increase in amenity (e.g., noise, air, vibrations) as discussed in Section 3.4.3.	Possible	Minimal	Low
Potential social impact on utilities infrastructure and services associated with increase in energy production as described in Section 3.4.3.	Possible	Minor	Low
Health and wellbeing			
Potential impact on human health during construction due to increase in air	Possible	Minor	Low

Impact	Initial Impact		
	Likelihood	Consequence	Impact Rating
emissions, noise, and changes in other matters as described in Section 3.4.4.			
Potential social impact due to an increase in air emissions as described in Section 3.4.4.	Unlikely	Minimal	Low
Potential social impact on people's health and wellbeing from construction noise and vibrations as described in Section 3.4.4.	Possible	Minor	Moderate
Surroundings			
Potential social impact due to changes in the visual amenity as described in Section 3.4.5.	Possible	Minor	Moderate
Potential impact on future development associated with construction resources (e.g., materials, equipment and construction workers) as described in Section 3.4.5.	Possible	Minimal	Low
Potential perceived impact on personal and property rights of living near a waste facility as described in Section 3.4.6	Possible	Minor	Low
Operation			
Way of life			
Potential perceived reduced liveability due to changes in the amenity as described in Section 3.5.1.	Possible	Minor	Moderate
Potential impact on way of life due to increase in traffic and congestion as described in Section 3.5.1.	Likely	Minimal	Low
Community			
Potential impact on community demographic composition and vulnerable groups as discussed in Section 3.5.2.	Unlikely	Minimal	Low
Potential impact on community demographic composition and vulnerable groups as discussed in Section 3.5.2.	Rare	Minor	Low
Potential impact on community fears and aspirations due to increase in amenity as described in Section 3.5.2.	Possible	Minor	Low
Access to infrastructure, services and facilities			
Potential impacts to social infrastructure and utilities due to increase in amenity as described in Section 3.5.3.	Unlikely	Minimal	Low

Impact	Initial Impact		
	Likelihood	Consequence	Impact Rating
Potential social impact from impacts to utilities and infrastructure due to future upgrades and maintenance work as described in Section 3.5.3.	Rare	Minimal	Low
Health and wellbeing			
Potential impact on human health during operation due to increase in air emissions, noise, and changes in other matters as described in Section 3.5.4.	Possible	Minor	Low
Potential health and wellbeing impacts due to increased air emissions as described in Section 3.5.4.	Possible	Minor	Moderate
Potential social impact due to increased noise and vibration levels as described in Section 3.5.4.	Unlikely	Minor	Low
Surroundings			
Social impact associated with changes to visual amenity as described in Section 3.5.5.	Possible	Minor	Moderate
Potential social impact associated with future development as described in Section 3.5.5.	Possible	Minimal	Low
Potential perceived negative impact on property values of living near a waste facility as described in Section 3.5.6.	Possible	Minor	Moderate

3.6.2 Positive impacts

Table 32: Evaluation of positive impacts

Impact	Initial Impact		
	Likelihood	Consequence	Impact Rating
Construction			
Way of life			
Potential impact on liveability due to increase in employment and business opportunities as described in Section 3.4.1.	Likely	Moderate	High
Potential impacts to improved liveability due to an increase of local employment opportunities	Possible	Moderate	High

Impact	Initial Impact		
	Likelihood	Consequence	Impact Rating
which would allow additional time for people's health and wellbeing as described in Section 3.4.1.			
Community			
Potential impact on demographic composition related to increased employment as described in Section 3.4.2.	Possible	Minor	Moderate
Potential impact on the business community due to employment opportunities during construction as described in Section 3.4.2.	Likely	Moderate	High
Potential impact on surrounding land use / development potential which would align with the aspirations of the area as described in Section 3.4.5.	Likely	Minimal	Moderate
Operation			
Way of life			
Potential impacts to liveability associated with increase in community initiatives supported by the Community Benefits Fund as described in Section 3.5.1.	Likely	Moderate	High
Potential social impacts associated with increasing local employment opportunities as described in Section 3.5.1.	Likely	Minimal	Moderate
Community			
Potential impacts to the local business community through support for industry as described in Section 3.5.2.	Likely	Minor	High
Potential impacts to the local business community through employment opportunities during operation as described in Section 3.5.2.	Likely	Moderate	High
Potential social impacts on the community's aspirations for more sustainable living and provision of educational facilities as described in Section 3.5.2.	Likely	Minor	High
Access to infrastructure, services and facilities			
Positive impact on access to social infrastructure and facilities as the Proposal becomes a key asset of community infrastructure as described in Section 3.5.3.	Likely	Moderate	High
Positive impact associated with road upgrades to improve accessibility for broader residential and business community as described in Section 3.5.3.	Likely	Moderate	High

Impact	Initial Impact		
	Likelihood	Consequence	Impact Rating
Positive impact due to improved local facilities backed by the Community Benefits Fund as described in Section 3.5.3.	Likely	Moderate	High
Surroundings			
Potential social impacts of new land use which aligns with the aspirations of the area as described in Section 3.5.5.	Possible	Minor	Moderate

3.7 Proposed mitigation of impact

This section outlines proposed mitigation and management measures that have been developed to mitigate the potential negative socioeconomic impacts of the Proposal during construction (as identified in Table 33) and operation (as identified in Table 34). It is noted many of the mitigation measures identified in the tables reflect the mitigations identified through other technical assessments (e.g., air quality, traffic, etc).

3.7.1 Construction

Table 33: Construction mitigation measures for socioeconomic

ID	Mitigation measure	Timing
Socio-economic		
TT01	A Construction Transport Management Plan (CTMP) will be prepared to include measures to reduce construction traffic including adjusting shift patterns and encouraging car sharing. The CTMP will form part of the Construction Environmental Management Plan (CEMP) and will be updated once a contractor is appointed. Construction transport routes/access to the site will be directed away from residential areas and sensitive receptors. Optimal construction access routes will be identified with City of Whittlesea, City of Hume, and the Department of Transport. Timing of deliveries will also be considered to avoid impacts, and where possible, the number of construction vehicles will be limited.	Construction
TT04	The section of Summerhill Road between Merri Creek and the eastern site access comprises a gravel formation, which should be upgraded to a sealed standard with a pavement width of approximately 6.5m to be consistent with the existing arrangement to the west of Merri Creek. Furthermore, where the adjacent terrain is relatively flat, grass verge/shoulder would be satisfactory. However, where there are batters/slopes adjacent to the carriageway, a gravel should be considered.	Construction and Operation
TT05	Traffic control treatment and Merri Creek bridge should be implemented where there is only capacity for traffic in one direction.	Construction and Operation
HH01	Hazardous waste is appropriately contained at all times on the site.	Construction and Operation
AQ01	Design of facility avoids release of dust, and controls and monitors emission to air.	Construction

ID	Mitigation measure	Timing
AQ02	Construction dust will be managed through a Construction Dust Management Plan (CDMP) integrated with the Construction Environmental Management Plan (CEMP) which may include the following: • Water application for dust suppression* • Wheel washing of construction vehicles to prevent tracking of dirt/dust offsite* • Management of stockpiles to limit wind-blown dust • Construction vehicles will need to be covered to prevent release of dust emissions • Solid screens or barriers around dust activities or the entire Proposal area that are at least as high as any stockpiles on site • Remove materials that have a potential to produce dust from site as soon as possible, unless being reused on-site. *A stormwater management plan will be implemented to mitigate stormwater runoff and flooding impacts. Potential downstream flood impacts are mitigated by the inclusion of two on-site detention basins.	Construction
AQ03	The CEMP will manage construction particulates from diesel engines, including: • Addressing engine idling • Operating and maintaining equipment correctly • Use of biodiesel where practicable. The CEMPT will also include measures for control of odour.	Construction
NV01	A detailed Construction Noise and Vibration Management Plan (CNVMP) will be prepared. This will include the following: • Roles and responsibilities • Noise sensitive receiver locations • Noise mitigation strategy • Monitoring methods • Community engagement strategy. This will form part of the CEMP. Construction noise and vibration criteria to comply with: • EPA Publication 1834 Civil construction, building and demolition guide • EPA Publication 1820.1 Construction – guide to preventing harm to people and the environment. It will also include criteria outlined in the following documents: • NSW EPA Draft Construction Noise Guideline, 2020 • NSW Department of Environment and Climate Change Interim Construction Noise Guideline, 2009 (ICNG) • NSW Department of Environment and Construction Assessing Vibration: a technical guideline, 2006.	Construction
LV01	• Integrates design of the stack and building to mitigate visual impact where possible • Careful selection of colour and material to allow the building and stack to appear recessive above the skyline • Ensure limited light spill to stack through careful location of lighting columns • Provide perimeter planting to screen views into the site • Architecture to minimising the overall height of the building where possible • Consider green walls and green roofs to the norther end to better blend the Proposal into the surrounding landscape.	Construction and Operation
	In addition to existing activities undertaken to date, there are opportunities for Cleanaway to undertake further stakeholder engagement and public consultation throughout the phases of development. Examples of potential engagement activities could include additional pop-up or information sharing sessions with the Local	Construction and Operation

ID	Mitigation measure	Timing
	Council, key stakeholders (including First Nations State Relations, Industry and non-regulatory government agencies) and the community.	

3.7.2 Operation

Table 34: Operation mitigation measures for socioeconomic

ID	Mitigation measure	Timing
Socioeconomic		
TT04	The section of Summerhill Road between Merri Creek and the eastern site access comprises a gravel formation, which should be upgraded to a sealed standard with a pavement width of approximately 6.5m to be consistent with the existing arrangement to the west of Merri Creek. Furthermore, where the adjacent terrain is relatively flat, grass verge/shoulders would be satisfactory. However, where there are batters/slopes adjacent to the carriageway, a gravel shoulder should be considered.	Operation
TT05	Traffic control treatment at Merri Creek bridge should be implemented where there is only capacity for traffic in one direction.	Construction and Operation
HHRA1	Hazardous waste is appropriately contained at all times.	Construction and Operation
AQ1	Design of facility avoids release of dust, and controls and monitors emissions to air. It will include (but not limited to) the following: • Fully enclosed negatively pressured arrival hall and waste bunker • Provision of quarantine facilities for ejected and recovered materials, including hazardous waste and e-waste, with fit for purpose environmental controls.	Construction and Operation
AQ05	An operation license will ensure the facility is meeting compliance requirements.	Operation
AQ06	An Operation Environment Management Plan (OEMP) will be prepared. Air quality modelling will be used to understand operating scenarios. The OEMP should also manage vehicle impacts and may include: • Addressing engine idling • Operating and maintaining equipment correctly • Use of biodiesel where practicable • Vehicles should be covered to prevent dust escape	Operation
NV02	An Operating License will be obtained from the EPA which will outline conditions around noise compliance.	Operation
NV03	As part of the OEMP, specific noise management measures will be included so that the ongoing operation of the WtE facility adheres to noise criteria and mitigates adverse noise impacts on sensitive receivers. A six-month post-commissioning report would be prepared as part of this OEMP. The Environment Protection Act (the Act), as amended by the Environment Protection Amendment Act 2018 introduces an 'unreasonable noise' section, Section 166 – Unreasonable noise, to provide a legislative control for any noise emitted from a place or premises. Part 5.3 – Noise of the Environment Protection Regulations 2021 (the Regulations) prescribes situations which constitute 'unreasonable noise' from residential, commercial, industrial and trade premises, entertainment venues and outdoor entertainment events. The objective of the Regulations is to further the purpose of and give effect to the Act. Operational noise criteria is to comply with: • The Environment Protection Regulations 2021 • EPA Publication 1826 Noise Protocol for Commercial, Industrial and Trade premises and consider the following: • EPA Publication 1996 Noise Guideline: Assessing low frequency noise • Environmental Reference Standard (Ambient Sound), S245 26 May, 2021 See EPRs NV04 to NV08 below for identification of noise emitting items from the WtE facility. These items must be assessed in combination with each other at noise	Operation

ID	Mitigation measure	Timing
	sensitive receivers based on expected scheduled operation. Determination of appropriate noise mitigation measures will be identified and implemented.	
NV04	Control of operational vehicle noise of stationary (idling) and moving vehicles circulating the WtE facility must not to exceed day, evening, and night-time Noise Protocol limits (in accordance with the Environment Protection Regulations) at noise sensitive receivers. Where truck volumes cannot be managed to meet noise limits, other mitigation measures may be required including shielding provided by earth bunds, or mitigation to receiver location may be required. Control of operational traffic volumes and vehicle types to be further addresses during detailed design.	Operation
LV01	• Integrates design of the stack and building to mitigate visual impact where possible • Careful selection of colour and material to allow the building and stack to appear recessive above the skyline • Ensure limited light spill to stack through careful location of lighting columns • Provide perimeter planting to screen views into the site • Architecture to minimising the overall height of the building where possible • Consider green walls and green roofs to the norther end to better blend the Proposal into the surrounding landscape.	Construction and Operation
	In addition to existing activities undertaken to date, there are opportunities for Cleanaway to undertake further stakeholder engagement and public consultation throughout the phases of development. Examples of potential engagement activities could include additional pop-up or information sharing sessions with the Local Council, key stakeholders (including First Nations State Relations, Industry and non-regulatory government agencies) and the community.	Construction and Operation

4. Conclusions and proposed controls

This SIA has assessed the various potential positive and negative socio-economic impacts associated with the Proposal.

Negative impacts associated with the Proposal include impacts on liveability (due to amenity impacts), traffic and congestion, amenity, and community fears and aspirations (generally associated with perceptions of waste facilities), associated with both the construction and operation phase of the Proposal. The key negative impacts associated with the Proposal include:

- Construction:
  - Impacts on people's way of life due to increase in traffic and congestion, with a moderate social impact rating
  - Impacts on community values due to loss of sense of place, noise, environmental impacts and the anticipation of negative impacts, with a moderate social impact rating
  - Impacts on people's health and wellbeing as a result of construction noise and vibration, with a moderate social impact rating
  - Impacts relating to changes in the visual amenity, with a moderate social impact rating
  - Impacts on property values (actual or perceived), with a moderate social impact rating.
- Operation
  - Impact on liveability (actual or perceived) due to potential changes in the amenity, with a moderate social impact rating
  - Impacts on health and wellbeing as a result of increased air emissions, with a moderate social impact rating
  - Impacts on the visual amenity, with a moderate social impact rating
  - Impacts on property values (actual or perceived), with a moderate social impact rating.

Positive impacts as a result of the Proposal include improved liveability (due to increased sustainability), increased training, employment and business opportunities, community fears and aspirations (associated with improved environmental outcomes and alternative energy generation) and provision of a world-class visitor and education centre. The key positive impacts associated with the Proposal include:

- Construction:
  - Impacts on employment, with a high positive social impact rating
  - Impacts to the local business community through support of local business and industry, with a high social impact rating
  - Impacts to liveability associated with reduction in waste disposal and emissions, with a high social impact rating.
- Operation:
  - Impacts on the community's aspirations through more sustainable living and provision of educational facilities, with a high social impact rating
  - Impacts to social infrastructure and facilities as the Proposal becomes a key asset of community infrastructure, with a high social impact rating
  - Impacts of new land use which aligns with the community's aspirations, with a high social impact rating.

The facility, and in particular the visitor and education centre will educate the broader region on waste management, presenting the opportunity to inform the public and shift negative perceptions of WtE facilities, including concerns regarding air quality and health impacts. It will also educate the public about waste management contributing to improved waste management practices. In general, the positive impacts had a

greater social impact significance (mostly moderate to high impact) when compared to the negative impacts (mostly low to moderate), and are generally associated with the operational phase, and therefore have long term socio-economic impacts. Further, measures to mitigate negative impacts have been identified, and include implementation of controls of dust, air quality, traffic, noise emissions, and landscape treatments. Overall, the positive socio-economic impacts associated with the Proposal outweigh the negative impacts.

5. References

Arup, 2022e. *Landscape Character and Visual Impact Assessment,* Melbourne: Arup.

Arup, 2022f. *Noise and Vibration Technical Report,* Melbourne: Arup.

Australian Bureau of Statistics, 2016. *Statistical Area Level 2, Indexes, SEIFA.* [Online]
Available at:
https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/2033.0.55.0012016?OpenDocument
[Accessed 26 September 2022].

Australian Bureau of Statistics, 2021a. *2021 Census All Persons QuickStats.* [Online]
Available at: https://www.abs.gov.au/census/find-census-data/quickstats/2021/2
[Accessed 26 September 2022 2022].

Australian Bureau of Statistics, 2021b. *Counts of Australian Businesses, including Entries and Exits.* [Online]
Available at: https://www.abs.gov.au/statistics/economy/business-indicators/counts-australian-businesses-including-entries-and-exits/jul2017-jun2021.
[Accessed 17 Novembet 2022].

City of Whittlesea, 2018. *Whittlesea 2040: A Place for All.* [Online]
Available at: https://www.whittlesea.vic.gov.au/media/4384/whittlesea-2040-a-place-for-all-web-accessible.pdf
[Accessed 26 September 2022].

City of Whittlesea, 2021. *Community Plan 2021-2025.* [Online]
Available at: https://participate.hume.vic.gov.au/72177/widgets/350934/documents/214438
[Accessed 26 September 2022].

Department of Environment, Land, Water and Planning, 2019. *Victoria in Future 2019.* [Online]
Available at:
https://www.planning.vic.gov.au/__data/assets/pdf_file/0032/332996/Victoria_in_Future_2019.pdf
[Accessed 26 September 2022].

Enrisks, 2022. *Health Risk Assessment,* Melbourne: Enrisks.

Hume City Council, 2020a. *Draft Council Plan 2021-2025.* [Online]
Available at: https://participate.hume.vic.gov.au/72177/widgets/350934/documents/214438
[Accessed 26 September 2022].

Hume City Council, 2020b. *Hume, what's your dream? A community plan for 2040.* [Online]
Available at: https://participate.hume.vic.gov.au/55927/widgets/298681/documents/172070
[Accessed 26 September 2022].

Katestone, 2022a. *Air Quality Assessment,* Brisbane: Katestone.

Traffix Group, 2022. *Transport Impact Assessment,* Melbourne: Traffix Group.

Victoria Planning Authority, 2012. *The North Growth Corridor Plan.* [Online]
Available at: https://vpa.vic.gov.au/project/donnybrook-woodstock/
[Accessed 21 November 2022].

Victoria Planning Authority, 2021. *Doonybrook-Woodstrock Precinct Structure Plan.* [Online]
Available at: https://vpa.vic.gov.au/project/donnybrook-woodstock/
[Accessed 21 November 2022].

Appendix A

Community Profile Data

A.1 Population

Table 35: Population (2021 ABS census data)

Area	Males		Females		Total
Wollert	12,295	50.4%	12,108	49.6%	24,403
Whittlesea	5,289	49.6%	5,375	50.4%	10,664
Craigieburn Central	4,056	50.1%	4,047	49.9%	8,103
Craigieburn-North	6,160	50%	6,154	50%	12,314
Mernda-North	5,559	48.7%	5,866	51.3%	11,425
Mernda-South	5,874	49.2%	6,069	50.8%	11,943

A.2 Aboriginal and Torres Strait Islander populations

Table 36: Aboriginal and Torres Strait Islander populations (2021 ABS census data)

Area	Aboriginal and/or Torres Strait Islander Peoples	
Wollert	155	0.6%
Whittlesea	134	1.3%
Craigieburn Central	81	1.0%
Craigieburn-North	89	0.7%
Mernda-North	166	1.5%
Mernda-South	154	1.3%

A.3 Population projections

Table 37: Population projections (2019 DELWP data)

Area	2026	2031	2036	Annual growth rate from 2021-2036
Wollert	36,732	51,065	63,746	6.6%

Area	2026	2031	2036	Annual growth rate from 2021-2036
Whittlesea	19,163	32,193	44,864	10.1%
Craigieburn Central	8,933	9,017	9,155	0.9%
Craigieburn-North	13,826	14,048	14,284	1.0%
Mernda	28,976	30,399	31,310	2.0%

A.4 Employment status

Table 38: Employment status (2021 ABS census data)

Area	Unemployed		Employed	
Wollert	749	6.2%	11,246	93.7%
Whittlesea	179	3.4%	5,044	96.7%
Craigieburn - Central	298	7.9%	3,466	92.2%
Craigieburn - North	456	7.5%	5,581	92.5%
Mernda - North	338	5.8%	5,462	94.2%
Mernda - South	355	5.6%	5,960	94.4%

A.5 Occupations

Table 39: Occupations, top responses (2021 ABS census data)

Area	Occupation, top responses		
Wollert	Professionals	2,2505	19.6%
	Community and Personal Service Workers	1,600	14.2%
	Technicians and Trades Workers	1,573	14.0%
	Machinery Operators and Drivers	1,277	11.4%
	Labourers	1,128	10.0%

Area	Occupation, top responses		
Whittlesea	Professionals	2,205	19.6%
	Technicians and Trades Workers	1,573	14.0%
	Clerical and Administrative Workers	671	13.3%
	Community and Personal Service Workers	650	12.9%
	Managers	597	11.9%
Craigieburn Central	Technicians and Trades Workers	599	17.3%
	Clerical and Administrative Workers	479	13.8%
	Labourers	454	13.1%
	Machinery Operators and Drivers	441	12.7%
	Community and Personal Service Workers	435	12.6%
Craigieburn-North	Professionals	903	16.2%
	Technicians and Trades Workers	784	14.1%
	Clerical and Administrative Workers	707	12.7%
	Community and Personal Service Workers	706	12.7%
	Machinery Operators and Drivers	659	11.8%
Mernda-North	Professionals	1,148	21.0%
	Community and Personal Service Workers	780	14.3%
	Clerical and Administrative Workers	779	14.3%
	Technicians and Trades Workers	738	13.5%
	Managers	557	10.2%
Mernda-South	Professionals	1,235	20.7%
	Technicians and Trades Workers	838	14.1%

Area	Occupation, top responses		
	Clerical and Administrative Workers	823	13.8%
	Community and Personal Service Workers	815	13.7%
	Managers	613	10.3%

A.6 Employment by industry

Table 40: Employment by industry, top responses (2021 ABS census data)

SA2	Employment by industry, top responses		
Wollert	Health Care and Social Assistance	2,039	18.1%
	Construction	1,138	10.1%
	Transport, Postal and Warehousing	1,094	9.7%
	Retail Trade	1,004	8.9%
	Manufacturing	965	8.6%
Whittlesea	Construction	937	18.6%
	Health Care and Social Assistance	701	13.9%
	Education and Training	409	8.1%
	Retail Trade	1,396	7.9%
	Manufacturing	376	7.5%
Craigieburn Central	Health Care and Social Assistance	424	12.2%
	Manufacturing	402	11.6%
	Construction	384	11.1%
	Transport, Postal and Warehousing	359	10.4%
	Retail Trade	351	10.1%
Craigieburn-North	Health Care and Social Assistance	772	13.9%

SA2	Employment by industry, top responses		
	Retail Trade	570	10.2%
	Manufacturing	565	10.1%
	Transport, Postal and Warehousing	550	9.9%
	Construction	540	9.7%
Mernda-North	Health Care and Social Assistance	977	17.9%
	Retail Trade	563	10.3%
	Construction	541	9.9%
	Education and Training	439	8.0%
	Manufacturing	379	6.9%
Mernda-South	Health Care and Social Assistance	1032	17.3%
	Construction	657	11.0%
	Retail Trade	638	10.7%
	Education and Training	487	8.2%
	Manufacturing	400	6.7%

A.7 Household compositions

Table 41: Household compositions (2021 ABS census data)

Area	Family households		Singe (or lone) person households		Group households	
Wollert	6,215	85.7%	875	12.1%	166	2.3%
Whittlesea	2,754	78.6%	690	19.7%	60	1.7%
Craigieburn Central	2,022	77.9%	506	19.5%	69	2.7%
Craigieburn-North	3,007	85.4%	437	12.4%	76	2.2%
Mernda-North	3,090	80.1%	699	18.1%	70	1.8%

Mernda-South	3,169	86.4%	434	11.8%	65	1.8%

A.8 Dwelling conditions

Table 42: Dwelling conditions (2021 ABS census data)

Area	Occupied private dwellings		Unoccupied private dwellings	
Wollert	7,257	93.6%	498	6.4%
Whittlesea	3,503	92.9%	268	7.1%
Craigieburn Central	2,595	94.5%	155	5.6%
Craigieburn-North	3,518	95.7%	164	4.5%
Mernda-North	3,854	94.7%	213	5.2%
Mernda-South	3,677	96.6%	135	3.5%

A.9 Dwelling structure

Table 43: Dwelling structure (2021 ABS census data)

Area	Separate house		Semi-detached, row or terrace house, townhouse, etc		Flat or apartment		Other dwelling	
Wollert	6,382	88.0%	718	9.9%	139	1.9%	11	0.2%
Whittlesea	3,211	91.8%	253	7.2%	33	0.9%	0	0.0%
Craigieburn Central	2,394	92.5%	102	3.9%	93	3.6%	0	0.0%
Craigieburn-North	3,152	89.6%	324	9.2%	43	1.2%	0	0.0%
Mernda-North	3,233	83.8%	517	13.4%	102	2.6%	5	0.1%
Mernda-South	3,496	95.3%	172	4.7%	0	0.0%	0	0.0%

A.10 Tenure types

Table 44: Tenure types (2021 ABS census data)

Area	Owned outright		Owned with a mortgage		Rented		Other tenure type		Tenure type not stated	
Wollert	810	11.2%	4,542	62.6%	1,706	23.5%	70	1.0%	128	1.8%
Whittlesea	1,150	32.8%	1,706	48.6%	558	15.9%	37	1.1%	57	1.6%
Craigieburn Central	723	27.9%	1,092	42.2%	703	27.1%	29	1.1%	43	1.7%
Craigieburn -North	516	14.7%	1,977	56.1%	956	27.1%	21	0.6%	52	1.5%
Mernda-North	614	15.9%	2,000	51.7%	1,063	27.5%	146	3.8%	44	1.1%
Mernda-South	462	12.6%	2,151	58.4%	992	26.9%	21	0.6%	55	1.5%

A.11 Rent weekly payments

Table 45: Rent weekly payments (2021 ABS census data)

Area	Median rent	Renter households where rent payments are less than or equal to 30% of household income		Renter households where rent payments are greater than 30% of household income		Unable to determine	
Wollert	$391	1,007	58.9%	563	32.9%	139	8.1%
Whittlesea	$375	298	53.5%	206	37.0%	53	9.5%
Craigieburn Central	$350	372	53.1%	268	38.2%	61	8.7%
Craigieburn-North	$371	536	55.8%	340	35.4%	85	8.8%
Mernda-North	$378	642	60.1%	352	32.9%	75	7.0%
Mernda-South	$390	628	62.9%	288	28.8%	83	8.3%

A.12 Mortgage monthly repayments

Table 46: Mortgage monthly repayments (2021 ABS census data)

Area	Median mortgage repayments	Owner with mortgage households where mortgage repayments are less than or equal to 30% of their household income		Owner with mortgage households where mortgage repayments are greater than 30% of their household income	
Wollert	$2,000	3,090	68.0%	1,064	23.4%
Whittlesea	$2,000	1,207	70.8%	299	17.5%
Craigieburn Central	$1,517	786	72.0%	194	17.8%
Craigieburn-North	$1,842	1,364	69.1%	391	19.8%
Mernda-North	$1,900	1,453	72.9%	345	17.3%
Mernda-South	$1,950	1,605	74.8%	358	16.7%

A.13 Household median weekly income

Table 47: Household median weekly income (2021 ABS census data)

Area	Less than $650 total household weekly income	More than $3,000 total household weekly income
Wollert	8.7%	20.0%
Whittlesea	15.3%	23.0%
Craigieburn Central	15.8%	14.9%
Craigieburn-North	10.4%	22.8%
Mernda-North	12.7%	21.7%
Mernda-South	7.0%	23.7%

A.14 Median weekly income, people aged 15 years and over

Table 48: Median weekly income (2021 ABS census data)

Area	Personal	Family	Household
Wollert	$843	$2,027	$1,979
Whittlesea	$780	$2,131	$1,855
Craigieburn Central	$654	$1,664	$1,523
Craigieburn-North	$742	$2,027	$1,958
Mernda-North	$855	$2,103	$1,897
Mernda-South	$902	$2,173	$2,109

A.15 Unpaid work and care

Table 49: Unpaid work and care (2021 ABS census data)

Area	No unpaid assistance provided		Provided unpaid assistance		Not stated	
Wollert	14,671	84.8%	1,672	9.7%	955	5.5%
Whittlesea	6,714	78.4%	1,157	13.5%	688	8.0%
Craigieburn Central	5,053	79.2%	900	14.1%	425	6.7%
Craigieburn-North	7,579	82.7%	1,077	11.8%	504	5.5%
Mernda-North	7,059	83.7%	1,018	12.1%	348	4.1%
Mernda-South	7,197	83.3%	1,030	11.9%	413	4.8%

A.16 Long-term health conditions

Table 50: Long-term health conditions (2021 ABS census data)

Area	One condition		Two conditions		Three or more conditions		None of the selected conditions	
Wollert	2,702	11.1%	554	2.3%	272	1.1%	19,358	79.3%
Whittlesea	2,049	19.2%	660	6.2%	311	2.9%	6,596	61.9%
Craigieburn Central	1,434	17.7%	492	6.1%	222	2.7%	5,304	65.4%
Craigieburn-North	1,686	13.7%	424	3.4%	196	1.6%	9,180	74.5%
Mernda-North	1,896	16.6%	540	4.7%	263	2.3%	8,019	70.2%
Mernda-South	1,780	14.9%	473	4.0%	149	1.2%	8,800	73.7%

A.17 Language proficiency

Table 51: Language proficiency (2021 ABS census data)

Area	Speaks English only	Uses other language and speaks English: Very well	Uses other language and speaks English: Well	Uses other language and speaks English: Not well	Uses other language and speaks English: Not at all
Wollert	31.1%	42.2%	15.3%	5.1%	2.1%
Whittlesea	76.7%	11.6%	3.6%	1.0%	0.5%
Craigieburn Central	51.9%	23.3%	11.9%	4.8%	2.1%
Craigieburn-North	38.7%	36.0%	13.1%	5.4%	2.2%
Mernda-North	59.3%	24.8%	8.9%	2.7%	0.9%
Mernda-South	54.6%	28.3%	9.3%	2.4%	1.2%

A.18 Languages used at home

Table 52: Language used at home (2021 ABS census data)

Area	Languages used at home, top responses		
Wollert	English	7,583	31.1%
	Indo-Aryan	6,939	28.4%
	Middle Eastern Semitic Languages	2,195	9.0%
	Dravidian	1,216	5.0%
	South Slavic	993	4.1%
Whittlesea	English	8,175	76.7%
	Indo-Aryan	706	6.6%
	Italian	170	1.6%
	South Slavic	150	1.4%
	Middle Eastern Semitic Languages	102	1.0%
Craigieburn Central	English	4,201	51.9%
	Indo-Aryan	1,168	14.4%
	Middle Eastern Semitic Languages	825	10.2%
	Italian	148	1.8%
	Dravidian	139	1.7%
Craigieburn-North	English	4,764	38.7%
	Indo-Aryan	2,838	23.1%
	Middle Eastern Semitic Languages	1,593	12.9%
	Turkic	435	3.5%
	Italian	223	1.8%

Area	Languages used at home, top responses		
Mernda-North	English	6,775	59.3%
	Indo-Aryan	1451	12.7%
	Dravidian	496	4.3%
	Southeast Asian Austronesian Languages	261	2.3%
	Chinese	229	2.0%
Mernda-South	English	6,519	54.6%
	Indo-Aryan	1,880	15.7%
	Dravidian	470	3.9%
	Middle Eastern Semitic Languages	365	3.1%
	South Slavic	277	2.3%

A.19 Recent migrants

Table 53: Migrants (2021 ABS census data)

Area	Arrived 1 January 2021 – 1 August 2021		Arrived 2011 – 2020		Not stated
Whittlesea	5	0.4%	657	51.0%	49
Wollert	53	0.5%	5,447	49.4%	204
Mernda-North	21	0.6%	1,693	51.4%	57
Mernda-South	17	0.5%	1,828	49.9%	80
Craigieburn-North	16	0.3%	2,209	47.0%	78
Craigieburn Central	13	0.6%	1,248	54.2%	56

A.20 Vehicle ownership

Table 54: Vehicle ownership (2021 ABS census data)

Area	1 motor vehicle		2 motor vehicles		3+ motor vehicles		None	
Wollert	2,091	28.8%	3,684	50.8%	1,228	16.9%	136	1.9%
Whittlesea	888	25.4%	1,396	25.4%	1,083	31.0%	83	2.4%
Craigieburn Central	860	33.2%	948	36.6%	609	23.5%	121	4.7%
Craigieburn-North	1,001	28.5%	1,542	43.9%	823	23.4%	97	2.8%
Mernda-North	1,396	36.2%	1,715	44.4%	605	15.7%	109	2.8%
Mernda-South	1,060	28.9%	1,821	49.6%	698	19.0%	49	1.3%

A.21 Method of travel to work, employed persons aged 15 and over

Table 55: Method of travel to work, employed persons aged 15 and over (2021 ABS census data)

Area	Top responses		
Wollert	Car, as driver	6,995	62.2%
	Car, as passenger	434	3.9%
	Train	426	3.8%
	Worked at home	1,925	17.1%
	Did not go to work	1,040	9.2%
Whittlesea	Car, as driver	3,003	59.6%
	Car, as passenger	164	3.3%
	Train	156	4.5%
	Worked at home	930	18.5%
	Did not go to work	588	11.7%

Area	Top responses		
Craigieburn Central	Car, as driver	2,189	63.2%
	Car, as passenger	195	5.6%
	Train	119	2.4%
	Worked at home	436	12.6%
	Did not go to work	339	9.8%
Craigieburn-North	Car, as driver	3,369	60.4%
	Car, as passenger	288	5.2%
	Train	227	4.1%
	Worked at home	981	17.6%
	Did not go to work	529	9.5%
Mernda-North	Car, as driver	3,150	57.6%
	Train	244	4.5%
	Car, as passenger	177	3.2%
	Worked at home	1,130	20.7%
	Did not go to work	607	11.1%
Mernda-South	Car, as driver	3,482	58.4%
	Train	248	4.2%
	Car, as passenger	204	3.4%
	Worked at home	1,208	20.3%
	Did not go to work	668	11.2%