VEOLIA

Appendix CC

Social impact assessment

Social Impact Assessment

Woodlawn Advanced Energy Recovery Centre

Prepared for Veolia Environmental Services (Australia) Pty Ltd

August 2022

Social Impact Assessment

Woodlawn Advanced Energy Recovery Centre

Veolia Environmental Services (Australia) Pty Ltd

J200931 RP1

August 2022

Version	Date	Prepared by	Approved by	Comments
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Executive Summary

ES1 Overview

Veolia is proposing to develop and operate the Woodlawn Advanced Energy Recovery Centre (ARC) (the project), an energy recovery facility (ERF), at the existing Woodlawn Eco Precinct in Tarago, NSW. The ARC will be designed to recover energy from waste that would otherwise be disposed of to landfill.

The project involves construction and operation of the following key ARC components:

- construction of the ARC, comprising an ERF for the thermal treatment of residual municipal solid waste (MSW) and commercial and industrial (C&I) waste (the waste feedstock) that will otherwise be disposed of to landfill;
- thermal treatment in the ARC of up to 380,000 tonnes per annum (tpa) of residual waste feedstock;
- installed capacity of up to 30 megawatts (MW) of electricity (generation of up to 240,000 megawatt hours (MWh) of electricity per annum);
- on-site management of residual by-products generated by the ARC, including construction of an encapsulation cell; and
- construction of ancillary infrastructure to facilitate construction and operation of the project, including a new access road.

This social impact assessment (SIA) report accompanies a State Significant Development (SSD) application and environmental impact statement (EIS) for the project. It documents the SIA assessment methods and results; the initiatives built into the project to avoid and minimise associated impacts to the local community; and the mitigation and management measures proposed to address any residual impacts that are not able to be avoided.

ES2 Study methodology

This SIA methodology was developed in accordance with the NSW Department of Planning, Industry and Environment (DPIE) *Social Impact Assessment Guideline for State Significant Projects* (SIA Guideline 2021) (DPIE 2021a) and informed by best practice guidance and standards set out by the International Association for Impact Assessment (IAIA) and International Finance Corporation (IFC). The assessment of the potential social impacts considered a range of complex factors and often competing interests. The impact assessment is reflective of this and has:

- assessed some aspects of the project as both negative and positive as they relate to different groups of people;
- included potential negative impacts on local communities and documented the potential benefits to the broader region;
- identified management strategies to maximise potential benefits and mitigate and minimise potential negative impacts;
- considered the potential impacts on vulnerable groups and provided management strategies to ensure that any existing disadvantages are not exacerbated; and
- considered each community's access to critical resources, such as education, housing, and health care, and how this affects their resilience.

EMM Consulting conducted a social impact workshop on 10 September 2021 attended by EMM Consulting's social scientists and social planners. The purpose of the social impact workshop was to assess potential impacts using a social risk framework based on a combination of consequence and likelihood. The social risk assessment is informed by the data collected from the SIA field study, Veolia engagement activities, literature review, and social baseline study. The complexity of the project required the social risk assessment to consider the degree to which the existing waste management facility, operational for approximately 20 years, impacted on the community, notably odour and traffic. Distinguishing these impacts from those potentially associated with the proposed ARC project within the Eco Precinct site required the SIA to consider both the current operations and the potential impacts of the ARC project.

ES3 Assessment of potential impacts

The SIA undertook a systematic approach of identifying social impacts and benefits and assessing each. Mitigation measures were then identified where appropriate to lessen impacts and enhance benefits. Residual impacts and benefits were then assessed. Table ES1 provides a summary of the key potential social impacts and benefits, and the mitigations proposed. The full assessment of potential impacts and benefits is provided in Section 5.

Table ES1 Social management and mitigation measures

Impact/challenge	Mitigated impact
Accessibility related to capacity and availability of short-stay accommodation	**Medium (negative)**
If the local rental market is inundated due to demand from the project-related construction workforce, there is potential that rental housing scarcity will increase, and rental affordability will decrease. Unmitigated, this would introduce significant issues for housing stability in the local and regional areas, especially for residents who may not be able to afford increased rent payments. This is a particular concern for vulnerable populations who would be unable to find alternative housing. To address concerns about a construction workforce that is unable to be hired locally and will need to be accommodated, Veolia will work with construction contractors to prepare an accommodation strategy. If there is a lack of capacity, Veolia and construction contractors will consider a layered approach to accommodating the construction workforce, including a combination of rental housing, short-stay accommodation in the Goulburn region, and additional accommodation (if necessary) in nearby regional centres or cities, such as Bungendore or Canberra, where there would be additional accommodation options.	
Decision making systems impacts related to approvals process for State significant development	**High (negative)**
A common perception raised during SIA field study activities was that the project will be approved despite concerns raised by the local community. SIA field studies found that there is some lack of trust within the local community due to negative perceptions of decision-making systems, given stakeholders' previous experiences with planning and approvals processes with other surrounding SSD projects. Potential impacts and mitigation measures concerning decision making systems relating to a mistrust of the approvals process for SSD fall under the responsibility of the State government rather than under the project itself. In order to contribute to the mitigation of this issue, Veolia will continue to communicate to the community the regulatory assessment and decision-making process as part of its ongoing community engagement strategy.	
Health and wellbeing related to odour	**Medium (negative)**
The SIA found existing odour was a significant key concern, with nearby neighbours reporting odour impacts from current operations at the Woodlawn Eco Precinct. Participants in the SIA are concerned the project would exacerbate the existing odour issue. Some participants reported disrupted sleeping patterns and soreness in the throat which they perceived to be a result of odour. Whilst stakeholders acknowledged Veolia's odour grievance mechanisms are in place, nearby neighbours felt that it is stressful and frustrating to engage with the odour management line and commit to odour diaries. It is noted that this issue relates to the existing operations at the Eco Precinct, and the project is not expected to exacerbate odours. However, in recognition of this issue Veolia has implemented an enhanced Woodlawn Eco Precinct Odour Management Strategy with improved grievance mechanisms, and enhanced consultation, data collection and monitoring outside of the project site within the local community, with outcomes clearly and regularly communicated to the community.	

Table ES1 Social management and mitigation measures

Impact/challenge	Mitigated impact
Public safety related to primary haulage route on local roads	**Low (negative)**
Project-related traffic and poor conditions of the roads were consistently raised as a concern and identified as a vulnerability within the local area during the SIA field study. Specific concerns were raised about public safety and that project-related truck movements may further deteriorate road conditions. Traffic that would increase public safety risk as a consequence of the project will be limited to the construction period. The following mitigations will be implemented: • A detailed Construction Traffic Management Plan will be developed by the construction contractor in consultation with Goulburn Mulwaree Council prior to the commencement of construction works and will be made publicly available (Appendix T of the EIS). • Veolia will continue participating in its contributions agreements with the local councils as well as liaise with and advocate to the local Councils for road maintenance and improvements. • Additionally, a transport code of conduct will be implemented for the project to ensure potential public safety impacts related to the project's primary haulage routes are mitigated.	
Health and wellbeing related to stack emissions	**Low (negative)**
The project will incorporate a specifically designed and engineered air pollution control system which will be integrated into the plant's process control system that will manage the operation with a key objective to minimise pollutants. It will initiate shut down procedures when pollutants are in exceedance or irregularities occur. The SIA found that some community members were concerned about project related emissions and how they will impact local air quality. Project operations must meet strict environmental standards set by the NSW EPA. The NSW *Energy from Waste Policy Statement* (2021) (EfW Policy Statement) outlines the following technical criteria: • any energy recovery facility in NSW must meet current international best practice techniques to ensure emissions are below levels that pose a risk to communities; • the EfW Policy Statement policy requires the project be fitted with a continuous emissions measurement system (CEMS); and • data on emissions is made available publicly in near real time. Veolia will communicate with local community members about project-related emissions to promote transparency and ensure residents are kept informed about stack emissions and air quality. Veolia will comply with the requirements of the EfW Policy Statement to make emissions monitoring data available to the EPA in a real time graphical publication. Veolia will make validated emission monitoring data available publicly within 24hrs following the end of a weekday and the following weekday after weekends and public holidays.	
Benefit	**Enhanced benefit**
Community related to community connectedness, resilience and community investment	**Very high (positive)**
Currently, Veolia invests and works collaboratively with the community through the Community Liaison Committee and Veolia Mulwaree Trust. To date Veolia has supported the community with over $12M in grants, which has been distributed to 1,400 projects to enhance local facilities, education, and the environment (Veolia 2021a). To enhance the benefits of community connectedness and resilience associated with Veolia's community contributions, it is recommended that investment and community development be prioritised in the local area and tailored to the social needs of the community. Veolia will seek to refresh the structure, organisation and objectives of the CLC with the goal of meeting these plans.	
Livelihood related to training, apprenticeship, and employment opportunities	**Medium (positive)**
The construction phase of the project will require a workforce of up to 300 personnel. Where possible and practical, Veolia will encourage contractors to hire locally and will invest in apprenticeships at the site. To ensure training and apprenticeships are suitable for the local and regional area, it is recommended that apprenticeships and training programs are tailored to the local community and promote skilled employment pathways for the project. There is also opportunity to sponsor tickets and licenses required for employment in the construction industry, which would enable youth, particularly in the regional area, to gain meaningful employment as well as increase their ongoing employability. Veolia, and its construction contractors will establish apprenticeships and training programs that are tailored to the local and regional community and promote skilled employment pathways for the project.	

Table ES1 Social management and mitigation measures

Impact/challenge	Mitigated impact
Livelihood related to local procurement	**Very high (positive)**
The project construction phase has the potential to create opportunities for businesses and services within the local and regional area, primarily in Goulburn, to secure new contracts and increase sales to supply and service the needs of the project (AEC 2019). Local procurement could also enable flow-on economic impacts, which would be realised in the regional area, specifically Goulburn where the majority of the workforce is anticipated to be located. To maximise local procurement benefits derived from the project it is recommended that Veolia engages with local services and the Goulburn Chamber of Commerce to establish relationships between the project and businesses within the community. Wherever possible, practical and cost competitive, Veolia and the contractors will prioritise the use of local suppliers of goods and services. Further it is recommended that Veolia encourages the project workforce, particularly during the construction phase, to support and contribute to the local and regional community through local spending.	

ES4 Evaluation of the project

This SIA provides an assessment of potential social impacts and benefits associated with the project. It identifies the relevant social issues, potential social impacts and benefits, and associated mitigation and enhancement measures applicable to the design and operation of the project in accordance with the *SIA Guideline 2021* (DPIE 2021).

Mitigation and management strategies have been proposed for each of the identified potential social impacts to minimise negative consequences and to maximise social benefits for the local community. Performance indicators should be developed by Veolia for each mitigation and enhancement measure in consultation with stakeholders and will be monitored throughout the project life span by Veolia.

An adaptive approach will allow Veolia to manage and respond to changing circumstances and new information over time through ongoing monitoring and periodic review of mitigation strategies; this will allow for modification if required and if appropriate. This adaptive approach will ensure that the management of potential social impacts identified in the SIA will result in effectively minimising potential negative social impacts and maximising potential social benefits for the local community. The proposed mitigation and enhancement measures are summarised in full in Section 6.

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1 Introduction

1.1 Background

Veolia owns and operates the Woodlawn Eco Precinct (the Eco Precinct), located on Collector Road, approximately 6 kilometres (km) west of Tarago, approximately 50 km south of Goulburn and 70 km north of Canberra (Figure 1.1). The Eco Precinct is located in the Goulburn Mulwaree local government area (LGA). The Eco Precinct has provided sustainable and innovative waste management services since 2004.

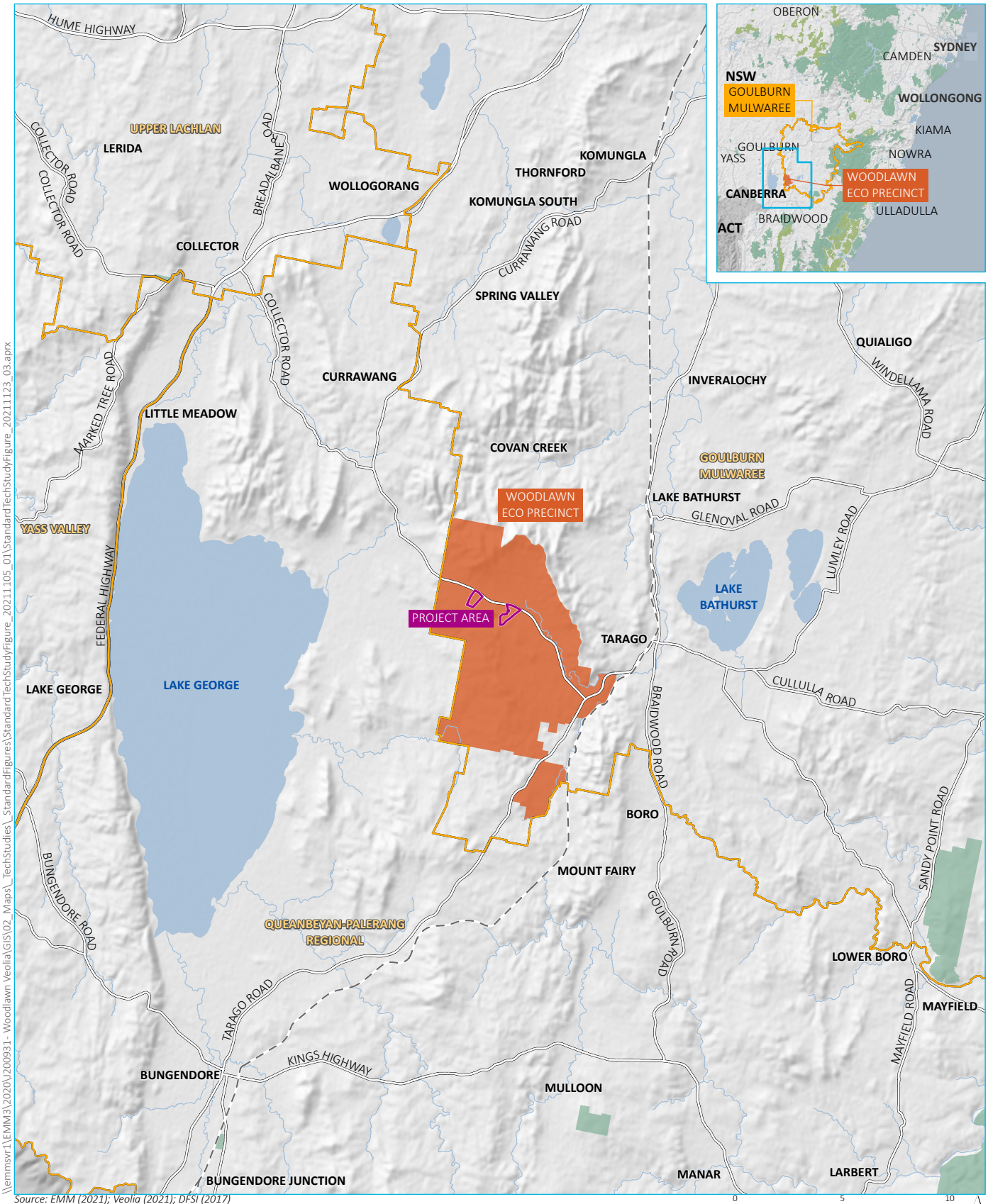
The Eco Precinct comprises the following integrated waste management operations, energy recovery technologies and energy generation, and other sustainable land uses, including the following:

- Woodlawn Bioreactor (the Bioreactor) – a putrescible residual municipal solid waste landfill in which leachate is recirculated to help bacteria break down the waste, enhancing the early generation of gas, enabling more efficient capture and extraction of landfill gas, including leachate and landfill gas management systems.
- Woodlawn BioEnergy Power Station – utilises landfill gas from the Bioreactor to generate electricity.
- Woodlawn Mechanical Biological Treatment (MBT) Facility – processes municipal solid waste (MSW) to extract the organic content for use in tailings dam remediation.
- Agriculture – includes a working farm (sheep and cattle) that applies sustainable management practices.
- Aquaculture and horticulture – utilises captured waste heat from the BioEnergy Power Station for use in sustainable fish farming and hydroponic horticulture at the Eco Precinct.
- Renewable energy generation – the Woodlawn Wind Farm (operated by Iberdrola) which has an installed capacity to generate up to 48.3 megawatts (MW), and a solar farm (operated by Veolia) with installed capacity to produce up to 2.3 MW.

The Eco Precinct is serviced by the Crisps Creek Intermodal Facility (Crisps Creek IMF), near the village of Tarago. Crisps Creek IMF is approximately 6 km to the east of the Eco Precinct (8.5 km by road). Operations are augmented by two waste transfer terminals located in Sydney; the Clyde Transfer Terminal, which commenced operation in 2004 with the Bioreactor and Crisps Creek IMF, and the Banksmeadow Transfer Terminal, which commenced operating in 2016.

Waste is transported from the Sydney transfer terminals in purpose-built shipping containers by rail on the Goulburn-Bombala Railway line to the Crisps Creek IMF. At the Crisps Creek IMF the containers are loaded on to trucks for delivery to the Eco Precinct. Waste from the local area is also approved to be transported to the Eco Precinct by road.

Veolia proposes to develop and operate the Woodlawn Advanced Energy Recovery Centre (ARC) (the project), an energy recovery facility (ERF), at the Eco Precinct (see Figure 1.2). This involves the development of an additional waste management technology at the Eco Precinct, processing a portion of the waste stream which is already approved to be received as part of integrated waste management operations, and recovering energy from the process.



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Source: EMM (2021); Veolia (2021); DFSI (2017)

KEY

- Project area
- Woodlawn Eco Precinct
- Rail line
- Major road
- Watercourse
- Named waterbody
- NPWS reserve
- Local government area

Regional context

Woodlawn Advanced Energy Recovery Centre
Social impact assessment
Figure 1.1

EMM creating opportunities

1.2 Project overview

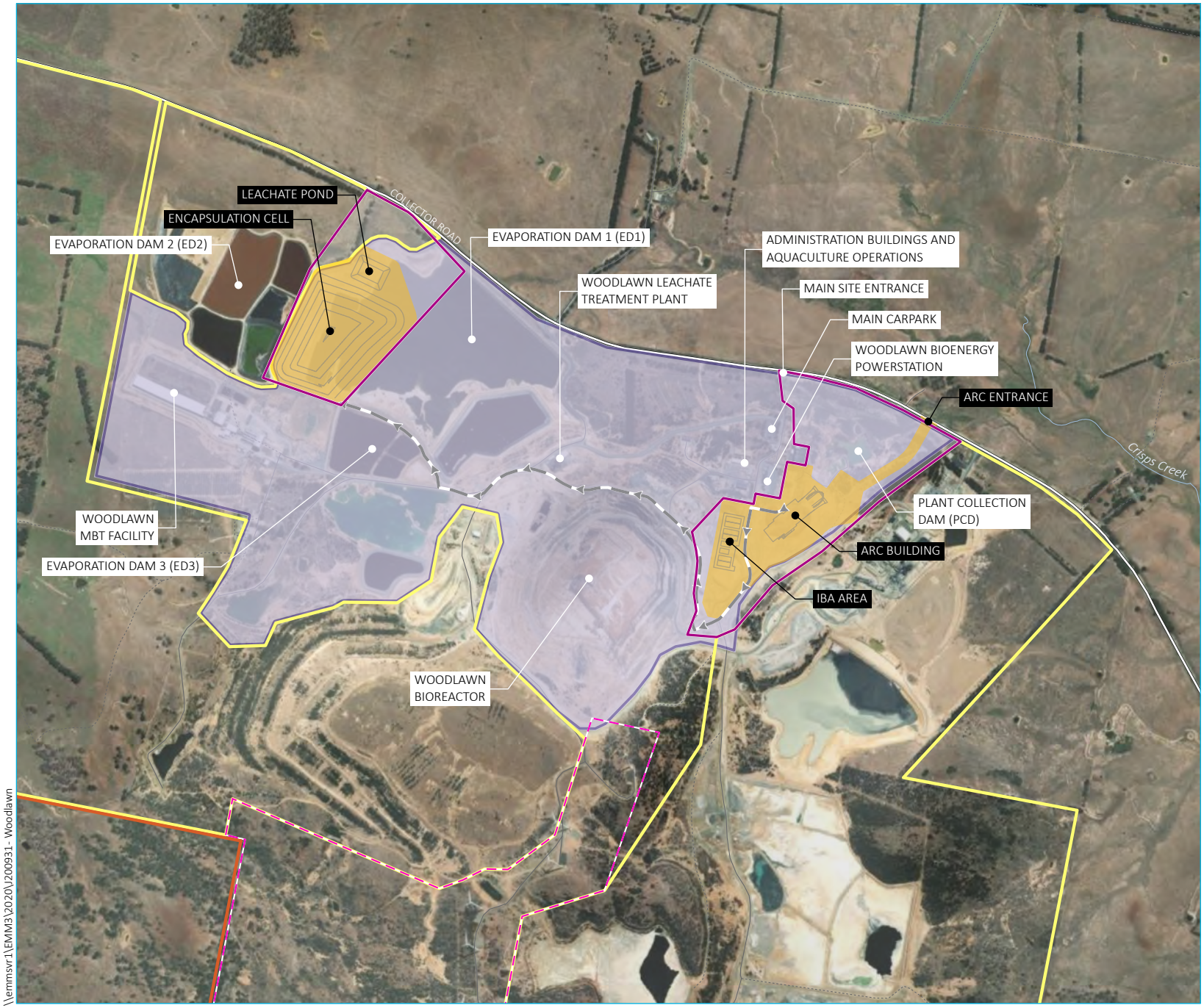
The project will involve construction and operation of the following key components comprising the ARC:

- construction of the ARC, comprising an ERF for the thermal treatment of MSW and commercial and industrial waste (the waste feedstock) that will otherwise be disposed of to landfill;
- thermal treatment in the ARC of up to 380,000 tonnes per annum of the residual waste feedstock;
- capacity to generate up to 30 MW of electrical energy;
- on-site management of residual by-products generated by the ARC, including construction of an encapsulation cell; and
- construction of ancillary infrastructure to facilitate construction and operation of the project, including remediation of land that has been contaminated by previous mining operations.

A detailed project description is provided in Chapter 4 of the EIS.

1.2.1 Workforce

A total of 40 full-time equivalent site based operational roles are expected to be required for the project. The construction phase of the project is expected to generate up to 300 construction personnel, the majority of which are expected to be sourced from within the Goulburn region. Additional details of the project's operational workforce are provided in Section 4.11.1 of the EIS. Additional details of the project's construction workforce are provided in Section 4.12.2 of the EIS.



KEY

- Project area
- Development footprint
- Veolia integrated waste management operations
- Woodlawn Eco Precinct
- Woodlawn Mine operations area
- Woodlawn Wind Farm
- APCr transport route
- Major road
- Minor road
- Vehicular track
- Watercourse

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Source: EMM (2021); Veolia (2021); DFSI (2017)

0 250 500 m
GDA 1994 MGA Zone 55

N

Project area

Woodlawn Advanced Energy Recovery Centre
Social impact assessment
Figure 1.2

EMM
creating opportunities

1.3 Purpose of this report

This social impact assessment (SIA) report forms part of the environmental impact statement (EIS) for the project as part of a State significant development (SSD) application. The SIA documents the:

- assessment methods and results;
- initiatives built into the project to avoid and minimise potential impacts to the local community; and
- mitigation and management measures proposed to address any residual impacts that are not able to be avoided.

This SIA addresses the potential social impacts and benefits of the project focussing on the local and regional communities. The impacts and benefits to NSW are considered in other sections of the EIS. The specific objectives of this assessment are to:

- describe the existing social conditions and demographic profile;
- identify and assess the extent and nature of potential social risks;
- evaluate the significance of the potential social impacts, positive and negative arising from the project;
- provide mitigation measures to reduce the negative potential social impacts and benefit enhancement measures for positive impacts; and
- develop a monitoring and management framework.

1.4 Assessment guidelines and requirements

This SIA has been prepared in accordance with:

- the Planning Secretary's Environmental Assessment Requirements (SEARs) for the project, issued on 2 July 2021 which identify matters which must be addressed in the EIS;
- the *Social Impact Assessment Guideline for State Significant Projects* (SIA Guideline 2021) (DPIE 2021a); and
- the *Technical Supplement: Social Impact Assessment Guideline for State significant Projects* (SIA Technical Supplement 2021) (DPIE 2021b).

The SIA review questions as outlined in the *SIA Guideline 2021* (DPIE 2021a) and corresponding responses are presented in Table 1.1.

Table 1.1 SIA Guideline 2021 requirements

Reference number	SIA Guideline review question	Response
General		
1	Does the lead author of the SIA Report meet the qualification and experience requirements?	Yes – see Section 1.4
2	Has the lead author of the SIA Report provided a signed declaration certifying that the assessment does not contain false or misleading information?	Yes – see Section 1.4
3	Would a reasonable person judge the SIA Report to be impartial, rigorous, and transparent?	Yes.
Project's social locality and social baseline		
4	Does the SIA Report identify and describe all the different social groups that may be affected by the project?	Yes – see Section 3, 4, 5, and 6, and Appendix A and Appendix B
5	Does the SIA Report identify and describe all the built or natural features that have value or importance for people, and explain why people value those features?	Yes – see Section 4, 5 and Appendix A
6	Does the SIA Report identify and describe historical, current, and expected social trends or social changes for people in the locality, including their experiences with this project and other major development projects?	Yes – see Section 3, 4, 5 and Appendix A
7	Does the social baseline study include appropriate justification for each element, and provide evidence that the elements reflect both relevant literature and the full diversity of views and potential experiences?	Yes – see Section 3, 4, 5 and Appendix A and Appendix B
8	Does the social baseline study demonstrate social-science research methods and explain any significant methodological or data limitations?	Yes – see Section 2, 3, 4 and Appendix A
Identification and description of social impacts		
9	Does the SIA Report adequately describe potential social impacts (whether negative, positive, tangible, intangible, perceived, and/or cumulative) from the perspectives of how people may experience them, and explain the research used to identify them? Where the assessment is partially complete, and expected to be completed in Phase 2 SIA, has this been explained?	Yes – see Section 5
10	Does the SIA Report apply the precautionary principle to social impacts, and consider how they may be experienced differently by different people and groups (ie distributive equity)?	Yes – see Section 5
11	Does the SIA Report describe how the preliminary analysis influenced both the project design and EIS Engagement Strategy?	Yes – see Section 4, 5 and 6
Community engagement		
12	Were the extent and nature of engagement activities appropriate and sufficient to canvass all relevant views, including those of vulnerable or marginalised groups?	Yes – see Section 4
13	How have the views, concerns, and insights of affected and interested people influenced both the project design and each element of the SIA Report (eg the social baseline, predicting impacts, and mitigation/enhancement measures)?	Yes – see Section 3, 4, 5, and 6

Table 1.1 SIA Guideline 2021 requirements

Reference number	SIA Guideline review question	Response
Predicting and analysing social impacts		
14	Does the SIA Report impartially focus on the most material social impacts at all stages of the project life cycle, without any omissions or misrepresentations?	Yes – see Section 5
15	Does the SIA Report identify the matters to which the precautionary principle could or should be reasonably applied?	Yes – see Section 5
16	Does the SIA Report analyse the distribution of both positive and negative social impacts, and the equity of this distribution?	Yes – see Section 5
17	Does the SIA Report identify its assumptions, and include sensitivity analysis and alternative scenarios (including 'worst-case' and 'no project' scenarios where relevant)?	Yes – see Section 2.1.3, 4, 5, and 6
Evaluating significance		
18	Do the evaluations of significance of social impacts impartially represent how people in each identified social group can expect to experience the project, including any cumulative effects?	Yes – see Section 5
19	Are the evaluations of significance disaggregated to consider the potentially different experiences for different people or groups, especially vulnerable groups?	Yes – see Section 5
Responses, monitoring and management		
20	Does the SIA Report propose responses (ie mitigations and enhancements) that are tangible, deliverable by the proponent, likely to be durably effective, and directly related to the respective impact(s)?	Yes – see Section 5 and 6
21	How can people be confident that social impacts will be monitored and reported in ways that are reliable, effective, and trustworthy?	See Section 6
22	How will the proponent adaptively manage social impacts and respond to unanticipated events, breaches, grievances, and non-compliance?	See Section 6

This SIA has been informed by best practice guidance and standards set out by the International Association for Impact Assessment (IAIA) and International Finance Corporation (IFC).

1.4.1 Authorship and SIA Declarations

The authorship and SIA Declarations for this report are provided in the following sections.

i Authorship

This report has been prepared by a suitably qualified and experienced lead author and co-author and reviewed and approved by a suitably qualified and experienced co-author. All contributors hold appropriate qualifications and have the relevant experience to carry out the SIA for this project. The following introduces each author:

Alexa Dietrich (author)

- Bachelor of Social Science with first Class Honours, The University of Queensland.
- Bachelor of Social Science, The University of Queensland.

Alexa is a social planner with experience in applying social research to social impact assessments. She has extensive experience facilitating social research, report writing as well as building and maintaining relationships with stakeholders of all levels. She has assisted with the delivery of SIA reports for a variety of projects within resource, infrastructure and renewable industries in Queensland and New South Wales.

Amanda Micallef (co-author)

- Master of Development Practice, The University of Queensland.
- Bachelor of Arts in International Development, University of Guelph.
- Member Planning Institute of Australia.

Amanda is a social scientist/social planner with experience in social research, community and stakeholder engagement, and working with clients within the mining and extractive industries across Australia. Amanda has conducted a range of social planning and impact assessment projects adopting social research methods. She is adept at baseline studies, risk assessments, social data collection, data analysis, and community and stakeholder engagement. Her community engagement experience includes online community engagement, indigenous engagement, and the co-creation of youth indigenous development programs internationally. Amanda has worked with clients across a range of sectors, including mining and extractives, critical infrastructure, and alternative energies in New South Wales, Queensland, and Victoria.

Andrea Kanaris (review and quality assurance)

- Masters Social Planning and Development (Post Graduate Diploma), University of Queensland.
- Bachelor of Social Science – Community and International Development, University of Queensland.
- Former Chair and Full Member Social Planning Chapter Queensland – Planning Institute Australia.
- Member International Association of Impact Assessment.

Andrea is a social scientist/social planner with over 20 years' experience across corporate and government sectors. Andrea has broad expertise providing contemporary strategic advice on social impact assessment. She has delivered large scale complex social impact assessments using social science methodologies to determine social impacts and benefits and the development of social mitigation, management, and monitoring.

Chris Mahoney (review and quality assurance)

- Masters Urban and Regional Planning, Griffith University.
- Bachelor of International Economics , Griffith University.
- Member Planning Institute Australia.
- Member International Association of Impact Assessment.

Chris is a social specialist with over 20 years' of professional experience in the delivery of social impact assessment and other forms of specialist social research, stakeholder engagement, monitoring and evaluation. He has delivered social impact assessments and community and stakeholder engagement programs for a multitude of projects across the infrastructure, resources and international development sectors. He has assisted a wide range of major resources and infrastructure projects to understand the social environment in which they operate and establish and maintain mutually beneficial relationships with community stakeholders.

The curriculum vitae for each author is provided in Appendix C.

ii SIA Declarations

The authors declare that this SIA report:

- version 1 was completed on 23 November 2021;
- has been prepared in accordance with the EIS process under the *Environmental Planning and Assessment Act 1979* (EP&A Act);
- has been prepared in accordance with the *SIA Guideline 2021*;
- contains all reasonably available project information relevant to the SIA; and
- as far as EMM Consulting Pty Limited (EMM) is aware, contains information that is neither false nor misleading.

The report was updated during 2022 and Version 2 was completed on 19 August 2022 and continues to comply with the above points.

Assumptions and limitations of this report are outlined in Section 2.1.3.

Version 1:

Amanda Micallef
23 November 2021

Andrea Kanaris
23 November 2021

Version 2 reviewed and approved by:

Chris Mahoney

19 August 2022

2 Methodology

2.1 Methodological approach

The phases of the SIA methodology are described in Figure 2.1. This report comprises Phase 2 which will be place on public exhibition where submissions are received during Phase 3.

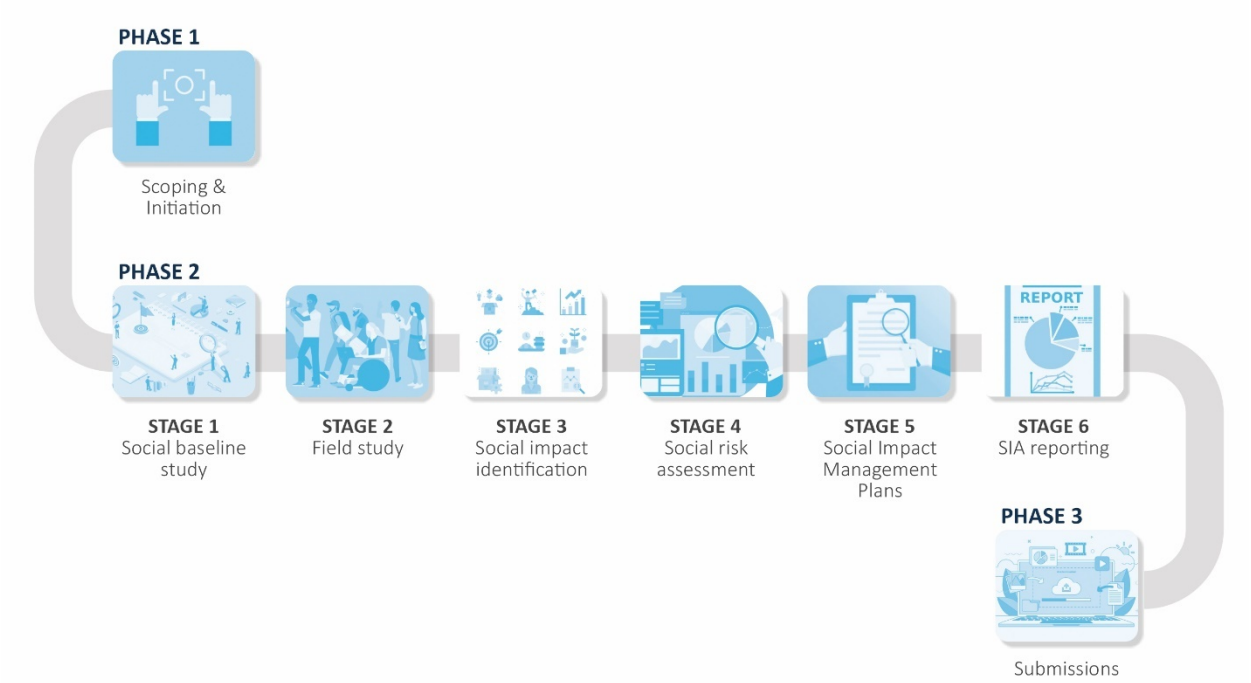


Figure 2.1 Phases of the SIA methodology

The following methods were used to collect and assess the data which informs the SIA:

2.1.1 Phase 1 – Scoping and initiation

A scoping report for the project was prepared by EMM on behalf of Veolia and submitted to DPIE on 19 May 2021. The report committed Veolia to facilitate the preparation of the SIA in accordance with the *SIA Guideline 2021* (DPIE 2021a).

2.1.2 Phase 2

The *SIA Guideline 2021* requires that the applicant identify and understand the project's social locality. As such, a demographic profile was developed with reference to previously conducted stakeholder consultation and Veolia's complaints register and the SIA study area was refined during Phase 2.

i Stage 1 – social baseline study

Understanding the existing social environment and identifying trends relevant to potential social impacts was the first step in the preparation of the SIA. A social baseline study was prepared using existing demographic, health, housing, and socio-economic data from the Australian Bureau of Statistics (ABS), government agencies, and local government; published literature and social research; government policies and plans; and documents relating to similar resource projects. The social baseline study:

- provides a community profile, including a socio-economic profile of the area of social influence;
- provides an analysis of the social infrastructure and capacity within the area of social influence; and
- reviews relevant government strategic policies and plans.

The social baseline study provides the benchmark against which potential social impacts are identified and assessed and informs subsequent stages. The social baseline study is presented in Appendix A and a summary in Chapter 3 of this report.

ii Stage 2 – SIA field study

Key consultation and engagement objectives set out in the SIA Guideline 2021 (DPIE 2021) include:

- ensure potentially affected people are identified and have enough understanding of the proposed project, how it may affect them, the environmental impact assessment process, and how they can participate in it;
- collect qualitative and quantitative data, evidence and insights in ways that maximise diversity and representativeness of views;
- understand the interest people have in the project and how potential impacts may be experienced from their perspectives;
- consider the views of people in a meaningful way, and use these insights to inform project planning and design, mitigation and enhancement measures, and monitoring and management frameworks;
- provide opportunities for people to collaborate on project design matters and provide input into the identification and consideration of preferred solutions;
- confirm data, assumptions, findings, and recommendations;
- ensure people know how their input and views have been taken into account, and to help illustrate what actions or mitigating measures will be put into place to address concerns; and
- respect people's privacy, allowing them to communicate their views anonymously if they desire (DPIE 2020, p. 27).

Due to the COVID-19 pandemic, social distancing requirements were enforced during all SIA field study activities and engagement activities. The specific methods and outcomes of the community engagement and SIA field studies are presented in Chapter 4.

The field study component of the SIA used social research methods, which included in-depth interviews, service provider workshops and an online community survey, to collect qualitative and quantitative data to meet the above objectives and to:

- validate baseline data and assumptions;
- identify/test impacts that may be experienced by nearby neighbours and the broader community;
- confirm identified potential impacts and determine potential management strategies; and
- provide communities with opportunities to express their concerns.

EMM also used information previously collected from Veolia community and stakeholder consultation activities to inform the SIA and to assist in determining perceptions of potential social impacts identified during the SIA field study.

Veolia will continue to ensure there are opportunities for community members to comment on the project as it progresses through the approvals process.

iii Stage 3 – social impact identification

With a clear understanding of the scope of the project, the social baseline, and the input from the field study, suitably qualified social scientists identified the project's potential social impacts. This analysis informed the social risk assessment (Stage 5).

The identification of the project's potential social impacts and benefits was completed through several complementary approaches, helping to triangulate the findings and confirm their accuracy. These approaches included:

- consideration of environmental impacts – review of similar projects in the local area as well as available academic and grey literature to identify potential impacts;
- consideration of the existing social environment – demographic and social analysis in the form of a social baseline study;
- consideration of field findings – findings from SIA field studies contributed to the identification of potential impacts and benefits from the project, as well as potential opportunities;
- consideration of technical reports – findings from other technical disciplines that contributed to the EIS were reviewed and potential social impacts identified;
- consideration of local plans and policies – findings from the review aided to contextualise and understand the local priorities as well as to identify local values; and
- consideration of cumulative impacts – review of documentation from other existing projects in the study area.

iv Stage 4 – social risk assessment

The social risk assessment stage assessed each of the potential social impacts identified to predict the nature and scale of potential social impacts for the life of the project and post closure. A social risk assessment workshop to consider all identified potential social impacts was conducted on 10 September 2021 where all members of the SIA technical team participated. In accordance with the *SIA Guideline 2021* the identification of potential impacts and risks will be informed by people's reports of their actual experiences, views and perceptions and informed by details of the project. A social risk approach was adopted to assess the consequence and likelihood of potential positive and negative social impacts with and without mitigation. The social risk assessment matrix, including the assessment framework, used for the assessment is provided in Section 5.2. The assessment framework is summarised in Section 5.

v Stage 5 – social impact management and monitoring

A mitigation and management framework has been prepared for all potential social impacts and benefits to allow for the identification of:

- required impact mitigation measures;
- enhancement measures to maximise the potential benefits; and
- partnership opportunities.

Findings from Stages 1–5 were used to distil and analyse recommendations for the SIA report. This stage used a multidisciplinary approach lead by EMM's social scientists supported by environmental advisers.

vi Stage 6 – SIA Reporting

Development of this SIA technical report and internal peer review were conducted by EMM's social scientists and environmental scientists.

2.1.3 Limitations and assumptions

This SIA has been based on available information at the time of writing and has been designed to respond to the SEARs specific to the project. The assumptions and limitations of this report are as follows:

- Background and baseline information is based on desktop research. At the time of preparation of the baseline, the results of the 2021 Census of Population and Housing were not available and subsequently 2016 Census data has been utilised throughout.
- The potential social impacts have been informed by evidence from primary and secondary data and engagement sources, including:
  - in-depth interviews, service provider workshops, and online community survey conducted by EMM's social scientists;
  - evidence from Veolia staff based on their conducted EIS engagement activities; and
  - academic, government, and grey literature (eg reports, working papers, government documents, white papers and evaluations); and
  - primary data collection was from a limited number of potentially impacted stakeholders, as described below, and was not a representative sample of the community.

- The impact assessment is based on:
  - evidence from consultation conducted during the SIA field study;
  - review of similar projects in the local area as well as available academic, government, and grey literature to identify potential impacts;
  - demographic and socioeconomic analysis in the form of a social baseline study;
  - findings from data analysis and review of Veolia's EIS engagement activities; and
  - consideration of local plans and policies.

3 Social baseline

This chapter provides a summary of the baseline information and key social conditions in the study area for the project that contribute to the identified potential social impacts and benefits. A complete baseline study that forms the basis for the SIA is provided in Appendix A.

3.1 Defining the study area

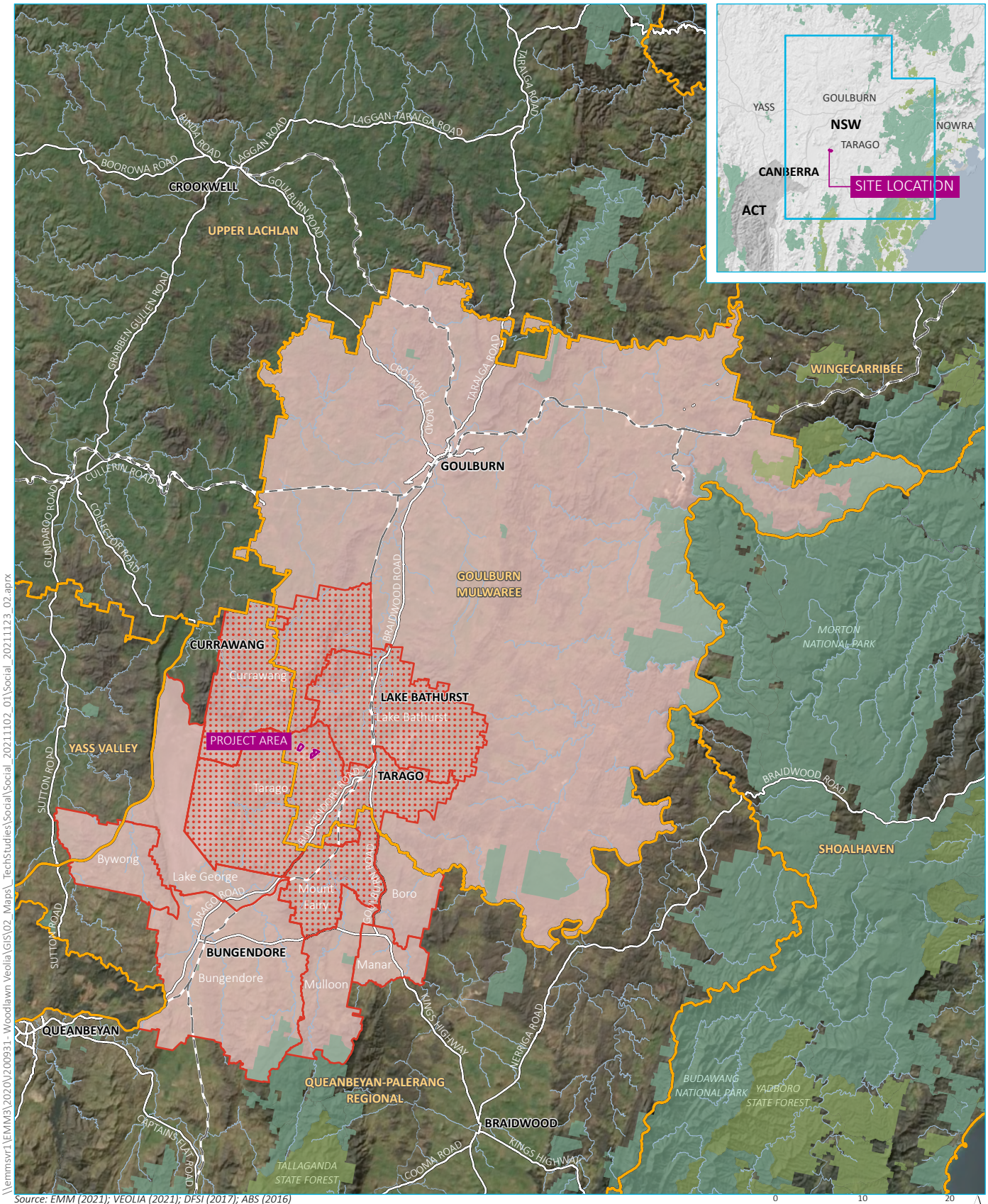
This SIA addresses the potential social impacts and benefits of the project to the local area, the region and to NSW. Defining the study area was informed by the following factors:

- the scale and nature of the project, its associated activities, potential direct impacts, potential indirect impacts that may extend from the project site and potential cumulative impacts;
- who may be affected by the project, how they are expected to be affected, and their relevant interests, values and aspirations;
- any potentially affected built or natural features located on or near the project site or in the surrounding area that have been identified as having social value or importance, including key social infrastructure, facilities and amenities; and
- any relevant social trends or social change processes being experienced by communities near the project site; experience of the project and others like it to date.

The project is considered to have two key study areas: a local study area and a regional study area. The potentially affected communities have been mapped to the ABS categories used for data collection (see Table 3.1) and the local and regional study areas (herein referred to as local area or regional area), illustrated in Figure 3.1.

Table 3.1 Study area

Study area	Geographic area	ABS data category	Referred to in report as:
Local study area	Tarago suburb	Tarago SSC	Local area
	Lake Bathurst suburb	Lake Bathurst SSC	
	Currawang suburb	Currawang SSC	
	Mount Fairy suburb	Mount Fairy SSC	
Regional study area	Goulburn Mulwaree Council area	Goulburn Mulwaree LGA	Regional area
	Lake George suburb	Lake George SSC	
	Bungendore suburb	Bungendore SSC	
	Mulloon suburb	Mulloon SSC	
	Bywong suburb	Bywong SSC	
	Boro suburb	Boro SSC	
	Manar suburb	Manar SSC	
State of New South Wales	State of New South Wales	New South Wales STE	NSW



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Source: EMM (2021); VEOLIA (2021); DFSI (2017); ABS (2016)

0 10 20 km

GDA 1994 MGA Zone 55

N

KEY

- Project area
- Local area
- Regional area
- State suburb (ABS)
- Local government area
- Rail line
- Main road
- Watercourse
- Named waterbody
- NPWS reserve
- State forest

Local and regional study areas

Woodlawn Advanced Energy Recovery Centre
Social impact assessment
Figure 3.1

EMM creating opportunities

3.1.1 Potentially affected communities

Key considerations for identifying potentially affected communities are the risk of potential social impacts (negative and positive) as a consequence of the project. Factors considered in defining the SIA scope included:

- proximity of properties and communities to the project and its transport routes;
- the role, culture and identity of communities in the region;
- availability, and capacity of, housing and other social infrastructure to attract and support potential growth;
- availability of skilled workforce and experienced personnel, or ability of residents to gain the skills required for the Energy from Waste industry;
- native title rights and other interests held by Aboriginal and/or Torres Strait Islander groups;
- location of businesses who could supply the project;
- vulnerabilities that increase risk, and/or magnitude of potential impacts on communities or groups from the project;
- communities and vulnerable groups potentially affected by other projects within the region; and
- likelihood of potential social impacts and opportunities for each of the localities assessed.

The project is proposed at the existing Woodlawn Eco Precinct which is located within the Tarago State Suburb (SSC) area, approximately 6 km from the Tarago town centre and 40 km from the regional city of Goulburn. The project may impact landowners, residents and businesses within the vicinity of the project site, with the most direct potential impacts likely to occur in Tarago SSC, Lake Bathurst SSC, Currawang SSC, and Mount Fairy SSC. The potential direct and indirect impacts of the project have the possibility to reach beyond the site itself, and the local area. As such, the project is considered to have two key study areas: a local study area and a regional study area.

Potential direct and indirect social impacts (ie those related to local social infrastructure and services, workforce, business and industry, housing and accommodation, and community health and wellbeing) of the project within Tarago, Lake Bathurst, Currawang and Mount Fairy have been assessed as being within the local study area.

Potential direct and indirect social impacts of the project due to provision of electricity and use of infrastructure, supply chains, roads, transportation of goods, materials and equipment, the movement of its workforce (some of which may have drive-in-drive-out arrangements) and cumulative impacts arising from other projects in the area have been assessed within Goulburn Mulwaree LGA, Lake George SSC, Bungendore SSC, Mulloon SSC, Bywong SSC, Boro SSC, and Manar SSC as being the regional study area.

3.2 Demographics

In 2016 the local area had a total population of 1041, comprising a population of 426 in Tarago SSC, 228 in Lake Bathurst SSC, 182 in Currawang SSC and 205 in Mount Fairy SSC (ABS 2016a). The smaller population size within the local area may reflect the limited number of services available. The regional area had a total population of 35,768 in 2016 (ABS 2016a). Population trends and analysis for the local area from 2006–2016 is likely skewed due to the lack of available data. However, population trends from the available data on the regional area demonstrate an increasing population, with a 20.5% increase of the total population between 2006–2016. Projected population data for the area is only available for the LGA level. Trends for Goulburn Mulwaree LGA are assumed to generally reflect the trends across the regional area. Population projections published by DPIE (2019) suggest that the projected population of Goulburn Mulwaree LGA is estimated to increase by 3,214 people from 2016–2041, representing a total change of 10.6% and an average annual growth rate of 0.4% (DPIE 2019). This is lower than the trend projected for NSW, with a 36.7% total increase and average annual increase of 1.5%. These projections may indicate a trend of rural to urban migration, particularly from more regional areas such as Goulburn. This migration could be influenced by people seeking education or work opportunities not readily available in regional communities and enhanced access to community, social and health services (AIHW 2005; Hugo, & Harris 2011; D'Alessandro & Bassu 2015).

Anecdotal evidence has shown that COVID-19 has led to an increase in people moving to the Goulburn Mulwaree LGA with Council noting an increased demand for subdivisions since the emergence of the pandemic. The effects of COVID-19 on population flows are unknown and will need to be monitored.

The largest age groups in the local area are persons aged 55–64 years (17.6%), 45–54 years (17.2%), and 65–74 years (13.2%) (ABS 2016a). There is a smaller proportion of youth aged 15–24 (9.1%) compared to the regional area (11.5%) and NSW (12.5%), which suggests an older population in the local area compared to NSW, as well as an aging population. This is also reflected in the median ages across the local area, which includes 44 years in Tarago SSC, 46 years in Lake Bathurst SSC, 42 years in Currawang SSC, and 47 years in Mount Fairy SSC which is older than the median age for NSW (38 years) (ABS 2016a).

3.3 Qualifications and workforce

The local area has a smaller proportion of people who have completed Year 12 or equivalent (51.4%) compared to NSW (59.1%). However, the local area has a slightly higher proportion of persons who have completed Year 12 or equivalent compared to the regional area (45.9%) (ABS 2016a). Those aged 15 years and over in the local area were less likely to complete Year 12 when compared to NSW.

Certificates comprise the largest proportion of non-school qualifications held by people over 15 years within the local and regional areas (33.9% and 38.8% respectively). The proportion of people with a certificate qualification in the local area and regional area is higher compared to 29.7% across NSW (ABS 2016a). However, proportions of people with specific non-school qualifications varied throughout the local area. In Tarago SSC, 41.7% of people held a certificate level qualification, while in Lake Bathurst SSC and Mount Fairy SSC within the local area, there is a higher proportion of persons with a Bachelor's degree (21.5% and 21.1% respectively) and postgraduate degree (9.2% and 9.6% respectively) compared to the rest of the local area and regional area. This reflects the second and third most dominant industries of employment in the area, which are 'education and training' and 'public administration and safety' – both of which largely require educational attainment at the Bachelor's degree level or higher (National Skills Commission 2021).

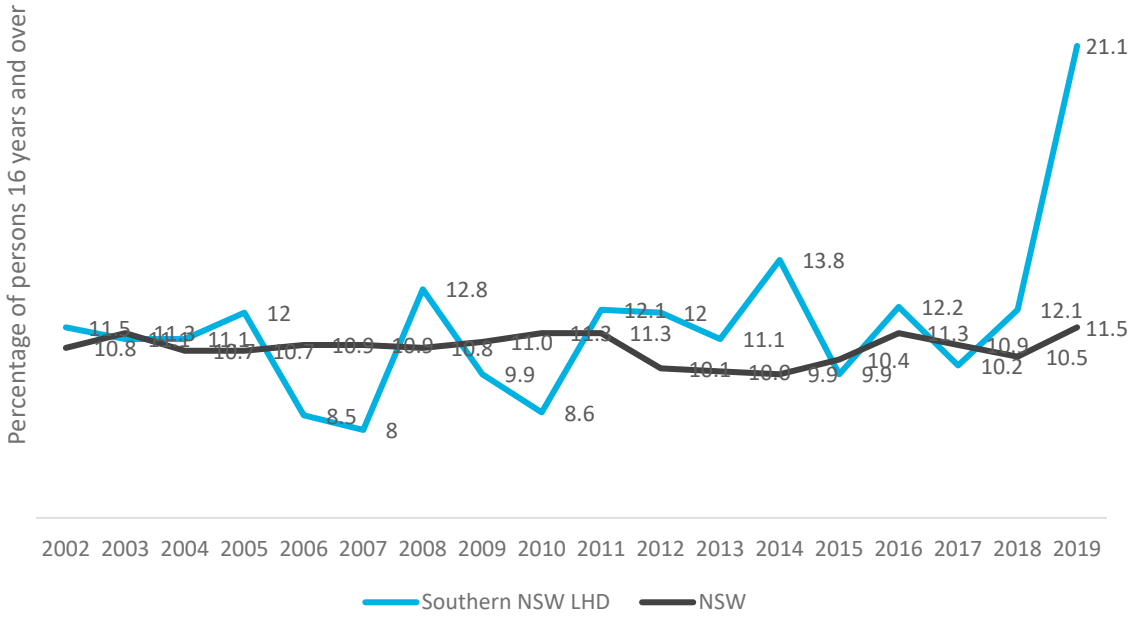
Unemployment rates across the local area (3.5%), according to the 2016 Census, were much lower than the unemployment rate in the regional area (5.6%) and NSW (6.3%). The youth unemployment rate across the local area (0.0%) was significantly lower compared to the regional area (11.3%) and NSW (13.6%). The top three occupations within the local area are managers (23.5%), technicians and trades workers (17.9%) and professionals (16.3%). The significant proportion of managers throughout the local area is likely attributed to the prevalence of the agriculture, forestry and fishing industry, as farmers comprise the largest share of managers across Australia (approximately 12%) (National Skills Commission 2021). Whilst the high proportion of persons with a certificate level qualification in the study area aligns with the large proportion of technicians and trades workers, as most technicians and trades workers across Australia hold a Cert III or higher vocational and education and training (VET) qualification (National Skills Commission 2021).

3.4 Health and wellbeing

Poorer physical and mental health outcomes in the Southern NSW Local Health District (LHD) and South Eastern Primary Health Network (PHN) compared to trends across NSW suggest that a portion of the local and regional area population may be more vulnerable to potential health impacts as a result of the project, notably through air quality and mental health.

3.4.1 Respiratory health

Within the Southern NSW LHD persons aged 16 and over saw an increase in those who suffered from asthma from 11.5% in 2002 to 21.1% in 2019 which is significant increase when compared to the prevalence of asthma for greater NSW which remained relatively steady during the same period, 10.8% in 2002 to 11.5% in 2019 as shown in Figure 3.2 (NSW Health 2020). The increase in prevalence of asthma from 2018–2019 correlates with the prevalence of bushfires throughout the region during this time and the impacts of smoke exposure on respiratory health (Duckett, Mackey & Stobart 2020; Asthma Australia 2020). However, prior to this increase, rates of asthma in Southern NSW LHD were similar to the rates across NSW, with some slight variation year on year (NSW Health 2020).



Source: NSW Health 2020, *Health Statistics NSW*.

Figure 3.2 Prevalence of asthma in persons aged 16 years and older, 2002–2019

Asthma is an indicator of respiratory health of the community and vulnerability to dust and other air impacts. People suffering from asthma in the local area may be more vulnerable to impacts resulting from any project-related emissions. Trends of asthma were not available at the SSC or LGA level. Asthma trends throughout Southern NSW LHD are assumed to reflect trends within the local and regional areas.

3.4.2 Mental health

According to the PHN data, there is a higher proportion of persons living within the South Eastern NSW PHN who access GP, allied, and specialist mental health services which suggests higher rates of mental health related issues for those living within the local and regional areas. This is further supported by levels of psychological stress and rates of intentional self-harm hospitalisations, which have consistently remained above the NSW rate and have been increasing from 2001–2019. However, levels of high and very high psychological distress in 2019 were similar across Southern NSW LHD (18.3%) and greater NSW (17.7%).

Mental health indicators for the study area are available at the LHD and PHN levels. Data available at the PHN level represents the number of patients who access Medicare-subsided services, specifically mental health related Allied Health services, GP mental health and specialist mental health services (AIHW 2019). Data available at the LHD level represents the rates of intentional self-harm hospitalisations and levels of psychological distress using the Kessler 10 (K10) approach; a 10-item questionnaire that measures anxiety, depression, agitation, and psychological fatigue in the most recent 4-week period (NSW Health 2019). Combined, the data can provide insights of mental health amongst persons residing within the local and regional area.

3.5 Local housing and rental market

On 21 June 2021 there were a total of four properties for sale and one property for rent in the local area. In the regional area, there were 183 properties for sale and 56 properties for rent, most of which were available in Goulburn (REA Group 2021). From March 2018–March 2021 the residential vacancy rate for postcode 2580, which encompasses most of the local area and regional area, has consistently remained significantly below the equilibrium level of 3.0% (SQM Research 2021) (see Figure 3.3). This indicates that there has been an undersupply of rental housing in the local area and regional area, which is reflected in the lower rates of rental tenure in the local area and regional area compared to NSW.

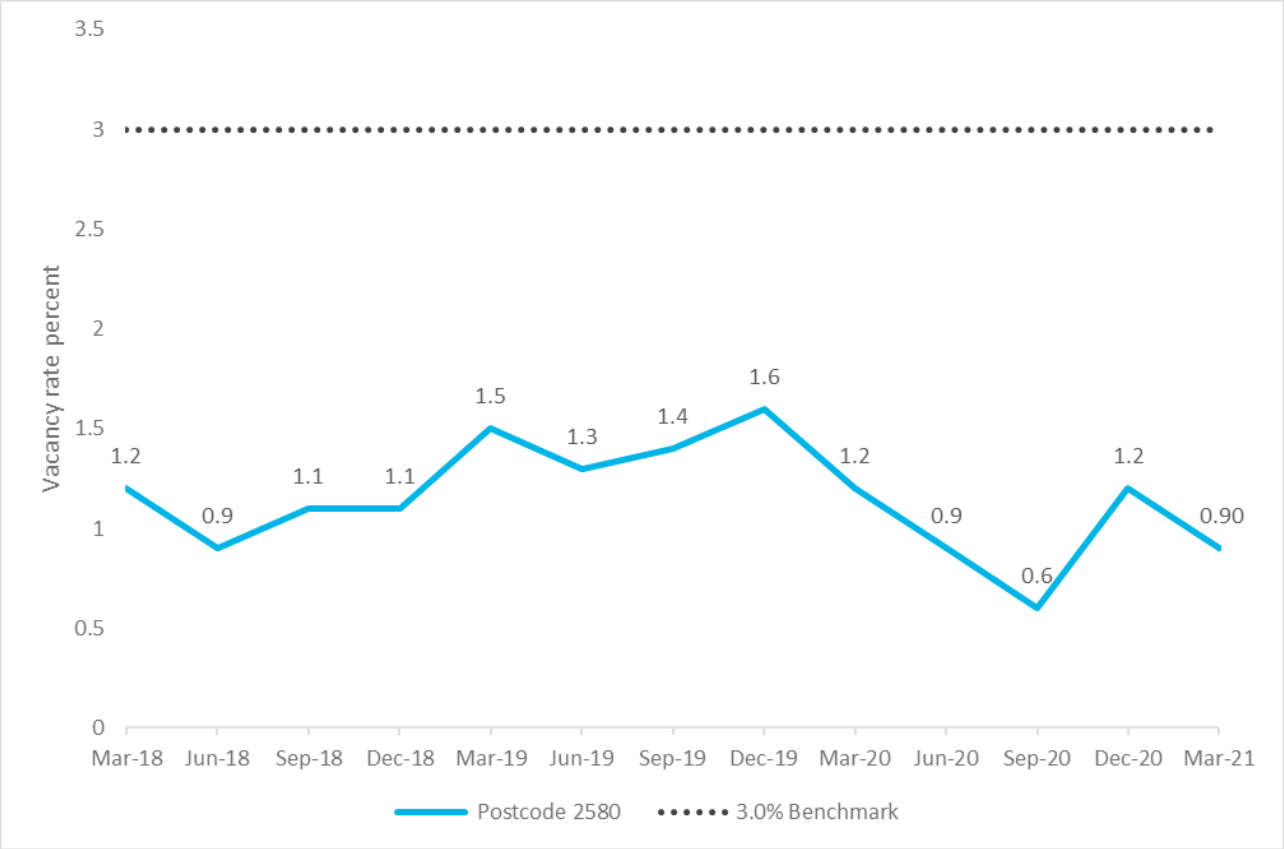


Figure 3.3 Residential vacancy rate trends, 2018–2021

In 2016, the most common housing type within the local area were separate houses (98.2%) followed by other dwellings (1.2%) (ABS 2016a). The proportion of occupied dwellings in the local area (79.5%) was significantly lower compared with the regional area (86.0%) and NSW (90.1%) and may reflect trends of departure from the local area and the regional area to regional centres and larger cities. There is anecdotal evidence that during COVID-19 there has been an increase in people moving to regional areas that may offset this effect. At the time of the 2016 Census, most dwellings within the local area were owned with a mortgage (35.4%), which is consistent with the regional area (30.7%) and NSW (32.3%). The proportion of homes owned outright in the local area (31.5%), regional area (29.3%) is slightly lower than NSW (32.2%). However, the proportion of homes that are rented in the local area (9.8%) is much lower when compared to the regional area (22.8%) and NSW (31.8%). Within the local area, there is a particularly small proportion of rented homes within Currawang SSC (4.4%) and Mount Fairy SSC (4.7%). The higher proportion of homes owned with a mortgage and outright may reflect the older population of the local area and regional area compared to NSW, as well as an undersupply of available rental housing.

Mortgage affordability in Tarago SSC was in line with that for NSW with 7.6% and 7.4% respectively having mortgage repayments higher than 30% of income. However, Lake Bathurst SSC (10.9%), Currawang SSC, and Mount Fairy SSC (10.1%) had a higher proportion of their population with mortgage payments higher than the 30% of income, making housing less affordable. Goulburn Mulwaree LGA (5.4%) had low rates of households with high mortgage repayments indicating affordable housing options. This may reflect lower housing demand in Tarago SSC and Lake Bathurst SSC and the perception of some nearby neighbours that fewer people moving to the Tarago SSC and Lake Bathurst SSC due to developments proposed nearby making the area less attractive (personal comms 2021).

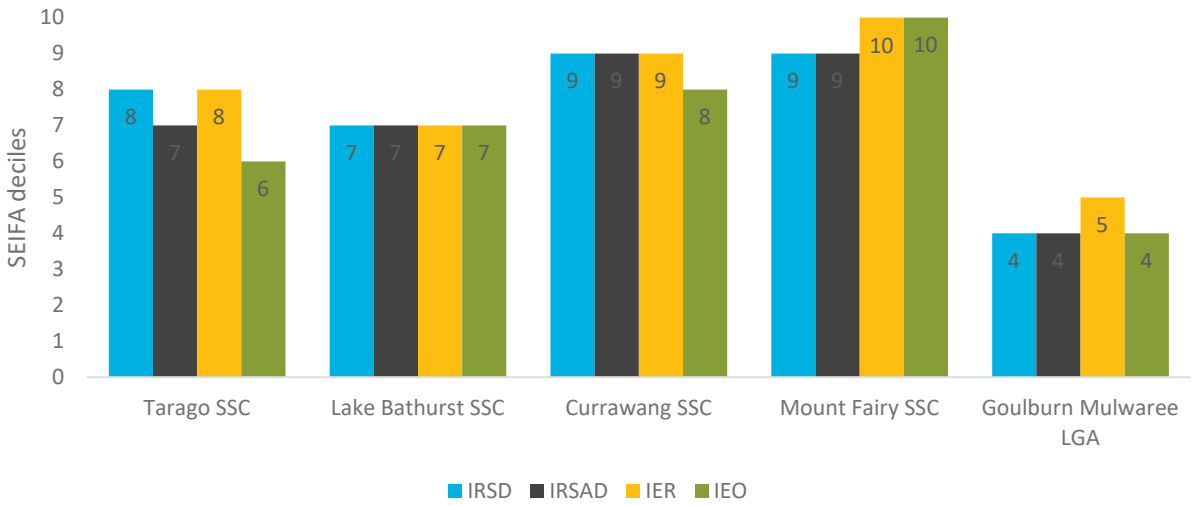
3.6 Vulnerable groups

3.6.1 Socio-economic disadvantage

The level of disadvantage or advantage in a population is indicated in the Socio-Economic Indexes for Areas (SEIFA) which focuses on low-income earners, relatively lower education attainment, high unemployment and dwellings without motor vehicles. SEIFA categorises levels of socio-economic disadvantage through four indexes, with each index being a summary of a different subset of Census variables and focuses on a different aspect of socio-economic advantage and disadvantage.

According to the 2016 SEIFA, there are higher levels of advantage and lower levels of disadvantage within the local area when compared to other suburbs across NSW, as each suburb is within the 6th decile or higher for all indexes. Overall, the SEIFA indexes within the local area combined suggest that there is a higher proportion of persons with qualifications, households with higher incomes and in skilled occupations as well as fewer people without qualifications or in low-skilled occupations.

Within the Goulburn Mulwaree LGA, the SEIFA scores indicate that these areas experience a mid-range of socio-economic disadvantage and advantage, with rankings of 4–5 across each of the SEIFA indexes (Figure 3.4). This indicates that on average people in Goulburn Mulwaree LGA when compared to other LGAs within NSW will have higher education qualifications and be working in skilled occupations, and a more equal distribution of people with high and low incomes as well as households earning higher incomes and owning their own homes. The higher levels of disadvantage and lower levels of advantage in Goulburn Mulwaree LGA reflects the slightly higher proportion of Aboriginal and/or Torres Strait Islander population compared to NSW.



Source: ABS 2016, 2033.0.55.001 – Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA)

Note: IRSD: Index of Relative Socio-economic Disadvantage.
IRSAD: Index of Relative Socio-Economic Advantage and Disadvantage.
IER: Index of Economic Resources.
IEO: Index of Education and Occupation.

Figure 3.4 SEIFA deciles in the study area, 2016

3.6.2 Disability

Disability can be understood as people who need assistance in their day to day lives with any or all of the following core activities: self-care, mobility or communication because of a disability, long-term health condition (lasting six months or more) or old age. Within the local area people generally require less assistance compared to the rest of NSW, while the population within the regional area has a slightly greater need for assistance compared to NSW. In the local area, 2.9% of the people have a need for assistance in one or more of the three core activities of self-care, mobility and communication due to a long-term health condition (lasting 6 months or longer), a disability (lasting 6 months or longer), or old age. The reduced need for assistance in the local area may reflect less access to and availability of social services, in particular disability services, in the local area compared to larger regional area and more urban areas of NSW. Baxter, Hayes and Gray (2011), of the Australian Institute of Family Studies, found that people living in major cities and regional centres are less likely to have problems accessing services such as doctors and disability services, while those in outer regional or remote areas have the most trouble accessing these services. This may contribute to people migrating to regional centres, such as Goulburn within the regional area, and larger cities where those services are more readily available.

3.6.3 Homelessness

As explained by the Australian Human Rights Commission (AHRC) (n.d.), “the causes of homelessness are numerous and complex. Homelessness can be caused by poverty, unemployment or by a shortage of affordable housing, or it can be triggered by family breakdown, mental illness, sexual assault, addiction, financial difficulty, gambling or social isolation. Domestic violence is the single biggest cause of homelessness in Australia”. Homelessness can lead to health problems including poor nutrition, depression, substance abuse, poor dental health, and mental health conditions (AHRC 2021). For homeless persons, hardship with finances, transport, identification, Medicare, and difficulty with appointment maintenance/treatment plans make accessing health care services more difficult than the average person (AHRC 2021). As such, homeless persons are at greater risk of being negatively affected by potential impacts on livelihoods and health and wellbeing.

Data concerning homelessness within the local area is only available at the LGA level. According to the 2016 Census estimations on homelessness, rates of homelessness in Goulburn Mulwaree LGA are lower than NSW rates, with a rate of 35.0 persons per 10,000 across the regional area compared to the NSW average of 50.4 persons per 10,000. The relocation of homeless persons to large regional centres or cities where they can access homelessness services and support is indicative of the higher rate of homelessness in cities.

The context of COVID-19 creates additional risk of housing instability and homeless for persons experiencing financial hardship. COVID-19 has facilitated increased migration from urban centres to more regional and rural areas of Australia (Anglicare 2021, Goulburn Post 2021). This has contributed to increased rents and lower rental availability (particularly affordable housing) in regional areas of Australia, including the Goulburn Mulwaree area.

3.7 Community culture and values

Another key aspect of the social make-up of the area is the culture and values of its population.

The Goulburn Mulwaree community values the natural environment, bushland, parks, and rural landscapes, as well as its heritage and character, with many buildings dating to the late 1800s still standing and in use today, including the Post Office, the Gaol, Hospital and Kenmore Mental Hospital, among others (Goulburn Mulwaree Council 2020a; Goulburn Mulwaree Council 2020b).

The Queanbeyan-Palerang Regional Council values strong social and environmental connections between country and rural communities (Queanbeyan-Palerang Regional Council 2018). The community of the Queanbeyan-Palerang Regional Council is neighbourly, friendly, caring and inclusive and values the natural environment, landscapes and clean air (Queanbeyan-Palerang Regional Council 2018). In the *Community Strategic Plan 2018–28,* the Queanbeyan-Palerang Regional Council prioritises the road safety and the maintenance of road infrastructure, the protection of the natural environment and adoption of sustainable, renewable energy and management of waste.

The project is located on the boundary of four Aboriginal groups (based on Tindale 1974) comprising the Gandangara, Ngunawal, Wodi Wodi and Wandandian (EMM 2021a). Rocky Hill, the old railway quarry on the Wollondilly River, Mulwaree Flats near Lansdowne Bridge at the brewery, and the site of the current Goulburn rail station, are key places of significance for Aboriginal culture, all of which are identified as places where large gatherings of Aboriginal people, such as corroborees, took place (Goulburn Mulwaree Council 2020b).

3.8 Community strengths and vulnerabilities

A summary of the key strengths and vulnerabilities within the community based on the existing social conditions is provided in Table 3.2.

Table 3.2 Community strengths and vulnerabilities

Vulnerabilities	Themes	Strengths
Low individual and household median weekly income in the regional area, specifically in the Goulburn Mulwaree LGA ($625 and $1,196 respectively) when compared to greater NSW ($664 and $1,486 respectively).		Low unemployment rate in the local area (3.5%) compared to NSW (6.3%).
Community services predominately located in the regional area with minimal services in the local area.		Access and commute to regional and metropolitan centres (Goulburn, Bungendore, Canberra).
Substantial undersupply of rental housing in the local and regional area with vacancy recorded at 0.9% in March 2021 which is significantly below the 3.0% equilibrium (SQM Research 2021). Occupied dwellings (79.5%) are significantly lower compared with the regional area (86.0%) and NSW (90.1%) which may reflect trends of residents within regional areas moving to metropolitan areas.		Greater mortgage affordability in the Goulburn Mulwaree LGA (ie less households paying above 30% of household income for mortgage compared to NSW).
Poorer mental health outcomes* regionally (indicated by high and very high psychological distress and access to non-hospital Medicare-subsided mental health services) than in NSW. Poorer physical health outcomes* regionally (indicated by higher levels of smoking, alcohol consumption and overweight or obese adults) than in NSW.		Social cohesion reflected in high volunteering rates in the local area (25.8%) and regional area (19.6%) compared to NSW (18.1%). High levels of socio-economic advantage within the local area when compared to NSW.

*Note mental health and physical health data not available at local level. Regional data includes the local population.

4 Community and stakeholder engagement

This section summarises the findings from the community engagement activities undertaken in relation to the project:

- as part of the EIS engagement; and
- to inform the SIA.

Consultation for this assessment was carried out during the COVID-19 pandemic and conducted in accordance with applicable Australian National and NSW health agency advice.

4.1 EIS engagement activities

A summary of EIS engagement activities and participation is provided in Section 4.1. Full details of community engagement activities and outcomes are described in Chapter 7 of the EIS.

Some of the consultation methods included the following:

- Veolia Community Open Days held at the Woodlawn Eco Precinct on 18 April 2021 and 20 June 2021 to provide an opportunity for the local community to learn about Veolia's proposal, meet the project team, ask questions and submit feedback. Residents were invited to the sessions via letterbox drop, social media post, website updates and flyers were also shared in the community.
- A meet the experts session was held at Tarago Town Hall on 4 June 2022 to engage the community with the technical experts who prepared the Air Quality Impact Assessment and the Human Health Risk Assessment.
- Doorknocking of immediate neighbours to the Veolia Woodlawn and Veolia Pylara sites. This was undertaken prior to COVID-19 restrictions and enabled a personalised approach to discussions about the project. Individuals' queries and concerns were recorded, and information was shared with the individuals.
- Community brochure which provided an overview of the project, planning and approvals process, project-related technology, processes and contributions, environmental and community benefits from existing operations at Woodlawn Eco Precinct was available to attendees to events.
- Community information webinars held online via Zoom on 9, 11 and 15 September 2021, providing an update on the project's planning and approvals process, waste to energy technology and air quality. The sessions provided an opportunity for residents to ask questions and share feedback. Invitations to the event were shared via a dedicated letter box drop to residents, the project newsletter, social media advertising, a post in Tarago Times and website updates.
- Project updates, information and FAQs provided on the project website (www.veolia.com/anz/TheArc).
- Establishment of a project email (thearc@veolia.com), postal address (PO Box 171 Granville NSW 1830) and dedicated community information line (1800 313 096) available 24 hours a day, seven days a week. Veolia has also established a newsletter mailing list for those who are interested in receiving updates on the project.
- Regular updates made in the Tarago Times, the local newspaper for the Tarago Community.

4.1.1 Veolia Community Open Days

Two onsite Veolia Community Open Days were held before lockdown restrictions were imposed. The open days were held on 18 April 2021 and 21 June 2021, during the Scoping Phase of the project.

The Veolia Community Open Days consisted of visuals and information about the project as well as a site tour of the Woodlawn Eco Precinct. In total, 33 local community members attended the first open day and 12 local community members attended the second. At both sessions there were nine Veolia staff, one representative from EMM and one representative from Kathy Jones & Associates (KJA, now ERM). The sessions were designed so that members of the community could share feedback with the project team, whether in person or via feedback forms. Key themes included:

- air quality, emissions and air quality monitoring processes and management;
- how odour from the existing landfill operation will be addressed;
- traffic levels;
- management of hazardous waste;
- water management and use; and
- positive aspects associated with environmentally friendly waste disposal (KJA 2021).

For a detailed analysis of EIS engagement see Chapter 7 of the EIS.

4.1.2 Community information webinars

Following the commencement of lockdown restrictions three online community engagement sessions were conducted on 9, 11, and 15 September 2021.

In total, 33 households attended the three online sessions, and more than 70 questions were received on topics including:

- air quality;
- transport;
- location of site;
- odour;
- air quality monitoring;
- plant operation; and
- the EIS exhibition period.

For a detailed analysis of EIS engagement see Chapter 7 of the EIS.

4.1.3 Other engagement

The project page on the Veolia website provides a contact number, email address and postal address for community members to get involved in the project, receive mailing alerts, and submit questions about the project. For a detailed summary of engagement activities and outcomes see Chapter 7 of the EIS.

4.2 SIA field study activities

The SIA field study consisted of in-depth interviews (conducted via telephone and videoconference), service provider workshops and a community survey (administered online) with the local community and key stakeholders. The SIA field study participation details are provided in Table 4.1.

Table 4.1 Consultation participation

Method	Administered	Timeframe	Invited	Participated
In-depth interviews	Videoconference and teleconference	23 August 2021–30 August 2021	27 nearby neighbours (48 stakeholders in total) via telephone and 4 x stakeholders via telephone and email.	11 in-depth interviews with a total of 19 individuals, including: • 11 nearby neighbours; • 2 representatives of Goulburn Mulwaree Council; and • 6 representatives of Queanbeyan-Palerang Regional Council).
Service provider workshops	Videoconference	23 August 2021–24 August 2021	84 x service providers via telephone and email.	7 x service providers
Community survey	Online	23 August 2021–6 September 2021	Newsletter with survey participation details distributed to Veolia newsletter distribution list. Digital Facebook ads targeted to Tarago residents from 25 August 2021 for one week. Survey emailed to 83 service providers across the local and regional areas. Survey directly emailed to six nearby neighbours.	18 responses

The SIA adopted a case study approach[1] which has focused on a deeper understanding of the potential impacts on individuals and groups that will be potentially impacted and or interested in the project. The findings summarised below are based on a small sample of residents and groups. Participants self-selected to participate in the SIA consultation process by choosing to accept an invitation they received or viewed on Facebook and consequently the sampling method and small size means the findings cannot be assumed to be representative of the broader local and regional community. They represent the individual views of those who chose to participate in the consultation.

[1] A process or record of research into the development of a particular person, group, or situation over a period of time.

4.2.1 In-depth interviews participation

Interviews were conducted with nearby neighbours and stakeholders from 23 August 2021 to 30 August 2021. The interviews involved a discussion of the values, vulnerabilities and strengths of the local community, as well as the identification of perceived impacts and benefits as a consequence of the project. Within the local area, 27 nearby neighbours (totalling 48 people) and four stakeholders were invited to participate in an in-depth interview. A total of 11 separate interviews were conducted via videoconference and telephone, with multiple interviews involving two or more stakeholders. In total, 11 nearby neighbours, two local council representatives from the Goulburn Mulwaree Council and four local council representatives from Queanbeyan-Palerang Regional Council participated in the in-depth interviews. Each in-depth interview with stakeholders offered insights into the potential impacts and benefits the project within the community and local area. The key findings from the interviews are displayed in Section 4.3.

4.2.2 Service provider workshops

Two online service provider workshops were hosted on 23 August 2021 and 24 August 2021. Due to COVID-19 restrictions the workshops were hosted online via Microsoft Teams. The workshops provided an overview of the project to local service providers and involved the identification of perceived impacts and benefits on local services as a consequence of the project. A total of 84 services were invited to participate with seven service providers in attendance. Workshop attendance consisted of representatives from the following services operating within the local area. A summary of attendance for the service provider workshop is demonstrated in Table 4.2.

Table 4.2 Service provider workshop attendance

Workshop	Time and date	Method	Attendees
Workshop 1	23 August 3.30 pm–5.00 pm	Microsoft Teams	• One accommodation provider. • One chamber of commerce representative. • One tertiary education provider. • Two employment service representatives.
Workshop 2	24 August 3.30 pm–5.00 pm	Microsoft Teams	• Two women's service representatives.

During the workshops, service providers offered insights into the potential impacts and benefits of the project to specific areas of service in the community. The findings from the service provider workshops are provided in Section 4.3.

4.2.3 Online community survey participation

i Participation and project awareness

An online community survey was open to the public to identify issues and potential impacts relating to the project. The online community survey was distributed via newsletter using Veolia's newsletter distribution list, advertised on Facebook targeted to Tarago residents, and directly emailed to six nearby neighbours and 83 service providers in the local and regional areas. The survey included open ended, multiple choice, and rating-style questions which provided both qualitative and quantitative data. The survey was available for response for two weeks from 23 August 2021–6 September 2021. There was a total of 18 responses to the online community survey. Out of the 18 respondents:

- 8 were identified as residing the local area (83%); and
- 10 were identified as residing within the regional area (17%).

A total of eight (44%) respondents identified as local landowners, 17 (94%) identified as local residents and three (17%) identified as business owners. Project awareness across the results varied, with seven (39%) of the respondents indicating they have a fair awareness of the project and an additional seven (39%) indicating good or very good awareness. The remaining four (22%) respondents indicated having poor awareness of the project (see Figure 4.1).

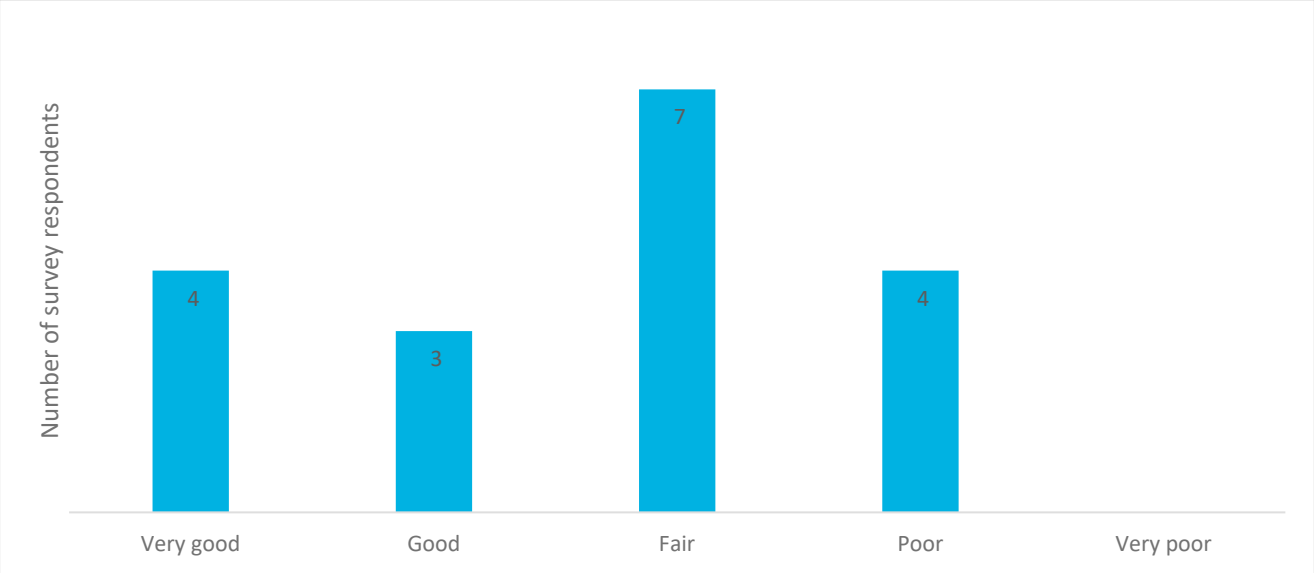


Figure 4.1 Project awareness in community survey

ii Project support

The majority (61%) of the respondents indicated they were either opposed or strongly opposed to the project, with two respondents (11%) indicating neutral and five respondents (28%) indicating that they were supportive of the project (see Figure 4.2). Respondents opposed to the project were concerned about potential odour and health impacts associated with the project. For those opposed to the project, four respondents (22%) raised concerns about potential odour associated with the project, with two respondents (11%) expressing concerns about potential health impacts from project related emissions. One respondent expressed concerns about potential impacts to amenity, the environment and declining property value. Of the respondents who indicated they were supportive of the project, one respondent felt there are positive associations with employment opportunities and three respondents (17%) commented on the benefits associated with continued community investment and support from Veolia (see Figure 4.2).

As noted above the participants in the survey self-selected, and hence it is likely that community members with a stronger interest in the project (either positive or negative) chose to participate and the results from this small sample cannot be taken to be representative of the community.

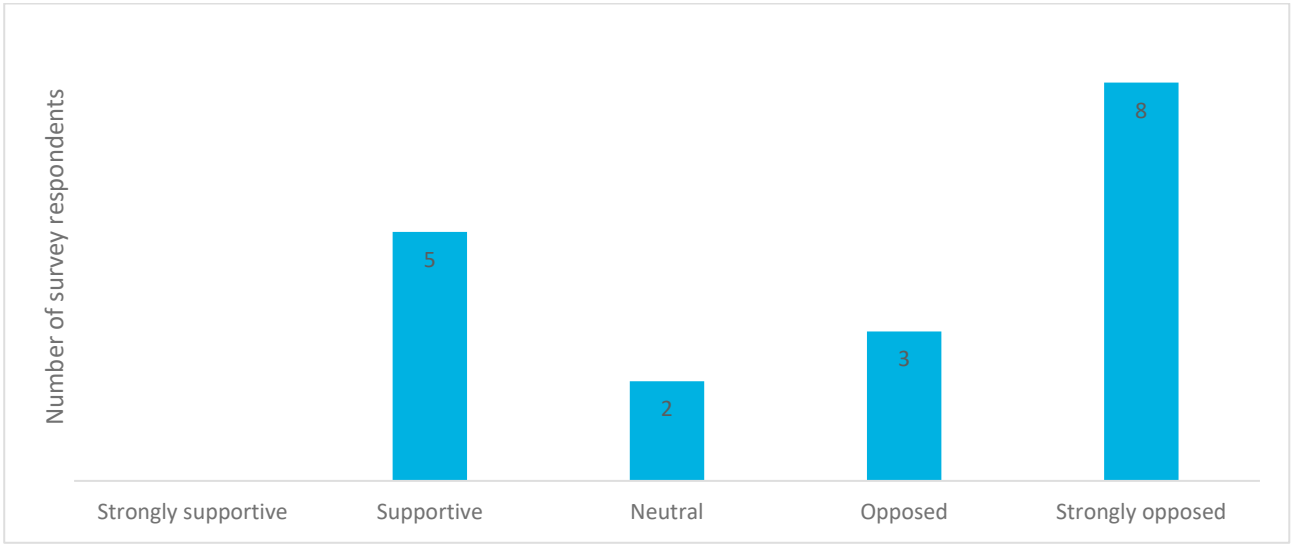


Figure 4.2 Project support in community survey

iii Perceived impacts and benefits

Overall, the respondents' perceptions of the project's potential impacts varied. The greatest perceived potential negative impacts associated with the project were surface water, odour and traffic, which were ranked as negative/very negative by 78% of the 18 respondents, with 78% of 17 respondents identifying air quality as negative/very negative. One respondent felt that the community needed to be more informed about project-related emissions. Employment (11% positive/very positive out of 18 respondents), small business and waste management (both rated as positive/very positive by 6% out of 18 respondents) were ranked as the top three most positive perceived impacts. The perceived impacts of the project on Aboriginal heritage, access to housing, and access to accommodation were rated as mostly neutral. A detailed account of the perceived potential negative and positive impacts of the project from online community survey results is shown in Figure 4.3.

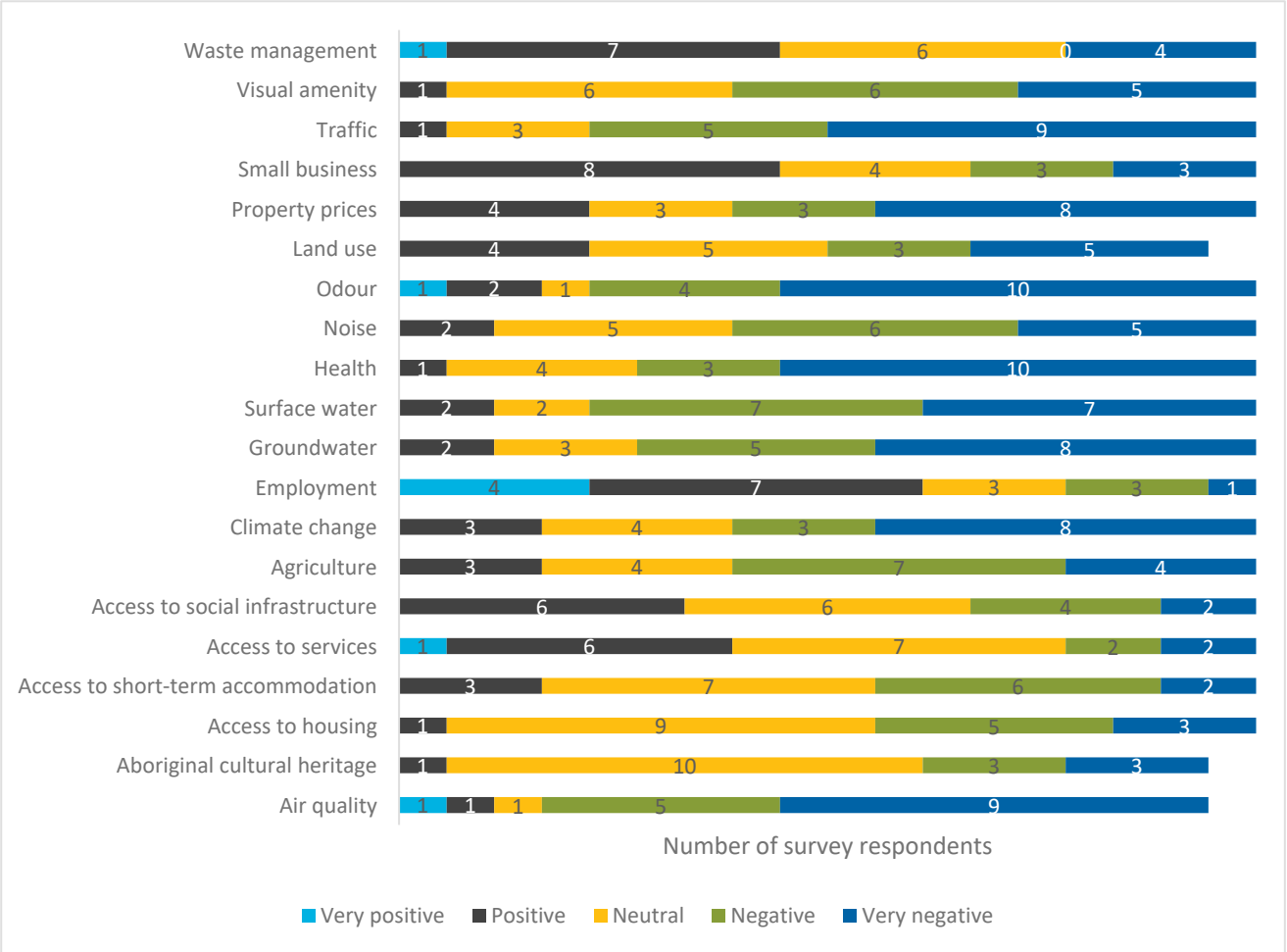


Figure 4.3 Perceived impacts in community survey

4.3 Summary of community engagement findings

This section outlines the key potential social impacts identified by participants in the SIA field study and community engagement activities and is informed by the findings of the in-depth interviews held with nearby neighbours, stakeholders of the community, and local government staff; service provider workshops; the community survey, and EIS engagement activities conducted by Veolia. All consultation activities sought to understand how participants (see Table 4.1) viewed their community and identify how the project may impact on their community.

Participants identified values, strengths and vulnerabilities which offer an understanding of the community surrounding the project site, shown in Table 4.3. The key issues or potential impacts, and opportunities or potential benefits identified by the community are organised into categories of social impact theme. A detailed summary of the most prominent potential social impacts that were identified throughout the SIA field study and stakeholder engagement activities are available in Section 4.3.1.

Table 4.3 Community identified values, strengths and vulnerabilities

Values	Strengths	Vulnerabilities
Rural amenity and landscape	Social cohesion and connection	Dangerous roads and perceived poor quality transport infrastructure
Farming livelihood	Location and commute (ie proximity to Canberra, Queanbeyan, Goulburn)	Service availability (internet, mental health, and elderly)
Country lifestyle	Housing and land affordability	Groundwater availability and quality
Quality of life	Rural landscape and environment	Housing availability
Community spaces and meeting places	Available facilities (education, recreational)	Youth retention
Sense of community, locals supporting locals		Negative perceptions of the landfill operations
Multigenerational farming and land		

4.3.1 Community identified potential social impacts and benefits

i Health and wellbeing

a Potential impacts

Participants expressed significant concerns about the potential impacts on air quality resulting from project-related emissions, including potential impacts on the local environment and human health, with several nearby neighbours expressing concerns for the health of their children and future generations. In addition, stakeholders expressed significant concerns regarding the project potentially exacerbating the existing odour issue, with some nearby neighbours reporting experiencing loss of sleep and burning in their throats as a result of odour.

During the SIA field study, road conditions and safety was a reoccurring concern, specifically in relation to heavy-vehicle movements along Tarago-Bungendore Road. Nearby neighbours felt that the current conditions of the Tarago-Bungendore Road are poor and unable to accommodate current truck movements due to narrow lanes and shoulders. As a result, several stakeholders expressed fears about road conditions and how conditions may further deteriorate due to project-related truck movements. The common perception was that the project would result in an increase of truck movements which stakeholders felt would further exacerbate road damage and safety hazards. Nearby neighbours and road users reported experiencing impacts associated with trucks travelling across both lanes along the single lane Tarago-Bungendore Road, which is a public safety concern.

b Potential benefits and opportunities

Several stakeholders noted an opportunity and potential benefits related to air quality monitoring and reporting within the local community. It was recognised that monitoring of the project, to include the Woodlawn Eco Precinct, would help ease concerns nearby neighbours and stakeholders have about the project related to emissions and air quality.

ii Way of life

a Potential impacts

Amenity impacts resulting from the odour impacts of the existing operations were raised as key potential impacts by all stakeholders. Some nearby neighbours experience amenity impacts due to odour from current operations at the Woodlawn Eco Precinct. As a result, odour was frequently raised as a key concern with fears that the project will compound the existing odour issue. Nearby neighbours reported experiencing odour impacts at varying times and intensities. Odour can be experienced in homes and was described as 'debilitating' by one nearby neighbour. Another nearby neighbour expressed that the odour in the local area is like 'living on a garbage dump'. Whilst this is a key concern for some neighbours, it is noted that the Air Quality Impact Assessment included in the EIS does not anticipate that the project will worsen odour impacts. Despite this Veolia is implementing an enhanced Woodlawn Eco Precinct Odour Management Strategy that is regularly updated through community consultation, independent expert input and results from the landfill gas monitoring program. The strategy includes routine odour audits and recommendations for odour management upgrades. Examples include the installation of additional landfill gas capture infrastructure, odour treatment technology trials and innovative odour monitoring equipment. Regular updates are provided to the community through a range of media including the ARC website, newsletter, CLC and published updates in the Tarago Times.

Current and upcoming odour reduction works involve:

1. Drone surveillance at six monthly intervals to measure landfill gas capture across the landfill waste surface. The surveillance identifies areas where methane is emitting across the landfill waste surface and provides findings used for planning improvement activities.

2. Expansion of the landfill gas capture infrastructure in low gas capture locations. 36 new gas wells have been installed this year.

3. Reducing the active tipping face surface area to reduce potential for odour emissions.

4. Optimisation of the biofiltration system, a system which filters the landfill gas that escapes through the rock wall/waste interface, reducing the odorous compounds.

5. Maintaining evaporation of stored treated leachate on site through installation of additional evaporation units.

6. Installation of a hydrogen sulfide sensor and meteorological station in Tarago. Data will be correlated against instances of odour.

These planned works, improved monitoring techniques, and installation of additional gas extraction technology in areas identified by drone surveillance, has achieved the highest gas capture records to date. Latest records show a 40% increase in captured gas (in July 2022 compared with the yearly average to date).

iii Livelihood

a Potential impacts

Concerns were also raised relating to odour impacting local property values. Almost all nearby neighbours were concerned about property value and the impact odour can have on selling their properties. Several comments were made relating to how the odour can dissuade people from purchasing land and residing in the local area. These comments relate to existing operations and fears the project may worsen odour impacts.

One nearby neighbour also reported that they regard the current odour from the Woodlawn Eco Precinct as a barrier to going outside to farm on their property, and because of this were concerned that the project may increase odour and impact their future farming practices. How odour potentially impacted their livestock was an additional concern. As noted above, the Air Quality Impact Assessment for the project does not anticipate additional odour impacts due to the ARC project.

b Potential benefit and opportunities

During service provider workshops, employment and education service providers identified potential opportunities and benefits related to local employment, apprenticeship and training opportunities, and scholarship opportunities. These service representatives expressed interest in establishing employment and training opportunities for the project. This was recognised as a potential positive impact as residents in the local area would be exposed to training and job opportunities leading to higher skilled career pathways, which was identified by service providers as lacking in the local area (particularly within the field of technology). It is noted that approximately 90% the existing workforce reside in the Goulburn Mulwaree LGA, and this pattern is expected to continue for additional employment created by the project.

iv Community

a Potential impacts

The potential impact of the project on perceptions of the local area was raised during the SIA field study by stakeholders, specifically during the service provider workshop. Stakeholders felt that there are negative perceptions about the local area due to odour and the presence of a 'landfill', which perpetuates misleading and potentially derogatory attitudes within and about the local community. Several service providers felt that the local area is already impacted by negative perceptions, which raised concerns about how the project would further exacerbate such perceptions.

b Potential benefits

Current community development initiatives and community contributions made by Veolia were recognised as a benefit by most stakeholders, with the project potentially increasing Veolia's community investment. The project was recognised to potentially contribute to the local Council's waste goals and targets.

v Decision making systems

a Potential impacts

Many of the stakeholders consulted, particularly nearby neighbours, expressed concerns about the project in terms of the potential impacts outweighing the positives. There was a strong notion of 'not in my backyard' (NIMBY), particularly amongst nearby neighbours who were interviewed. This is an expression commonly used to reflect community attitudes and opposition to development projects where community members, whilst they acknowledge and accept the development, reject it due to the location and potential impacts they may experience (Dictionary of Energy 2015). During the SIA field study, many of those consulted felt it was unfair for the project to be proposed in the local area for waste which is sourced from Sydney. It was commonly viewed that the project should be located near the source of the waste and expressed a sense of unfairness that they experience negative impacts associated with odour, traffic and air-quality due to waste from outside their area.

A summary of the community identified potential impacts, benefits and opportunities arising as a consequence of the project during the SIA field study and engagement conducted by Veolia are provided in Table 4.4.

Table 4.4 Community identified potential impacts, benefits and opportunities

Themes	Impacts	Benefits	Opportunities
	• Project-related emissions impacting on air quality. • Odour impeding sleep patterns and health (ie burning throat sensation).	• Not identified by the community.	• Conduct monitoring of air quality.
	• Concerns related to odour continuing to impact local amenity. • Increased noise associated with additional truck movements.	• Not identified by the community.	• Potential to reduce odour in the long term (associated with diversion of waste from landfill).
	• Decreasing property value related to odour within the local area.	• Local employment during construction and operation. • Increased skilled career pathways.	• Local employment and training, including leveraging partnerships with local training, apprenticeship and employment service providers. • Local procurement during construction (ie support for local businesses).
	• Negative perceptions of the community related to 'landfills'. • Presence of non-local workforce.	• Further community development investment and support made by Veolia.	• Opportunity to enhance the relationship between Veolia and the local community through additional community engagement and community development initiatives specifically targeting the local area. • Potential partnerships with local community services and organisations.
	• Continued truck movements resulting in further deterioration of Tarago-Bungendore Road. • Road safety for users of the Tarago-Bungendore Road.	• Not identified by the community.	• Additional road maintenance and upgrades.

5 Social impact assessment

This chapter provides an assessment of the identified potential social impacts of the project.

5.1 Social impacts

The assessment of social impacts uses eight categories to identify social impacts:

- **way of life**: how people live, work, play and interact;
- **community**: its composition, cohesion, character, how it operates and sense of place;
- **accessibility:** how infrastructure provided by public, private or not for profit organisations, including services and facilities is accessed and used;
- **culture**: shared beliefs, customs, values and stories, and connection to Country, land, places, waterways and buildings, both Aboriginal and non-Aboriginal;
- **health and wellbeing**: physical and mental health;
- **surroundings**: access to and use of ecosystem, public safety and security, access to and use of natural and built environment, aesthetic value and/or amenity;
- **livelihoods:** how people sustain themselves through employment or business, their capacity to do so and whether disadvantage is experienced; and
- **decision-making systems**: extent community can have a say in decisions that affect their lives, access to complaint, remedy and grievance mechanisms (DPIE 2021a).

5.2 Risk framework

A risk-based framework has been adopted in the assessment of potential social impacts. The social impact significance levels for positive and negative impacts are provided in Figure 5.1.

		Magnitude level				
		1	2	3	4	5
Likelihood level		Minimal	Minor	Moderate	Major	Transformational
A	Almost certain	Low	Medium	High	Very high	Very high
B	Likely	Low	Medium	High	High	Very high
C	Possible	Low	Medium	Medium	High	High
D	Unlikely	Low	Low	Medium	Medium	High
E	Very unlikely	Low	Low	Low	Medium	Medium

Source: DPIE 2021

Figure 5.1 Social impact significance matrix

The framework is applied using the following definitions of:

- likelihood of social impacts (Table 5.1);
- dimension of social impact magnitude (Table 5.2); and
- magnitude levels for social impacts (Table 5.3).

Table 5.1 Defining likelihood levels of social impacts

Likelihood level	Meaning
Almost certain	Definite or almost definitely expected (eg has happened on similar projects)
Likely	High probability
Possible	Medium probability
Unlikely	Low probability
Very unlikely	Improbable or remote probability

Source: DPIE 2021

Table 5.2 Dimensions of social impact magnitude

Dimensions	Details needed to enable assessment
Extent	Who specifically is expected to be affected (directly, indirectly, and/or cumulatively), including any vulnerable people? Which location(s) and people are affected? (Eg near neighbours, local, regional, future generations).
Duration	When is the social impact expected to occur? Will it be time-limited (eg over particular project phases) or permanent?
Severity or scale	What is the likely scale or degree of change? (Eg mild, moderate, severe).
Intensity or importance	How sensitive/vulnerable (or how adaptable/resilient) are affected people to the impact, or (for positive impacts) how important is it to them? This might depend on the value they attach to the matter; whether it is rare/unique or replaceable; the extent to which it is tied to their identity; and their capacity to cope with or adapt to change.
Level of concern/interest	How concerned/interested are people? Sometimes, concerns may be disproportionate to findings from technical assessments of likelihood, duration and/or intensity.

Source: DPIE 2021

Table 5.3 Defining magnitude levels for social impacts

Magnitude level	Meaning
Transformational	Substantial change experienced in community wellbeing, livelihood, infrastructure, services, health, and/or heritage values; permanent displacement or addition of at least 20% of a community.
Major	Substantial deterioration/improvement to something that people value highly, either lasting for an indefinite time, or affecting many people in a widespread area.
Moderate	Noticeable deterioration/improvement to something that people value highly, either lasting for an extensive time, or affecting a group of people.
Minor	Mild deterioration/improvement, for a reasonably short time, for a small number of people who are generally adaptable and not vulnerable.
Minimal	Little noticeable change experienced by people in the locality.

Source: DPIE 2021

Assessment of social impacts is complex and as such requires the balancing of a range of factors and, often competing, interests. The impact assessment is reflective of this and has:

- assessed some aspects of the proposed project as both negative and positive as they relate to different groups of people;
- included potential negative impacts on local communities while documenting the benefits to the broader region;
- considered the potential impacts on vulnerable groups and provided management strategies to ensure that any existing disadvantages are not exacerbated; and
- considered each community's access to critical resources, such as housing and health care, and how this affects their resilience.

Potential social impacts have been assessed based on the change to, or the perceived change to, the social and biophysical environment as understood through the project and SIA field study program (see Chapter 4). These include positive social impacts and negative social impacts.

Potential negative social impacts have been assessed in the absence of any social mitigation measures (referred to as 'unmitigated' impacts below) and then have been assessed based on the successful implementation of the proposed social mitigation measures (referred to as 'mitigated' impacts below).

Similarly, potential positive social impacts have been assessed in the absence of any additional social enhancement measures (referred to as 'un-enhanced' impacts below) and then have been assessed based on the successful implementation of the proposed social enhancement measures (referred to as 'enhanced' impacts below).

The following data and information have been used to identify the potential impacts and their associated risks:

- data collected as part of the social baseline;
- findings from SIA field study and EIS engagement activities;
- academic research;
- relevant previously conducted SIAs; and
- relevant government and agency reports.

A social impact workshop was conducted on 10 September 2021 to assess potential impacts using a social risk framework.

The complexity of the project required the social risk assessment to consider the degree to which the existing waste management facility, operational for approximately 20 years, impacted on the community, notably odour and traffic. Distinguishing these impacts from those potentially associated with the proposed ARC project within the Eco Precinct site required the SIA to consider both the current operations and the potential impacts of the ARC project.

5.3 Accessibility impacts

This section provides a detailed assessment of the unmitigated and mitigated potential accessibility impacts and the matters that significantly impact accessibility as a consequence of the project. The matter assessed is capacity and availability of short-stay accommodation during the construction phase of the project. The assessment also considered how people access local infrastructure and local services, specifically accommodation services.

5.3.1 Unmitigated – accessibility impacts related to capacity and availability of short-stay accommodation

Construction for the project will require a peak workforce of 300 personnel, with much of the workforce expected to be sourced from the Goulburn region. For the construction phase Veolia will encourage contractors to adopt a preferential hiring approach to prioritise the employment of workers with relevant skills from the local area, then regional area, followed by hiring outside of these areas (where feasible and practical). However, the low unemployment rate in the local area (3.5%) and regional area (5.6%) (ABS 2016a) and potential skills shortages (see Section 3.3), may pose barriers for local hiring. Therefore, workforce shortages or circumstances where skilled or specialised roles are unavailable in the local and/or regional area would result in external hiring. This would require accommodation of non-local construction workforce personnel in the local and regional area. This has the potential to impact the capacity and availability of rental accommodation and short-stay accommodation services within the local and regional area.

Rental trends show there is not a prominent rental market in the local and regional area (see Section 3.5), with vacancy rates in the regional area demonstrating that there is an undersupply of rental housing in the regional area (SQM Research 2021). This is further supported by housing tenure data, where renting as a form of tenure is low in the local and regional area (9.8% and 22.8% respectively) when compared to greater NSW (31.8%) (ABS 2016a). Searches on realestate.com.au in June 2021 found that there was only one rental property available in the local area, and 56 rental properties available in the regional area. As a result, there is potential that there will be limited capacity in the local rental market to accommodate the construction workforce. However, this will need to be reassessed when preparing for the construction phase. If the local rental market is inundated due to demand from the project-related construction workforce, there is potential that rental housing scarcity will increase, and rental affordability will decrease. This would introduce significant issues for housing stability in the local and regional areas, especially for residents who may not be able to afford increased rent payments. This is a particular concern for vulnerable populations who would be unable to find alternative housing due to low or unstable incomes, health and mental health issues and unstable employment (Thomas & Hicks 2010).

In the circumstance where the workforce would be sourced from outside of the local area, accommodation for the construction phase would likely rely on a combination of short-stay accommodation and the local rental market. During the SIA field study, a service provider representative reported that various new accommodation facilities have been established in the local area. Prior to COVID-19, short-stay accommodation within the regional area was reportedly frequently at capacity and often underserviced during busy periods, particularly during local shows and tourism events. As of August 2021, one hotel is located within the local area in Tarago SSC, with an additional 31 short-stay accommodation options in the regional area (including hotels, motels, caravan parks etc, but not including private home rentals). Tourism Research Australia occupancy rates for short-stay accommodation within Capital Country, which encompasses the local and regional area was reported at 48%, which demonstrates current capacity within the local and regional area (Austrade 2020). However local accommodation services may be strained during busy periods.

Unmitigated, the potential accessibility impact of placing pressure on the local rental market and accommodation services due to the construction workforce is assessed as Medium. Without social mitigation measures in place, the likelihood of impact is possible. If rental prices are increased as the project workforce utilises rental housing in the local area and tenants are evicted or unable to afford rental costs, vulnerable residents may experience housing instability or may be required to relocate. However, given the limited timeframe of the project construction phase, the magnitude of the impact of the impact is assessed as moderate. A summary of the assessment is provided in Table 5.4.

5.3.2 Mitigated – accessibility impacts related to capacity and availability of short-stay accommodation

It is proposed that Veolia develop a workforce housing strategy prior to construction that assesses the housing and accommodation environment and identifies and addresses potential accommodation and rental market pressures in the local and regional area. Where the construction workforce is unable to be hired locally and will need to be relocated, it is proposed that Veolia assess all housing and accommodation options within the regional area. If there is a lack of capacity, Veolia and construction contractors should consider a layered approach to accommodating the construction workforce, including a combination of rental housing, short-stay accommodation in the Goulburn region, and additional accommodation (if necessary) in nearby regional centres or cities, such as Bungendore or Canberra, where there would be additional accommodation options.

With successful development and implementation of the proposed workforce housing strategy and its mitigation measures, potential accessibility impacts related to capacity and availability of short-stay accommodation remain Medium. The likelihood of the social impact remains as possible. Negative consequences would be reduced to minor as the proposed workforce housing strategy would identify the need for additional accommodation early allowing for the provision of alternate housing options for the construction workforce. A summary of the assessment is provided in Table 5.4.

Table 5.4 Accessibility impacts related to capacity and availability of short-stay accommodation

Social impact	Issue	Affected parties	Duration	Extent	Unmitigated	Mitigated
Accessibility	Accessibility related to capacity and availability of short-stay accommodation.	Short-stay accommodation providers; and general population within 1 hour drive project area.	Short term – construction phase	Local area and regional area	Medium (negative)	Medium (negative)

5.4 Community impacts

This section provides a detailed assessment, unmitigated/mitigated and unenhanced/enhanced, of the potential community impacts and the matters that significantly impact community as a consequence of the project. The matters assessed are:

- community connectedness, resilience and investment;
- community character; and
- lack of trust and negative perceptions of Veolia.

5.4.1 Unenhanced – community impacts related to connectedness, resilience and community investment

Currently, Veolia invests and works collaboratively with the community through the Community Liaison Committee (CLC) and Veolia Mulwaree Trust. The Community Liaison Committee was established in 1998 to further develop the relationship between Veolia and the community and allows for Veolia to be advised of community perceptions, concerns on relevant issues and activities, and promote community awareness and involvement in matters concerning the Woodlawn Eco Precinct. The Veolia Mulwaree Trust distributes funds to not-for-profit community groups and organisations, community projects and scholarships. Sponsorships are open to stakeholders and community groups located in:

- Goulburn Mulwaree Council;
- Upper Lachlan Shire Council;
- Oberon Council;
- Wingecarribee Shire Council;
- Wollondilly Shire Council;
- Shoalhaven City Council; and
- Queanbeyan-Palerang Regional Council.

Organisations can apply for grants for projects aimed at producing community benefits, promoting sustainability, and improving their capacity. The most recent funding from the Veolia Mulwaree Trust was awarded to local rural fire brigades, service clubs, sporting groups and community services (Veolia 2021a). Furthermore, two scholarships have been established: the Veolia Creative Arts Scholarship Program and the Veolia Mulwaree Trust Academic Scholarships. Veolia also provides scholarships through partnerships with educational institutions throughout New South Wales.

The SIA field study found a strong sense of social cohesion and connectedness in the local community, with residents valuing their community and history. Nearby neighbours value the support and cohesion within the community and their meeting places, such as local shows and halls. Social cohesion is reflected in volunteering rates, with 26.9% of persons in the local area having done voluntary work in the last 12 months compared to 18.1% in NSW. This demonstrates a strong willingness of people to help one another (ABS 2016a). This was confirmed during the SIA field study, where stakeholders identified volunteerism, social connection and community support within the community as a strength.

To date Veolia has supported the community with over $12M in grants, which has been distributed to 1,400 projects to enhance local facilities, education, and the environment (Veolia 2021a). Lack of trust and negative perceptions (see Section B.1.1 and Section 5.4.5) has led to the belief amongst some participants that Veolia does not contribute enough to the local community, which undermines the community investments made through the Veolia Mulwaree Trust. This sentiment is further exacerbated by several nearby neighbours who felt that the negative impacts, such as odour and road safety, outweigh any positive contributions Veolia makes within the local community. There was concern that the process for applying for funding is lengthy, which can deter some people from engaging in the process. As a result, participants in the SIA felt more should be done by Veolia to identify the needs of the community and be proactive about their community development and investments. Despite this expressed lack of trust, stakeholders acknowledged and valued Veolia's community contributions.

Unenhanced, the likelihood of community benefits related to community connectedness, resilience and community investment in the local community is possible as the community currently expresses that they experience a high level of community connectedness. Furthermore, Veolia has invested in and contributed to the local area since the establishment of the Veolia Mulwaree Trust. Without enhancement measures the positive consequence is moderate due to the short-term nature of this benefit, and the anticipated improvements to the liveability of the local area. Therefore, the unenhanced benefit to the community is assessed as Medium. A summary of the assessment is provided in Table 5.5.

5.4.2 Enhanced – community impacts related to connectedness, resilience and community investment

To enhance the benefits associated with Veolia's community contributions, it is recommended that investment and community development be prioritised in the local area and tailored to the social needs of the community. Through the established Community Liaison Committee, there is potential to activate and establish shared value initiatives that address community need and further promote business opportunities (Shared Value Project 2021) (see Appendix B.1.4). Utilising the experience, resources, and innovation of the private sector to address the key social issues within a community has the potential to create significant long-term benefits for a range of groups and individuals. Ongoing investments should aim to contribute sustainable benefits to the community, maximise positive business outcomes and support the process of maintaining a social license to operate (Shared Value Project 2021).

There is an opportunity for Veolia to elevate their existing approach to the community investment program by moving from a grants-based approach (see Section 5.4) to a community needs approach along with the project's requirements and available resources. Implementation would include collaboration with the Community Liaison Committee and broader community thus adopting a shared value approach. An existing example of Veolia using a shared value approach is their partnership with Engineering Aid Australia, which aims to encourage Indigenous secondary school students going into years 11 and 12 to consider a career in engineering. This approach can be extended to other areas that simultaneously address community needs, take advantage of existing company assets and expertise, and promote business opportunities.

Examples of shared value opportunities for the project could include:

- further developing the Community Liaison Committee to meet on a regular (ie monthly) basis to promote active engagement and communication between Veolia and the community and actively identify additional community investment opportunities;
- reviewing and tailoring scholarships to focus on benefitting youth within Tarago and/or vulnerable populations in the local area with a focus on sustainability and energy recovery; and
- engagement with nearby neighbours (see Chapter 7 of the EIS) to address their concerns and identify localised opportunities to offset local impacts and ensure they experience benefits associated with the project.

Successful implementation would require Veolia to actively work with the community to identify needs. This could be informed by directly engaging and collaborating with interested residents and stakeholders to help inform investment decisions. Direct engagement and collaboration would encourage community connectedness, resilience and community investment as well as develop transparency and improve trust. Further development of the Community Liaison Committee to support stakeholders wanting to submit applications for community development projects and programs through the Veolia Mulwaree Trust would improve relationships and capacity and build trust. The proposed enhancement measures would require ongoing monitoring and feedback from stakeholders to ensure benefits are experienced.

The significance of enhanced community benefits related to community connectedness, resilience and community investment is assessed as Very High. The proposed enhancement measures, if successfully adopted, would increase the likelihood of positive impacts associated with community investment to almost certain, with the positive magnitude assessed as major. A summary of the assessment is provided in Table 5.5.

Table 5.5 Community impacts related to connectedness, resilience and community investment

Social impact	Issue	Affected parties	Duration	Extent	Unenhanced	Enhanced
Community	Community connectedness, resilience and community investment.	Residents of the local area.	Long term (life of the project)	Local area	Medium (positive)	Very high (positive)

5.4.3 Unmitigated – community impacts related to community character

The SIA field study found participants were concerned the community character was perceived negatively by others. Service provider workshop participants felt the Bioreactor at the Woodlawn Eco Precinct creates negative associations for the local community, and this was perceived to deter people from relocating to the local area. This was perceived to influence community character, which refers to aspects of place, people, and area that are unique to a town, with characteristics that distinguish the community from surrounding locations. The Bioreactor is unique to the area and a recognisable characteristic that participants felt does not reflect the community character. This is a pre-existing issue related to the Woodlawn Bioreactor rather than a concern for the project.

The project intends to introduce an energy recovery facility to the Woodlawn Eco Precinct, which has the potential to reduce negative perceptions within and about the local community, given that it is a high technology waste management process with fewer impacts than landfill.

An existing Veolia energy recovery facility in Staffordshire, United Kingdom has increasingly been accepted by the community since beginning operation, despite residential properties being located within 1 km of site, with zero complaints received from 2019–2020 (Veolia 2020; Veolia 2021b). The Staffordshire Energy Recovery Facility has been in operation since 2014 and is recognised as a benefit to the local community due to environmental and sustainable contributions towards waste management and energy production (Staffordshire City Council 2019). This suggests that over time positive associations may be achieved by the project due to sustainability benefits to both waste management and energy production.

The NSW EPA has established strict environmental standards that energy recovery facilities in NSW must meet to ensure emissions are below levels that pose a risk to air quality, communities and human health (NSW EPA 2021). Furthermore, processes for energy recovery facilities are proven to be safe, highly regulated and must meet international best practice techniques (Nottingham Health Action Team 2005; Phoenix Energy 2014; WSP Environment 2013; NSW EPA 2021).

The likelihood of community impacts related to community character as a consequence of the project are very unlikely, as the perceptions are already existing and are associated with the Bioreactor and the Woodlawn Eco Precinct which have been operational for nearly 20 years. The magnitude of the impact is minimal. Given this the significance of the unmitigated potential impact is assessed as Low.

5.4.4 Mitigated – community impacts related to community character

To mitigate the potential impacts related to community character, it is proposed that Veolia communicates the project benefits in terms of sustainable energy consumption and sustainability. The significance of the mitigated potential impact remains Low as the impacts related to community character are associated with operations at the existing Woodlawn Bioreactor. The likelihood remains unlikely and the negative magnitude minimal.

Table 5.6 Community related to community character

Social impact	Issue	Affected parties	Duration	Extent	Unmitigated	Mitigated
Community	Community related to community character.	Residents of the local area.	Long term (life of the project)	Local area	Low (negative)	Low (negative)

5.4.5 Unmitigated – community impacts related to lack of trust and negative perceptions of Veolia

The Woodlawn Eco Precinct has been operating within the local area since 2004 after Veolia (then Collex) purchased the Woodlawn property in 2001. Veolia has been present within the community for 20 years through the development of the Woodlawn Eco Precinct and its operations which comprise integrated waste management operations, energy recovery technologies and energy generation.

Tarago has a strong farming history, with many nearby residences detailing their tenancy and farming activities dating back to World War II. Many nearby neighbours have been residents and farmers in the area for 10–70+ years and are familiar with the context of the local area prior to the development of the Woodlawn Eco Precinct. Some stakeholders who participated in the SIA communicated a lack of trust in Veolia resulting from a perceived lack of open communication and responsiveness to their concerns related to the Bioreactor. Participants in the SIA reported experiencing significant impacts from the Bioreactor, such as odour and traffic, and felt that Veolia has not sufficiently addressed local community concerns.

Veolia has several mechanisms in place to engage with the local community and address concerns regarding the Woodlawn Eco Precinct, such as the Community Liaison Committee, dedicated feedback telephone line and email address. Veolia has also made efforts to improve odour management, as described above. Despite these efforts, which the local residents who participated in the SIA believe are insufficient, the lack of trust and perceived absence of transparency have influenced a general opposition and hesitancy towards the project from those involved in the study, particularly amongst those most directly impacted by odour.

Often with proposed energy recovery facility projects there are negative perceptions which can derive from a perceived lack of trust and distributional fairness (ARUP 2020; Lonati, Cambiaghi & Cernuschi 2018). There was a strong sentiment by nearby neighbours who participated in the SIA field study that operation of the Bioreactor has been a detriment to the local community with minimal benefits. Whilst many nearby neighbours acknowledged the contributions and community investment made by Veolia (see Section 4.3.1iv), they have been overshadowed by negative impacts and perceived lack of transparency experienced by local residents.

Interviews confirmed a strong sentiment in the community that the issue of odour will never be resolved, which instils frustration and lack of trust amongst community members. Noxious or offensive odours are reported to be a frequent cause of complaint for local communities and often lead to negative perceptions of SSD projects which can impact relationships between the proponent and the local community (Department of Environment and Heritage Protection 2014). The possibility of continued odour within the community could further diminish Veolia's relationship with nearby neighbours and the community as well as exacerbate negative perceptions of the odour and perceived health impacts.

Unmitigated, the likelihood of community impacts arising from a lack of trust and negative perceptions of Veolia (specifically relating to the project) is likely as some community stakeholders have expressed concerns about the project. Without mitigation measures, the magnitude is assessed as moderate as the perceived lack of trust and transparency felt by nearby neighbours pre-exists the project and relates to the Woodlawn Eco Precinct more broadly. Therefore, the significance of the unmitigated potential impact is assessed as High. A summary of the assessment is provided in Table 5.7.

5.4.6 Mitigated – community impacts related to lack of trust and negative perceptions of Veolia

Improved communications and public engagement can mitigate negative perceptions and lack of trust often felt by communities located nearby energy recovery facilities (Lonati, Cambiaghi & Cernuschi 2018). It is recommended that Veolia further invests in addressing current issues, specifically odour, raised by nearby neighbours to demonstrate their concerns are being properly considered. This should involve communication of what Veolia is currently doing to address odour, including provision of regular air quality monitoring, reporting of odour management and communicating outcomes to the community. Communication processes should be consistent and assessed at regular intervals to ensure communication is effective and appropriate. Administering regular community pulse surveys would allow Veolia to assess the community's awareness of project-related data and information. This transparency of operations could build trust and foster better relationships with the local community.

Given the potential impacts resulting from a lack of trust and transparency, greater transparency around project related operations would build trust and reduce angst in the community. Nearby neighbours advised they would like to have more consultation with Veolia. A more active and transparent community engagement program is proposed which includes community partnership models where appropriate and practical. This could include incorporating regular meetings with nearby neighbours into Veolia's existing community and stakeholder engagement strategy to mitigate concerns and promote transparency, thereby enhancing communication between Veolia and the local community to improve trust levels.

Mitigated, the significance of potential social impact is assessed as Low. With successful implementation of the proposed mitigation measures, the likelihood of the impact is reduced to unlikely, with the negative magnitude reduced to minimal. A summary of the assessment is provided in Table 5.7.

Table 5.7 Community related to lack of trust and negative perceptions of Veolia

Social impact	Issue	Affected parties	Duration	Extent	Unmitigated	Mitigated
Community	Community impacts related to lack of trust and negative perceptions of Veolia.	Local residents.	Long term (life of the project)	Local area	High (negative)	Low (negative)

5.5 Decision making systems

This section provides a detailed assessment of the unmitigated/mitigated potential decision-making impacts and matters that might impact decision-making systems as a consequence of the project. The matter assessed is mistrust of state government decision making. The assessment also considers the extent to which the local community have a say in decisions that have the potential to affect their lives.

5.5.1 Unmitigated – decision making systems impacts related to approvals process for State significant development

A common perception raised during SIA field study activities was that the project will be approved despite concerns raised by the local community. SIA field studies found that there is some lack of trust within the local community due to negative perceptions of decision-making systems, given stakeholders' previous experiences with planning and approvals processes for other SSD. Residents in the local community uphold a strong NIMBY sentiment, which is common within communities who have experience with proposed SSD projects. A common sentiment associated with the project was that it is unfair for large developments to be proposed locally which only provide benefits to other regions, namely Sydney. Nearby neighbours who participated in the SIA field study felt that the project will only provide economic benefits for Veolia, the state government, and metropolitan areas. This sentiment was held despite the NSW Government assessments, planning and approvals processes for SSD stringent requirements established to prioritise community and environmental needs.

Unmitigated, the significance of mistrust of the decision-making systems for SSD is assessed as High. The likelihood of social impacts deriving from mistrust of the decision-making systems is likely, whilst the negative magnitude is moderate due to potential impacts lasting for the life of the project. A summary of the assessment is provided in Table 5.8.

5.5.2 Mitigated – decision-making systems impacts related to approvals process for State significant development

Impacts and mitigation measures concerning a lack of trust in the approvals process for SSD fall under the responsibility of the State government rather than under the project itself. Although it is the responsibility of the State government to address the community's lack of confidence in State decision making systems, there is potential for Veolia to increase their own trust with the local community, as discussed in Section 5.4.5. This can be achieved by Veolia actively working with the community and adopting transparent and open communications. By increasing trust and engagement there is potential to reduce the community's hesitancy towards engaging meaningfully with decision-making systems. Mistrust is an underlying issue that has existed prior to the project due to the community's previous experiences with SSD as well as their planning and approvals processes. Therefore, the assessed significance of the potential impact associated with mistrust of the approvals process for State Significant Development remains as High. A summary of the assessment is provided in Table 5.8.

Table 5.8 Summary of livelihood related to approvals process for State Significant Development

Social impact	Issue	Affected parties	Duration	Extent	Unmitigated	Mitigated
Decision-making systems	Decision making systems impacts related to approvals process for State significant development.	Local residents.	Long term (life of the project)	Local area	High (negative)	High (negative)

5.6 Health and wellbeing

This section provides a detailed assessment, unmitigated/mitigated and unenhanced/enhanced, on the potential health and wellbeing impacts and the matters that may impact health and wellbeing as a consequence of the project. The matters assessed are:

- odour;
- stack emissions and air quality; and
- public safety related to haulage routes on local roads.

5.6.1 Unmitigated – health and wellbeing impacts related to odour

Odour was raised as a significant concern by nearby neighbours who reported odour impacts from current operations at the Woodlawn Eco Precinct. Participants in the SIA were concerned that the project would exacerbate the existing odour issue. Currently, odour impacts amenity and health for several affected residents who reported that odour is prevalent when driving to Tarago, and within their homes. It was described as 'intrusive'. Disrupted sleeping patterns and soreness in the throat was perceived by a number of those who participated in SIA engagement to be a result of odour. Of the 17 respondents who commented on odour in the community survey, 14 respondents rated odour as a negative or very negative potential impact.

A study which investigated odour and waste treatment centres (ie both landfilling and composting facilities) found that sleep disruptions and a sore throat can be experienced by those living nearby a waste treatment centre (Aatamil et al 2011). Such symptoms are most likely derived from stress and annoyance relating to experiencing odour rather than odour perception (Aatamil et al 2011) (see Section B.1.1). These odour impacts associated with landfills are consistent with the impacts identified by nearby neighbours related to the current operation of the Bioreactor. During the SIA field study, there was a perception amongst nearby neighbours that the project could contribute odour impacts, based on their previous experiences with odour.

Veolia currently has grievance mechanisms in place to address odour concerns associated with the Woodlawn Eco Precinct, which includes a dedicated phone line. Whilst stakeholders acknowledged Veolia's odour grievance mechanisms are in place, nearby neighbours felt that it is stressful and frustrating to engage with the odour management line and commit to odour diaries. As a result, several stakeholders felt deterred from engaging with Veolia's existing grievance mechanisms, which further contributes to their stress and frustration.

People with pre-existing mental health conditions may also experience heightened stress as a consequence of odour (Houghton et al 2019). Data collected by NSW Health and Australian Institute of Health and Welfare (AIHW) provides insight into mental health within the local area and demonstrates that there is a higher proportion of patients living within the local and regional area who access GP, allied, and specialist mental health services which suggests higher rates of mental health related issues (see Section A.10 in Appendix A). Continued exposure to odour as a consequence of the existing operations may incur or exacerbate existing mental health conditions for those living in the local area due to annoyance and stress.

The air quality impact assessment (AQIA) undertaken for the project by EMM found that the project will not exacerbate odour (see Appendix K of the EIS). This conclusion was derived from dispersion modelling of emissions, including odour, from all existing Woodlawn Eco Precinct operations and the project.

According to the AQIA, all assessment locations are below the strictest odour impact assessment criterion of 2 odour units for both existing and future operations. Relative to existing operations at the Eco Precinct, the addition of the ARC does not increase the predicted odour for future operations. As described in the AQIA, additional engines are approved for the Bioenergy Power Station to accommodate future increases in the landfill gas capture rate, consistent with Veolia's ongoing commitment to reduce odour impacts from the Eco-Precinct (EMM 2020b).

Veolia will implement best practice mitigation and management measures proposed in the AQIA (see Appendix K of the EIS) and set out in the description of the Woodlawn Eco Precinct Odour Management Strategy described in Section 4.3.1.a. Therefore, potential impacts concerning health and wellbeing related to odour will most likely derive from existing operations of the Woodlawn Eco Precinct which will not be further exacerbated by the project, and will hopefully improve due to Veolia's mitigation measures.

As the project is proposed at the Woodlawn Eco Precinct, where the odour is an existing issue for stakeholders, it is almost certain that local residents will continue to experience odour impacts and associated stress related to the existing conditions. In addition, the current lack of trust may make them reluctant to accept the findings of the AQIA. The magnitude of the impact is assessed as moderate. The significance of unmitigated potential health and wellbeing impacts from odour is assessed as High with consideration to local residents' continued experience of odour. A summary of the assessment is provided in Table 5.9.

5.6.2 Mitigated – health and wellbeing related to odour

Veolia will implement a range of air pollution emission mitigation technologies and practices to minimise air pollutant emissions from the project, including odour. The project will include a fully enclosed tipping hall where waste feedstock is received by truck from the Crisps Creek IMF. It will be equipped with automatically operated fast closing doors for truck entry and exit to minimise escape of odour. During operations the tipping hall will be maintained under negative air pressure, with air from the hall being drawn into the furnace. The tipping hall will also be equipped with an odour extraction and treatment system for use when the furnace is not operating. The combination of negative pressure and fast closing truck bay doors will minimise the potential for release of odour to the environment (EMM 2021b). Provision has also been made for an external container handling area. In this location any containers containing waste would remain sealed, until they are transported inside the tipping hall for unloading into the waste bunker. Consequently, this area should not generate any odour emissions (EMM 2021b).

In addition to the mitigation measures proposed in the AQIA (EMM 2021b), Veolia is implementing the Woodlawn Odour Management Strategy that is described in Section 4.3.1.a. This is regularly updated through expert input as well as community feedback and the results from the landfill gas monitoring program. The strategy includes routine odour audits, upgrade of landfill gas capture infrastructure, trials of odour treatment technology and regular updates through multiple mediums to the community on odour management initiatives. This would meet the request received from one nearby neighbour during the SIA who felt there would be value in Veolia monitoring odour and other emissions outside of the project site and within the community, with outcomes clearly and regularly communicated to the community. As there is a perceived lack of trust within the community (see Section 5.4.5), specifically amongst nearby neighbours, it is proposed that Veolia's existing community and stakeholder engagement strategy continues frequent reporting as well as clear and transparent messaging concerning odour.

Grievance mechanisms are established to ensure development proponents are held accountable as they set expectations that community concerns will be addressed (IFC 2009). To mitigate stress and concerns raised by stakeholders regarding Veolia's grievance mechanism, it is proposed that community inputs are taken into consideration and are addressed with clear and transparent processes, communication, and action (IFC 2009). Initiation of proactive communication with local communities, transparent and community understanding of processes and decisions can improve a grievance mechanism (IFC 2009). Such measures can enhance the quality of a grievance mechanism, improve trust, and promote mutually respectful relationships between project proponents and the community whereby they operate (IFC 2009). Therefore, it is proposed that Veolia addresses community concerns raised during field studies to improve the complaints process. This should be facilitated in collaboration with nearby neighbours to determine the best outcome for registering complaints to ensure that community concerns are addressed. An effective grievance mechanism where nearby neighbours feel like their concerns are being addressed has potential to reduce feelings of stress and annoyance.

Mitigated, the significance of this potential social impact is assessed as Medium. As odour is an existing issue derived from the Woodlawn Eco Precinct and is unlikely to change due to this project. However, the air quality impact assessment has included a full assessment of odour to improve understanding and provide full transparency. With the adoption of the proposed mitigation measures, the magnitude of the potential impact can be reduced to minimal as there will be little noticeable change experienced as a result of the project. A summary of the assessment is provided in Table 5.9.

Table 5.9 Summary of health and wellbeing related to odour

Social impact	Issue	Affected parties	Duration	Extent	Unmitigated	Mitigated
Health and wellbeing	Health and wellbeing related to odour.	Nearby neighbours and those experiencing odour in the local area.	Long term (life of the project)	Local area	High (negative)	Low (negative)

5.6.3 Unmitigated – health and wellbeing impacts related to stack emissions and air quality

Well-designed and regulated operating energy recovery facilities have been found to pose very low risks to human health, with minimal evidence denoting that energy recovery facilities cause illnesses (Nottingham Health Action Team 2005; Phoenix Energy 2014; WSP Environment 2013). Veolia operates more than 65 energy recovery facilities globally to international best practice standards.

Veolia will implement a range of air pollution emission mitigation technologies and practices to minimise air pollutant emissions from the project. For the ERF process, these measures include:

- fully enclosed tipping hall with fast-action roller doors and negative pressure extraction to minimise odour emission release;
- the injection of NH_3 in the post-combustion chamber to control NO_x emissions;
- the injection of hydrated lime to neutralise acid gas formation;
- the injection of activated carbon to adsorb dioxins/furans and other contaminants including heavy metals;
- diversion of all flue gas through a baghouse containing fabric filter bags to remove particulates (as APCr); and
- the handling and processing of IBA material within a semi enclosed building.

As described in the AQIA, the European Union Industrial Emissions Directive (IED) 2010/75/EU (Integrated Pollution Prevention and Control) *Best Available Techniques Reference Document for Waste Incineration* (Neuwahl et al 2019) documents best available techniques (BAT) for the management of environmental impacts, including air pollution, from the energy from waste industry (EMM 2021b). A review of proposed mitigation measures for the project relative to BAT was undertaken, with the review highlighting that the project is well aligned with BAT for the control of air pollutant emissions (EMM 2021b). Veolia commits to the implementation of a comprehensive continuous emissions monitoring system (CEMS) in accordance with the requirements of the NSW EPA EfW Policy and will establish real-time ambient air quality monitoring stations upwind and downwind of the Eco Precinct (EMM 2021b).

The SIA found that some survey participants were concerned about project related emissions and how they impact local air quality. People with asthma and other respiratory conditions are more vulnerable to the effects of air quality. Within the regional area, prevalence of asthma was significantly above the state average (Section 3.4.1), and hence there are likely to be some sufferers in the surrounding community.

A Human Health Risk Assessment (HHRA) was conducted in accordance with national guidelines, with a focus on an assessment of exposures that may occur as a result of emissions to air from the proposed ARC (Environmental Risk Sciences 2021). The HHRA concluded that all risks to human health from inhalation exposures and from multi-pathway exposures are considered negligible. Furthermore, the HHRA concluded that emissions from the ARC would have a negligible impact on:

- water quality in rainwater tanks used for drinking water;
- recreational water quality within Lake Bathurst and Lake George; and
- grains and other similar crops grown in the area (Environmental Risk Sciences 2021).

Project operations will be strictly regulated by the NSW EPA. The NSW *Energy from Waste Policy Statement* (2021) (EfW Policy Statement) states that any energy recovery facility in NSW must meet current international best practice techniques to ensure emissions are below levels that pose a risk to communities.

The unmitigated significance of potential health and wellbeing impacts due to stack emissions and air quality is assessed as Low. Based on previous studies concerning energy recovery facilities and findings from the AQIA and human health risk assessment, it is very unlikely that social impacts will arise due to stack emissions and air quality impacts. If health impacts were to occur due to stack emissions and air quality, the magnitude of these are anticipated to be moderate due to only affecting a small group of people. A summary of the assessment is provided in Table 5.10.

5.6.4 Mitigated – health and wellbeing related to stack emissions and air quality

The HHRA assessed the project to have a negligible risk to human health (Appendix O of the EIS). Under the NSW EfW Policy Statement, Veolia is required to provide air quality data from project operations in real time or near real time. Therefore, it is important that Veolia ensures their chosen method of reporting air quality data is effective, transparent and accessible to the local community. Frequent communication and monitoring of impacts can help mitigate concerns raised by the local community as well as develop trust with the community. Mechanisms that are proposed at the project site, such as the CEMS, should be communicated to the community to demonstrate the efforts made by Veolia to ensure that stack emissions are addressed, and air quality is managed. EMM's AQIA also put forward recommendations for Veolia to consider and ensure that best practice and outcomes for air quality and emissions are achieved (see Appendix N of the EIS). A comprehensive air quality management plan, addressing the CEMS and management procedures in response to recorded concentrations, will be developed following approval of the project and prior to the commencement of operations.

The mitigated significance of potential health and wellbeing impacts due to stack emissions remains as Low. A summary of the assessment is provided in Table 5.10.

Table 5.10 Summary of health and wellbeing related to stack emissions and air quality

Social impact	Issue	Affected parties	Duration	Extent	Unmitigated	Mitigated
Health and wellbeing	Health and wellbeing related to stack emissions and air quality.	Local residents	Long term (life of the project)	Local area	Low (negative)	Low (negative)

5.6.5 Unmitigated – public safety related to primary haulage route on local roads

Waste feedstock for the project will be transported from the Crisps Creek intermodal facility (IMF) in Tarago to site via Bungendore Road and Collector Road, in accordance with current approvals. The project does not require any increase to the approved annual input rate of waste for the Woodlawn Eco Precinct.

Participants in the SIA expressed serious concern for public safety given the current conditions of the roads, specifically Tarago-Bungendore Road, which was reflected in the community survey with 14 out of 18 respondents rating traffic as a negative or very negative potential impact. Project-related traffic and perceived poor conditions of the roads were consistently raised as a concern and identified as a vulnerability within the local area during the SIA field study. Specific concerns were raised about public safety, including apprehension that project-related truck movements may further deteriorate road conditions. Stakeholders felt that Tarago Road and Bungendore Road are currently unsuitable for heavy vehicle traffic due to narrow lanes and single lane roads. Multiple nearby neighbours recounted experiences of dangerous driving from heavy vehicles, such as driving in the middle of the road and material spillage.

Currently, Veolia's primary haulage route is limited to an 8.5 km route from the Crisps Creek IMF to site via Bungendore Road and Collector Road. One crash (moderate injury) was recorded on the haulage route, with no crashes recorded on Collector Road between 2015–2019 (EMM 2021c). The TIA concluded that the haulage from Crisps Creek IMF has a good traffic safety record and that key roads are operating within service and traffic standards (EMM 2021c). For current operations at the Woodlawn Eco Precinct, a transport code of conduct is in place to minimise impacts on the local and regional road network. Veolia also contribute to both Goulburn Mulwaree Council and Queanbeyan-Palerang Regional Council for maintenance of sections of Bungendore Road and Tarago Road as well as sections of Collector Road and Bungendore Road that are used for existing operations. As such, through existing operations Veolia is assisting with road quality and safety.

The key traffic impact of the ARC project, over and above currently approved operations, relates to the temporary construction period for the project.

Unmitigated, the significance of potential public safety impacts related to the project's primary haulage route is assessed as Low. With consideration of the TIA, no increase of annual input rates and Veolia's current road safety mitigation methods in place, the likelihood of public safety impacts related to the project's primary haulage route is possible. The negative magnitude is assessed as minimal, as there will little noticeable change experienced by people in the locality due to the project. A summary of the assessment is provided in Table 5.11.

5.6.6 Mitigated – public safety related to primary haulage route on local roads

As the conditions of the road were perceived by participants in the SIA as a significant concern relating to public safety, it is proposed that Veolia continue participating in the Section 94 Contributions Plan as well as liaise with and advocate to the local Councils to ensure that road maintenance is undertaken, and conditions are improved. Additionally, road safety mitigation measures and the transport code of conduct should be utilised for the project to ensure potential public safety impacts related to the project's primary haulage routes are mitigated.

Construction of the project is expected to be undertaken over a period of three years. The Traffic Impact Assessment (TIA) estimated that construction traffic will temporarily reduce the existing road network traffic capacity along Collector Road and Bungendore Road. A reduction in the mid-block capacity level of services (LOS) on both these roads by one LOS category during the peak construction stage is predicted. As this will be a temporary impact, no additional road widening measures are recommended. A detailed Construction Traffic Management Plan (CTMP) will be developed by the construction contractor in consultation with GMC prior to the commencement of works. The TIA also concluded that the operation of the ARC will not adversely affect the existing road network traffic capacity along either Collector Road and Bungendore Road. Hence, no longer term traffic capacity related road improvements will be required (EMM 2021c). Veolia will need to expand its communications to include the local community to manage the current perceptions of local residents.

The mitigated significance of potential public safety impacts related to primary haulage route on local roads remains as Low. Successful engagement and collaboration with Goulburn Mulwaree Council and Queanbeyan-Palerang Regional Council and continuation of road safety mitigations reduces the likelihood to unlikely. The magnitude remains as minimal. A summary of the assessment is provided in Table 5.11.

Table 5.11 Summary of health and wellbeing related to primary haulage route on local roads

Social impact	Issue	Affected parties	Duration	Extent	Unmitigated	Mitigated
Health and wellbeing	Public safety related to primary haulage route on local roads.	Local residents, particularly nearby neighbours and users of the Bungendore-Tarago Roads.	Construction and operation	Local area	Low	Low

5.7 Livelihood

This section provides a detailed assessment, unmitigated/mitigated and unenhanced/enhanced, of the potential livelihood impacts and the matters that impact livelihood as a consequence of the project. The matters assessed are:

- training, apprenticeship, and employment opportunities;
- local procurement;
- decrease in local property value; and
- employment opportunities.

5.7.1 Unenhanced – livelihood impacts related to training, apprenticeship, and employment opportunities

The construction phase of the project will require a workforce of up to 300 personnel. Where possible and practical, Veolia will encourage contractors to hire locally and will invest in apprenticeships at the site. During the SIA field study multiple stakeholders felt there would be benefits associated with training, apprenticeship, and employment opportunities. Service provider representatives in the local and regional area identified opportunities to engage with local services, such as employment and education services, to assist in the provision of apprenticeship, training, and employment opportunities.

Youth retention was recognised as a vulnerability during the SIA field study, with stakeholders perceiving that youth within the local area leave in pursuit of employment and education opportunities which are not available in the local area. This assumption correlates with demographic characteristics, where the local area had a smaller proportion of youth aged 15–24 years (9.1%) when compared to the regional area (11.5%) and NSW (12.5%) (see Section A.4). Often in regional areas it is difficult for younger demographics to attain training and employment opportunities which results in younger people moving from regional areas in pursuit of education and employment opportunities (Department of Regional NSW 2020). The youth unemployment rate was reported at 0.0% in the local area and 11.3% in the regional area which likely reflects the lower proportion of youth population (ABS 2016a). Despite no current youth unemployment in the local area, being recorded at 0.0%, which can be attributed to lower youth population regional area (see Section 3.2), youth living within the regional area would benefit from training, apprenticeship and employment opportunities due to unemployment rates for youth being reportedly higher than unemployment rates in the regional area (5.6%) (ABS 2016a).

Training and apprenticeship opportunities would not only support project construction but could enhance the local workforce's overall capacity and potentially encourage youth retention due to the provision of new opportunities for skilled career pathways. Research demonstrates that engaging young people in regional areas increases their likelihood of staying when they feel like they are able to contribute to the local community (Davie 2015). During the SIA field study, service provider representatives raised potential benefits associated with training and upskilling opportunities. Currently, Veolia sponsors vocational education and training (VET) scholarships and training opportunities at the Goulburn TAFE. Sponsorships are currently limited to agriculture related studies.

Unenhanced, the significance of community benefits related to training and apprenticeship opportunities is assessed as Low. Without enhancement strategies it is possible that training, apprenticeship, and employment opportunities would be minimal due to the lower levels of youth unemployment in the local area and regional area. Therefore, the likelihood of livelihood benefits related to training, apprenticeship and employment opportunities without enhancement measures are unlikely and the positive magnitude of the impact is assessed as minimal due to limited benefits experienced by youth in the community. A summary of the assessment is provided in Table 5.12.

5.7.2 Enhanced – livelihood impacts related to training, apprenticeship, and employment opportunities

To ensure training and apprenticeships are suitable for the local and regional area, it is recommended that apprenticeships and training programs are tailored to the local community and promote skilled employment pathways for the project. There is also opportunity to sponsor the tickets and licenses required for employment in the construction industry, which would enable youth, particularly in the regional area, to gain meaningful employment as well as increase their employability. Benefits associated with livelihood related to training, apprenticeship and employment opportunities can be further enhanced through the implementation of vocational education and training (VET) programs and work experience for schools in the local and regional area. This could encourage pathways to local employment, thereby encouraging youth retention (Johns et al 2004). Research has demonstrated that within regional Australia, school-based early intervention programs and traineeships can improve retention rates (Mission Australia 2006). By establishing training, apprenticeships for youth in the local area there is potential to increase capacity in the local workforce. This can encourage local hiring, which is prioritised for the project construction phase (see Section 5.3.1).

Enhanced, the significance of livelihood benefits related to training and apprenticeship opportunities for youth living in the regional area increases to Medium. Under the assumption that Veolia continues facilitating scholarships and VET programs and promotes transitions for apprentices and trainees into long-term stable employment, the likelihood of benefit increases to possible. Positive consequences are increased to moderate, as livelihood benefits in the form of employment may or may not be permanent, with anticipated benefits to both the local and regional economy. A summary of the assessment is provided in Table 5.12.

Table 5.12 Summary of livelihood related to training, apprenticeship, and employment opportunities

Social impact	Issue	Affected parties	Duration	Extent	Unenhanced	Enhanced
Livelihood	Livelihood related to training, apprenticeship, and employment opportunities.	Unemployed youth	Construction	Regional area	Low (positive)	Medium (positive)

5.7.3 Unenhanced – livelihood impacts related to local procurement

The project construction phase has the potential to create opportunities for businesses and services within the local and regional area, primarily in Goulburn, to secure new contracts and increase sales to supply and service the needs of the project (AEC 2019). Local procurement could also enable flow-on economic impacts, which would be realised in the regional area, specifically Goulburn where majority of the workforce is anticipated to be located. The SIA field study found that workforce associated with operations at the Woodlawn Eco Precinct have contributed to local services in Tarago, such as the service station, through the purchasing of local goods. However, trades, transport and businesses services will most likely benefit from flow-on effects (AEC 2019).

The likelihood of livelihood benefits related to local procurement and local purchasing of goods and services is still almost certain as the project workforce is intended to be accommodated in Goulburn, whilst positive consequence would be moderate as there would be some value to society through contracts, increase in sales and support for local and regional communities, specifically for Goulburn. These benefits will occur during both the construction phase and for the operational life of the project. Therefore, the significance of the unenhanced benefit has been assessed as High. A summary of the assessment is provided in Table 5.13.

5.7.4 Enhanced – livelihood impacts related to local procurement

To maximise local procurement benefits derived from the project it is recommended that Veolia engages with local services and the Goulburn Chamber of Commerce to establish relationships between the project and businesses within the community. Wherever possible and practical, it is recommended that Veolia works with their construction contractors, the Goulburn Chamber of Commerce, local businesses, and the local community to prioritise the use of local goods and services. Further it is recommended that Veolia encourages the project workforce, particularly during the construction phase, to support and contribute to the local and regional community through local spending.

If the project procures goods and services from the local area and engages with the Goulburn Chamber of Commerce, local businesses and the local community to encourage local spending, the enhanced livelihood benefit related to local procurement is assessed as Very High. The likelihood remains as almost certain, with the positive magnitude being major due to the economic benefits being highly valued and affecting many people in a wide area, whilst being limited to the construction phase of the project. A summary of the assessment is provided in Table 5.13.

Table 5.13 Summary of livelihood impacts related to local procurement

Social impact	Issue	Affected parties	Duration	Extent	Unenhanced	Enhanced
Livelihood	Livelihood related to local procurement.	Businesses	Construction and operations	Regional area	High (positive)	Very high (positive)

5.7.5 Unmitigated – livelihood impacts related to decrease in property value

Energy recovery facility projects are often opposed by local communities due to perceptions that energy recovery facilities devalue nearby properties (Han, Laurian, & Hee Go 2020). This was raised as a common concern by nearby neighbours, who felt that odour and proximity of the project to their residences would impact on their property value. Nearby neighbours felt that odour detracts from their local environment and property, with fears that if odour is still present as a consequence of the project, they will not be able to sell their properties at a reasonable price.

Median property price trends within the regional area demonstrate that housing prices have been on a general increase between 2012–2020 (see Section A.7.4ii). Given that the Woodlawn Eco Precinct has been operating since 2004 and will continue for the foreseeable future, and that the ARC is unlikely to result in additional odour impacts, then property prices will most likely remain consistent with current trends.

Energy recovery facility projects are often met with fear by communities due to perceptions that such developments produce negative emissions and health risks, which can reduce demand for housing in surrounding areas (Han, Laurian & Hee Go 2020). Studies have confirmed that energy recovery facility projects do not depreciate local property values and that any impact on land prices is insignificant (Han, Laurian & Hee Goo 2020). These concerns are related to perceptions as opposed to actual impact as there will be no exacerbated effects from odour as a consequence of the project, property value depreciation is an existing issue in the community associated with fears about energy recovery facilities (see Section 5.7.7).

The project is not anticipated to generate additional odour and impact on property values, hence the significance of potential livelihood impacts related to decrease in property value is assessed as Low. The likelihood of nearby properties experiencing devaluation is very unlikely, with the negative magnitude assessed as minimal. A summary of the assessment is provided in Table 5.14.

5.7.6 Mitigated – livelihood related to decrease in property value

The SIA field study found that nearby neighbours were concerned about the project impacting local property value. However, research demonstrates that energy recovery facilities do not impact property prices, with any impacts mostly associated with fears and lack of awareness surrounding energy recovery facilities (Han, Laurian & Hee Goo 2020). Therefore, it is proposed that Veolia adopt mitigation measures that address community fears and concerns surrounding energy recovery facilities (see Section 5.8.1). As the project is not anticipated to impede on local property values, given that project operations are not anticipated to compound odour, the significance of potential livelihood impacts related to decrease in property values remains Low. A summary of the assessment is provided in Table 5.14.

Table 5.14 Summary of livelihood related to decrease in property value

Social impact	Issue	Affected parties	Duration	Extent	Unmitigated	Mitigated
Livelihood	Livelihood related to decrease in property value.	Local residents	Long term (life of project)	Local area	Low (negative)	Low (negative)

5.7.7 Unenhanced – livelihood impacts related to employment opportunities

The project proposes 40 employment opportunities during the operation phase. During the SIA field study, stakeholders felt that there was a lack of opportunities for skilled employment in the local area, as well as general employment opportunities for skilled occupations. Veolia prioritises local hiring, with 57% of the Woodlawn Eco Precinct workforce residing in Goulburn and 18% residing in Tarago. The remaining 25% reside in the regional area and surrounds.

According to ABS data, the main qualification attained in the local area and regional area are certificates for those aged 15 years and over (33.9% and 38.8% respectively), which is higher than NSW (29.7%) (ABS 2016a). The three main occupations are managers (23.5%), technicians and trades workers (17.9%) and professionals (16.3%) (ABS 2016a). The higher proportion of managers in the local area is likely attributed to the prevalence of agriculture, forestry and fishing industry, as farmers comprise the largest share of managers across Australia (approximately 12%) (National Skills Commission 2021). However, the local and regional area unemployment rates (3.5% and 5.6% respectively) are lower than NSW (6.3%), (ABS 2016a).

The SIA field study identified a shortage of employment opportunities for skilled employment. The project would benefit the local area by providing employment pathways for skilled careers as well as offer additional career pathway opportunities. Stakeholders who participated in the service provider workshops felt that an increase in skilled employment opportunities in the local area would improve youth retention (see Section 5.6.5). Survey respondents identified that the project employment would be a positive impact with 11 out of 18 respondents rating employment as a positive or very positive impact.

Unenhanced, the benefit from increased local employment during the operation of the project is assessed as Low. The likelihood of livelihood benefits related to ongoing and increased employment is likely with anticipated minimal positive consequences given the low unemployment rate and mild improvements for a small number of people who are generally adaptable and not vulnerable. A summary of the assessment is provided in Table 5.15.

5.7.8 Enhanced – livelihood impacts related to employment opportunities

It is proposed that Veolia, where possible, maintain the local hiring practices adopted for the Woodlawn Eco Precinct for the project. Representatives of employment and education services, during the SIA field study service provider workshops, advised that there would be benefits associated with establishing partnerships to ensure employment opportunities are guaranteed for the local and regional community. Therefore, to enhance livelihood benefits associated with employment opportunities it is recommended Veolia engage with local employment services and maintain prioritising local hiring. To enhance benefits associated with livelihood and employment opportunities, Veolia could actively work to secure permanent employment for youth in the local area, specifically those involved in the recommended training and apprenticeship opportunities (see Section 5.7.1). There is potential for Veolia to leverage their existing partnerships with regional universities to encourage student placements and internships during the project's operation phase.

Enhanced, the significance of livelihood benefits related to regional investment and local employment opportunities remains as Low. A summary of the assessment is provided in Table 5.15.

Table 5.15 Summary of livelihood related to employment opportunities

Social impact	Issue	Affected parties	Duration	Extent	Unenhanced	Enhanced
Livelihood	Livelihood related to employment opportunities.	Residents (specifically workers with relevant experience and skills)	Long term (life of the project)	Local and regional area	Low	Low

5.8 Way of life impacts

This section provides a detailed assessment of the unmitigated/mitigated potential way of life impacts as a consequence of the project. The matter assessed is fears about energy recovery facility technology.

5.8.1 Unmitigated – way of life impacts related to fears about energy recovery facility technology

A lack of understanding of energy recovery facility technologies can perpetuate fear and negative views within local communities (Lonati, Cambiaghi & Cernuschi 2018; Yuan et al 2019). The SIA field study found respondents, particularly nearby neighbours, were not familiar with technology associated with energy recovery facilities and felt they had received minimal consultation or information about the project, which contributed to their overall opposition to the project. Fears were also raised about the perceived air quality and potential human health impacts of the project (see Section 4.3.1ia and Section 5.6.2). This was exacerbated by a lack of trust felt by nearby neighbours towards Veolia (see Section 5.4.5).

Energy recovery facilities involve converting residual waste, that would otherwise be turned to landfill, into energy such as heat, fuel and energy (Veolia 2021d). The processes behind energy recovery facilities are highly regulated and proven to be safe. Veolia operates 65 energy recovery facilities internationally, possessing the expertise to safely deliver technologies to create energy from waste. The NSW EPA is in support of energy recovery technology where such technologies deliver positive outcomes for the community and do not impede on human health and air quality, as stated in the *Energy from Waste Infrastructure Plan 2041* (2021).

Fear, conflict and community resistance is common in the context of proposals for energy recovery facilities (Yuan at al 2019). Fear and an unacceptance of energy recovery facilities is often derived from poor public awareness and understanding of energy recovery technologies (Lonati, Cambiaghi & Cernuschi 2018; Yuan et al 2019). Lack of understanding, social acceptance and misinformation surrounding energy recovery facilities poses significant risks to projects (Lonati, Cambiaghi & Cernuschi 2018; Yuan et al 2019). Misinformation surrounding new technology often derives from the internet, which is commonly used to source information about new technologies (Burcin & Ince 2010) and can often be where inaccuracies about technologies are disseminated (Burcin & Ince 2010). Clear communication about project-related technology and processes is critical to avoid sensationalising information and ensuring properly informing the community about the project. A perception that nearby communities may be adversely impacted by energy recovery facilities can impede on local residents' way of life due to stress, anxiety and fears concerning the unknown of energy recovery technology.

Unmitigated, the significance of potential way of life impacts related to fears about energy recovery technology is assessed as High. The likelihood of way of life impacts related to fears about energy recovery facilities is almost certain, with the negative magnitude assessed as moderate as misinformation about the project has the potential to create fear in the community for the life of the project. A summary of the assessment is provided in Table 5.16.

5.8.2 Mitigated – way of life impacts related to fears about energy recovery facility technology

To ensure that fears and negative perceptions of waste to energy technology are mitigated, it is proposed that Veolia continues and enhances its engagement with the community and communicates the processes and technology involved. Research demonstrates that successful implementation of effective community and stakeholder engagement strategies can mitigate concerns and risks associated with community fears that may adversely impact a community's way of life (Lonati, Cambiaghi & Cernuschi 2018). This is evident in South Korea and China, where community concerns and fears about energy recovery technologies were mitigated through transparent consultation processes and effective community engagement, which ultimately led to frictions being minimised and greater public acceptance (Hana, Laurian & Hee Goc 2020; Liu et al 2018). Peer reviewed research concerning energy recovery technology emphasise credibility for energy recovery facilities. Time is also an indirect mitigation measure which can address fears, as over time, local communities become aware and more familiar with energy recovery technologies. This is believed to have occurred at Veolia's Staffordshire Energy Recovery Facility in the United Kingdom, which is located nearby the village of Calf Health (see Section 5.4.3).

The successful implementation of a community and stakeholder engagement strategy that promotes clear and transparent communication related to energy recovery facilities would reduce the significance of impacts relating to way of life resulting from fears surrounding energy recovery facilities to Low. The likelihood of social impacts from fear associated with energy recovery technology would be unlikely, given that energy recovery technology is highly regulated and safe. Therefore, the negative consequence is reduced to minor. A summary of the assessment is provided in Table 5.16.

Table 5.16 Summary of way of life impacts related to fears concerning energy recovery facility technology

Social impact	Issue	Affected parties	Duration	Extent	Unmitigated	Mitigated
Way of life	Way of life related to fears about energy recovery facility technology.	Residents of the local area	Long term (life of the project)	Local area	High	Low

5.9 Cumulative impacts

There are several concurrent SSD projects operating or intended to operate in and around the study area. These projects may contribute cumulative impacts in addition to those anticipated as direct consequences of the project. A summary of SSD projects which may contribute cumulative impacts, as identified through the NSW DPIE Major Projects website, including workforce forecasts in construction and operational phases, is given in Table 5.17. Workforce numbers identified as 'NA' are either not available or not expected to further contribute concurrently to the project and are not included in the cumulative population impacts below.

Table 5.17 Concurrent development projects

LGA	Project name	Anticipated timeframe/ project life	Development type	Status	Construction workforce	Operational workforce
Goulburn Mulwaree	Goulburn Poultry Processing Mixed Use Development	NA	Livestock	Response to Submissions	88	264
Goulburn Mulwaree	Marulan Quarry	18 years	Extractive industries	Prepare EIS	10	10
Goulburn Mulwaree	Gunlake Quarry Continuation Project	30 years	Extractive industries	Assessment	NA	70
Goulburn Mulwaree	Marulan Solar Farm	Construction to commence 2022 to be fully operational by 2023	Electricity generation – solar	Prepare EIS	200	5
Goulburn Mulwaree	Jerrara Power Energy from Waste Facility	Withdrawn	Waste collection, treatment and disposal	Withdrawn		
Goulburn Mulwaree	Marulan South Limestone Mine Continued Operations Project	30 years	Extractive industries	Determination – 19 August 2021	NA	191
Queanbeyan-Palerang	Blind Creek Solar Farm	30 years	Electricity generation – solar	Exhibition	300	5
Queanbeyan-Palerang	New High School in Bungendore	NA	Educational establishments	Response to Submissions	110	NA

Source: DPIE 2021, Major Projects.

A total of seven active SSD projects which are within 50 km of the project and not yet operational were identified within the study area, consisting of five in Goulburn Mulwaree LGA and two in Queanbeyan-Palerang Regional LGA. Of these projects, two are currently preparing EIS, one is on exhibition, one is under assessment, two are responding to submissions and one has been determined.

The two main development types identified are extractive industries and electricity generation (solar). Three extractive industries SSDs and two electricity generation SSDs were identified, highlighting the strong mining and quarrying presence in the study area, as well as the expanding electricity generation industry. It is anticipated that these projects will likely require a similar construction and operational workforce to the project, which is also defined as an electricity generation development. This may cause potential impacts on the availability of skilled workforce in the local area, requiring additional project workforce to be sourced from outside the local and regional areas. Other development types within the study area include minerals mining, educational establishments, livestock, and hospitals.

The potential of a non-resident and relocating workforce from the concurrent developments may contribute to the cumulative impacts in the local area. This may result in impacts on the capacity and availability of local service providers, accommodation providers and traffic. According to DPE Major Projects (2022) there are currently five SSDs undergoing planning and approvals process with timeframes that overlap with the construction and operation phase of the project which may further contribute to the cumulative impacts particularly associated with traffic and pressures on local services. However, potential cumulative benefits may also be associated with the high number of SSD projects in the local area, such as increased employment and economic opportunities for local businesses and suppliers.

Local construction and general labour workforce availability may also be impacted by these concurrent developments. This may result in a shortage of workers which would increase the need for drive-in-drive-out workers which would exacerbate pressures on accommodation and housing. However, there is potential for an increase in local job availability supported by a number of SSDs to drive industry growth in the local area and the region.

The operation phase of the project will result in approximately 40 full-time jobs. The known operational workforce associated with SSD projects in the study area (including the project) is expected to be approximately 650 employees. The demand for skilled operational workforce in key sectors may increase the likelihood of cumulative socio-economic impacts relating to increased pressures on social infrastructure, services, and housing locally and regionally. However, a high demand for long-term operational workforce within the local area has the potential to create economic benefits, as well as general growth and relocation in the local area which can support the local and regional community.

5.9.1 Amenity

Potential cumulative impacts to local amenity during project construction and operation phase may occur due to the number of SSD projects in the local area, as well as the proximity of projects to residential areas and towns. A key issue that was raised during the SIA field study was the impact on amenity caused by noise from nearby operational windfarms. It is recommended that Veolia liaises with proponents of the proposed projects in the local and regional area to address potential amenity impacts from a cumulative perspective and minimise the potential collective impact. Other potential amenity impacts could arise from dust accumulation from an increase of truck movements, especially during construction phases as well as noise caused by project machinery and traffic.

5.9.2 Traffic and public safety

Traffic was raised as a key issue during the SIA field study in relation to concurrent projects and developments in the local area. Additionally, the large number of developments were perceived to contribute to cumulative impacts related to traffic and road degradation of Tarago Road and Bungendore Road within the local area, as these projects are expected to require frequent truck movements to transport product from the project sites.

Many stakeholders felt that local roads are unable to accommodate increased truck movements due to their conditions. As a result, it is imperative that local roads are properly maintained to prioritise public safety (discussed further in Section 5.6.5). The TIA has assessed cumulative impacts associated with traffic and surrounding projects and provides further detail concerning traffic impacts from concurrent developments in the regional area (see Appendix N of the EIS).

5.9.3 Services

Local socio-economic growth associated with local projects and development can increase the need for funding and presence of local social and health services due to increased pressures and demand from workforces of the concurrent SSDs. Population and community growth associated with the proposed SSDs workforces may increase demand for more schools, childcare facilities, hospitals, specialists, and recreational activities, as well as more general social, health, emergency, and community services.

A potential cumulative benefit of the large number of local projects is related to significant combined community contribution, economically and otherwise.

5.9.4 Rental housing

In March 2021, the vacancy rate of the local area was below 3.0% (1.2%) suggesting the rental market in the local area is tight, consistent with the low number of properties available to rent and low proportion of rented dwellings (ABS 2016).

Increased demand for skilled workforce and trades skills more generally, may arise with the construction and operation of concurrent SSD projects. This may cause potential impacts on the availability of skilled workforce in the local area, requiring additional project workforce to be sourced from outside the local and regional areas, which may increase demand on rental housing within the local and regional areas (further discussed in Sections 5.3.1 and 5.3.2).

This has significant potential consequences for persons currently at risk of financial hardship, housing instability and homelessness, particularly in the context of COVID-19, which has further contributed to increased rents and lower rental availability in regional areas of Australia, including the Goulburn Mulwaree area, due to migrations from urban centres to more regional and rural areas (Anglicare 2021, Goulburn Post 2021). Commitments to local hiring, provision of training and apprenticeship opportunities for local workers, and partnership with local employment and training services could reduce the need for outsourcing of workers.

6 Mitigation and management

This section provides a summary of the identified potential social impacts along with the corresponding perceived stakeholder risk rankings and mitigated technical risk rankings. In addition, key potential stakeholder partners have been identified to participate in the monitoring and management of impacts, along with a range of proposed social impact mitigation and management strategies. Note that not all potential impacts will be the responsibility of the proponent to mitigate or manage, their role may be to cooperate or inform the mitigation, provide data and information, through to direct responsibility for mitigation and management of the identified potential social impacts and the opportunity for partnerships. A summary is provided in Table 6.1.

This section also provides a monitoring and management framework. The proposed mitigation, management and monitoring can be used to develop a social impact management plan.

Table 6.1 Social management and mitigation measures

Impact/risk/aspect	ID	Assessment of social impact without mitigation	Mitigation measure	Timing	Residual social impact and nature of impact
Way of life – capacity and availability of short-stay accommodation	SOC1	Medium	Veolia will work with construction contractors to prepare an accommodation strategy for the construction workforce which will set out the approach to accommodating the construction workforce. It will consider a combination of rental housing, short-stay accommodation in the Goulburn region, and additional accommodation (if necessary) in nearby regional centres or cities, such as Bungendore or Canberra.	Pre-construction	Medium
Community – community connectedness, resilience and community investment	SOC2	Medium	It is recommended that investment and community development be prioritised in the local area and tailored to the social needs of the community. Through the CLC, there is potential to disseminate information on the project including benefits and shared value initiatives to address community needs and further promote business opportunities. Veolia will seek to refresh the structure, organisation and objectives of the CLC with the goal of meeting these plans. Veolia has invested heavily in the Mulwaree Trust to assist community focused projects. This tool for interconnectedness and social resilience will continue during and after the construction of the ARC. Education of the project will continue post approval to ensure the Woodlawn ARC and the Woodlawn Eco Precinct form a showpiece of sustainable development in the region. This will include site tours and education events to increase community understanding.	Pre-construction	Very high (positive)
Community – community character	SOC3	Low	Veolia will implement a project specific communications program which will, amongst other things, communicate the project benefits in terms of sustainable energy production and sustainable waste management.	Pre-construction	Low

Table 6.1 Social management and mitigation measures

Impact/risk/aspect	ID	Assessment of social impact without mitigation	Mitigation measure	Timing	Residual social impact and nature of impact
Community – lack of trust and negative perceptions of Veolia	SOC4	High	It is recommended that Veolia further invests in addressing current concerns raised by nearby neighbours, specifically odour, to demonstrate that these concerns are being actively addressed. This could involve communication of what Veolia is currently doing to address odour, including provision of regular air quality monitoring, reporting of odour management, and communicating outcomes to the community and the NSW Government. Veolia will, as part of its project specific communications plan (referred to above), include a series of ongoing consultation procedures covering both the construction and operational phases of the project. These will include interactive engagement processes and will be integrated with Veolia's existing community and stakeholder engagement strategy.	Construction and operation	Low
Decision-making systems – approvals process for State significant development	SOC5	High	It is the responsibility of the State government to address the community's lack of confidence in State decision making systems. Veolia will continue to communicate to the community the regulatory assessment and decision making process as part of its ongoing community engagement strategy.	Construction and operation	High
Health and wellbeing – odour	SOC5	High	Veolia will implement odour mitigation measures as proposed in the AQIA (Appendix O of the EIS), and as set out by Veolia in communications with the community. Veolia will continue their odour management action plan and grievance mechanisms, with consideration given to increasing consultation, data collection and monitoring outside of the project site within the local community, with outcomes clearly and regularly communicated to the community.	Construction and operation	Low

Table 6.1 Social management and mitigation measures

Impact/risk/aspect	ID	Assessment of social impact without mitigation	Mitigation measure	Timing	Residual social impact and nature of impact
Health and wellbeing – stack emissions and air quality	SOC6	Low	Veolia will communicate with local community members about project-related emissions to promote transparency and ensure residents are kept informed about stack emissions and air quality. Veolia will comply with the requirements of the EfW Policy Statement to make emissions monitoring data available to the EPA in a real time graphical publication. Veolia will make validated emission monitoring data available publicly within 24hrs following the end of a weekday and the following weekday after weekends and public holidays.	Construction and operation	Low
Health and wellbeing – public safety related to primary haulage route on local roads	SOC7	Low	A detailed Construction Traffic Management Plan will be developed by the construction contractor in consultation with Goulburn Mulwaree Council prior to the commencement of construction works and will be made publicly available (Appendix T of the EIS). Veolia will continue participating in its contributions agreements with the local councils as well as liaise with and advocate to the local Councils for road maintenance and improvements. Additionally the transport code of conduct in place should be reviewed and applied to the project to ensure public safety impacts related to the project's primary haulage routes are mitigated.	Construction	Low
Livelihood – training, apprenticeship, and employment opportunities	SOC8	Low (positive)	Veolia, and its construction contractors will establish apprenticeships and training programs that are tailored to the local and regional community and promote skilled employment pathways for the project. Benefits associated with livelihood related to training, apprenticeship and employment opportunities can be further enhanced through the implementation of vocational education and training (VET) programs delivered in regional schools.	Construction and operation	Medium (positive)
Livelihood – local procurement	SOC9	High (positive)	Wherever possible, practical and cost competitive, Veolia and the contractors will prioritise the use of local suppliers of goods and services. Further it is recommended that Veolia encourages the project workforce, particularly during the construction phase, to support and contribute to the local and regional community through local spending.	Construction	Very High (positive)

Table 6.1 Social management and mitigation measures

Impact/risk/aspect	ID	Assessment of social impact without mitigation	Mitigation measure	Timing	Residual social impact and nature of impact
Livelihood – employment opportunities	SOC11	Low (positive)	Veolia will maintain their local hiring practice, as adopted for the Eco Precinct, for this project and continue their partnerships with local and regional employment and education providers. Veolia will explore opportunities to transition trainees/apprentices to permanent work where possible. There is an opportunity to leverage partnerships with educational institutions to encourage student placements, internships, and work experience opportunities which could lead to permanent employment.	Construction	Low (positive)
Way of life – fears concerning energy recovery facility technology	SOC12	High	Veolia will continue to actively engage with the community to communicate about its technology, processes, progress on the project, and monitoring results at the project and at other energy recovery facilities.	Construction and operation	Low

6.1 Monitoring and management framework

It is proposed that a monitoring and management framework be developed to ensure that the identified positive and negative potential social impacts are monitored over time to measure the effectiveness or otherwise of the proposed management measures, including the changing conditions and trends in the Goulburn Mulwaree and Queanbeyan-Palerang regions over the same period.

It is proposed that the monitoring and management framework identifies the following key aspects:

- track progress of mitigation and management strategies;
- assess actual project impacts against predicted impacts;
- identify how information will be captured for reporting to impacted stakeholders including landholders, communities and government on progress and achievements;
- key performance indicators, targets and outcomes;
- responsible parties; and
- mechanisms for ongoing adaption of management measures when required.

To ensure the effectiveness of the management measures for the identified positive and negative impacts, it is recommended that a continuous improvement approach be adopted allowing for the review and adaption of impacts, management measures and outcomes.

An approach that ensures stakeholders from various sections of the community are regularly informed and given the opportunity to participate and collaborate is recommended. This approach is used successfully to manage social impacts from infrastructure operations throughout Australia and around the world.

Veolia's current community and stakeholder engagement strategy includes provisions that provide information and encourage community feedback related to (but not limited to):

- updates on the status and life of the project;
- community investment and community development opportunities; and
- issues related to the current operation of the Woodlawn Eco Precinct.

Veolia's community and stakeholder engagement strategy incorporates a range of communication strategies and opportunities to provide feedback through a variety of channels, including:

- CLC meetings;
- community information sessions (face to face and virtually);
- individual face to face meetings with neighbouring property owners;
- stakeholder briefings;
- project website updates;
- contact channels – dedicated project information number and email;
- newsletters; and
- Tarago times and other local news channels like the Goulburn Post.

This approach ensures that mechanisms for both information dissemination and feedback collection are incorporated. Consideration should be given to aligning a social impact monitoring and management framework within Veolia's existing community and stakeholder engagement strategy.

Acronyms

ABS	Australian Bureau of Statistics
ACARA	Australian Curriculum Assessment and Reporting Authority
ACECQA	Australian Children's Education and Care Quality Authority
AHMAC	Australian Health Ministers' Advisory Council
AHRC	Australian Human Rights Commission
AHURI	Australian Housing and Urban Research Institute
AIHW	Australian Institute of Health and Welfare
AQIA	Air Quality Impact Assessment
ARC	Advanced Energy Recovery Centre
BOCSAR	Bureau of Crime Statistics and Research
C&I	commercial and industrial
CEMS	continuous emissions monitoring system
CESCP	Community Engagement Strategy & Communications Plan
CLC	Community Liaison Committee
CPP	Community Participation Plan
Cr	Councillors
Crisps Creek IMF	Crisps Creek Intermodal Facility
CSP	Tablelands Regional Community Strategic Plan 2016–2036
CTET	College of Transformation, Education, and Training
CWA	Country Women's Association
DAWE	Department of Agriculture, Water and the Environment
DPIE	Department of Planning, Industry and Environment
EfW Policy Statement	NSW Energy from Waste Policy Statement
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMM	EMM Consulting Pty Ltd
EP&A Act	Environmental Planning and Assessment Act 1979
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
EPA	Environment Protection Authority
ERF	energy recovery facility
FYTD	fiscal year-to-date
GP	general practitioner

IAIA	International Association for Impact Assessment
IEO	Index of Education and Occupation
IER	Index of Economic Resources
IFC	International Finance Corporation
IMF	intermodal facility
IRSAD	Index of Relative Socio-Economic Advantage and Disadvantage
IRSD	Index of Relative Socio-Economic Disadvantage
K10	Kessler 10
KJA	Kathy Jones & Associates
LALC	Local Aboriginal Land Council
LEP	*Goulburn Mulwaree Local Environmental Plan 2009*
LGA	Local Government Area
LHD	Local Health District
LSPS	Local Strategic Planning Statement
LTP	Leachate Treatment Plan
MBT	Mechanical Biological Treatment
MSW	municipal solid waste
MW	megawatts
NDIS	National Disability Insurance Scheme
NIMBY	Not In My Backyard
NSW	New South Wales
OSHC	outside of school hours care
PCYC	Police Citizens Youth Club
PES	Post Enumeration Survey
PHN	Primary Health Network
PM	particulate matter
SEARs	Secretary's Environmental Assessment Requirements
SEIFA	Socio-Economic Indexes for Areas
SES	State Emergency Service
SIA	Social impact assessment
SIA Guideline 2021	Social Impact Assessment Guideline for State Significant Projects
SIA Technical Supplement 2021	Technical Supplement: Social Impact Assessment Guideline for State significant Projects
SSC	state suburb classification
SSD	State Significant Development

STE	State/Territory
the Bioreactor	Woodlawn Bioreactor
The Eco Precinct	Woodlawn Eco Precinct
the project	Woodlawn Advanced Energy Recovery Centre
the Regional Plan	*South East and Tablelands Regional Plan*
TIA	traffic impact assessment
tpa	tonnes per annum
VET	vocational and education and training

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Appendix A
Social baseline

EMM
creating opportunities

A.1 Overview

A social baseline study is a requirement of the New South Wales (NSW) Department of Planning, Industry, and Environment's (DPIE 2021) *Social Impact Assessment Guideline for State Significant Projects* (SIA Guideline 2021). The baseline study describes the existing population and social conditions of potentially affected communities within the social impact assessment (SIA) study area which form the benchmark against which the potential social impacts are assessed. A thorough review of all social indicators was undertaken to understand and determine the existing social conditions and trends. This allowed for the differentiation and measurement of the changes that are likely to occur as a consequence of the project compared to those that would occur without the project (IAIA 2015). Accordingly, this social baseline identifies the study area for the Woodlawn Advanced Energy Recovery Centre (the project) and the existing known and predicted social conditions for its community.

A.2 Study area

The project is located in Tarago a state suburb (SSC) within the local government area (LGA) of Goulburn Mulwaree in the Southern Tablelands of New South Wales.

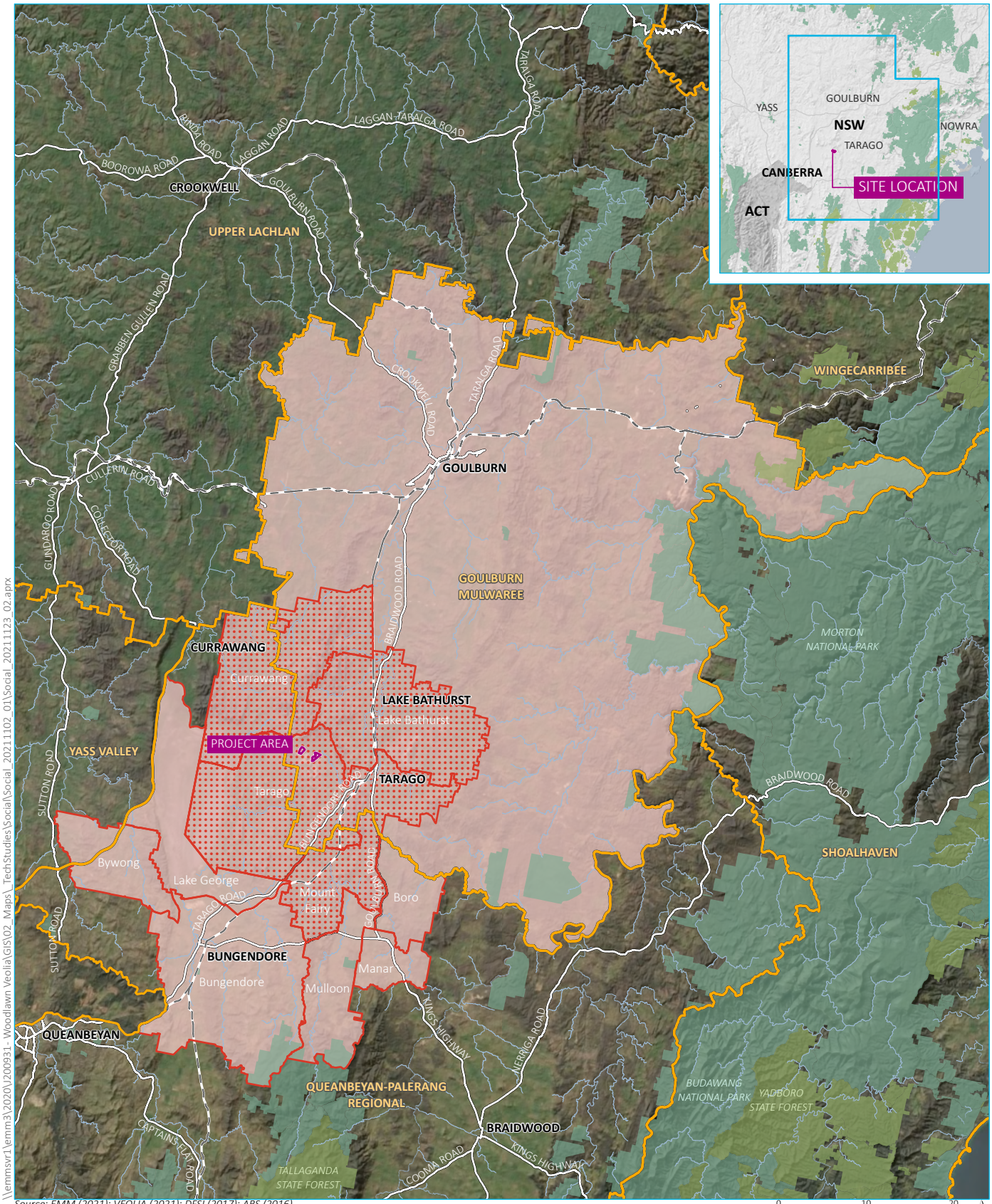
The study area was identified with consideration of the potential local and regional impacts:

- local area: direct and indirect impacts on landowners, residents, and businesses within the vicinity of the project site as well as social infrastructure and services; and
- regional area: impacts and benefits related to workforce, provision of electricity and use of infrastructure, supply chains, haulage routes, transportation of goods, materials and equipment, and cumulative impacts arising from other projects within the area (DPIE 2020).

These communities, that make up the study area, local and regional (hereto referred to as local area or regional area), are shown in Table A.1 and illustrated in Figure A.1. They have been mapped to the Australian Bureau of Statistics (ABS) categories used for data collection.

Table A.1 Study area

Study area	Geographic area	ABS data category	Referred to in report as:
Local study area	Tarago suburb	Tarago SSC	Local area
	Lake Bathurst suburb	Lake Bathurst SSC	
	Currawang suburb	Currawang SSC	
	Mount Fairy suburb	Mount Fairy SSC	
Regional study area	Goulburn Mulwaree Council area	Goulburn Mulwaree LGA	Regional area
	Lake George suburb	Lake George SSC	
	Bungendore suburb	Bungendore SSC	
	Mulloon suburb	Mulloon SSC	
	Bywong suburb	Bywong SSC	
	Boro suburb	Boro SSC	
	Manar suburb	Manar SSC	
State of New South Wales	State of New South Wales	New South Wales STE	NSW



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Source: EMM (2021); VEOLIA (2021); DFSI (2017); ABS (2016)

0 10 20 km

GDA 1994 MGA Zone 55

N

KEY

- Project area
- Local area
- Regional area
- State suburb (ABS)
- Local government area
- Rail line
- Main road
- Watercourse
- Named waterbody
- NPWS reserve
- State forest

Study area

Woodlawn Advanced Energy Recovery Centre
Social impact assessment
Figure A.1

EMM creating opportunities

A.3 Political and planning context

This section provides a summary of the relevant plans and strategies across NSW, Goulburn Mulwaree Local Government Area (LGA), and Queanbeyan-Palerang LGA that inform the social risk assessment and mitigation and management strategies.

A.3.1 Federal

The project is located within the federal electorate of Hume, which is currently represented (in the House of Representatives) by the Hon Angus Taylor MP, member of the Liberal Party. The Hon Angus Taylor MP is the Commonwealth Minister for Energy and Emissions Reduction, responsible for the coordination and implementation of sustainable energy policies for the Australian Government. Relevant federal legislation includes:

- the *Environmental Protection and Biodiversity Conservation Act 1999* administered by the Department of Agriculture, Water, and the Environment (DAWE) that seeks to protect and conserve cultural heritage sites and protected areas of national environmental significance; and
- the *Renewable Energy (Electricity) Act 2000,* administered by the Department of Industry, Science, Energy and Resources.

Of interest is the supportive statement by the Department of Industry, Science, Energy and Resources titled *Technology Investment Roadmap: First Low Emissions Technology Statement 2020,* which outlines the Federal Government's priorities regarding low emission technology investment and supporting economic growth whilst reducing emissions. The statement identifies four visions:

- preserve and create jobs, capture new opportunities and revitalise Australia's regional economies;
- lower household living expenses with abundant, clean and low-cost energy;
- build competitiveness by leveraging our comparative advantages; and
- attract and retain the best minds in priority low emissions technology research fields.

A.3.2 State

The NSW Parliament consists of a Legislative Assembly (lower house) and Legislative Council (upper house). The project is within the NSW State electorate of Goulburn. The current member for Goulburn is Wendy Tuckerman MP of the Liberal Party.

There are a number of State Acts and Regulations which concern the recognition, protection and conservation of cultural heritage sites and protected areas. These include the EP&A Act, *Biodiversity Conservation Act 2016*, *National Parks and Wildlife Act 1974*, *Protection of the Environment Operations Act 1997*, *Heritage Act 1977*, and the *National Parks and Wildlife Regulation 2009*.

DPIE is responsible for administering the EP&A Act and its subordinate legislation and policies.

A.3.3 State strategies and plans

i A 20-Year Economic Vision for Regional NSW, 2018–2038

A 20-Year Economic Vision for Regional NSW 2018–2038 (NSW Government 2018) presents a strategy for Regional NSW that encourages its role as a vibrant and growing part of the NSW economy, and fosters decisions to live in the regions. The vision is organised into five sections that form a pathway to a prosperous Regional NSW. This provides:

- a snapshot of Regional NSW today that presents the current economic and demographic environment, with reference to the thriving agricultural, energy and resources industries, and strong manufacturing, tourism, and services sectors;
- a description of the global forces shaping regional economies, and the implications of these trends;
- means to rise to economic challenges, such as investing in infrastructure, skills, advocacy and promotion, and the business environment;
- a presentation of a bright future for Regional NSW that highlights growth in key sectors, increased regional populations, and supporting infrastructure and services; and
- the current priorities for the NSW Government.

ii Building Momentum: State Infrastructure Strategy, 2018–2038

The *State Infrastructure Strategy 2018–2038* (Infrastructure NSW 2018) sets out Infrastructure NSW's independent advice on the current state of NSW infrastructure, and the infrastructure needs and priorities over the next 20 years. It looks beyond current projects and identifies policies and strategies needed to provide infrastructure to meet the needs of a growing population and economy.

The strategy provides:

- strategic directions: six cross-sectoral strategic directions are incorporated into the strategy to ensure good-practice across infrastructure sectors and throughout infrastructure lifecycles;
- geographic infrastructure directions: the strategy recognises the different opportunities and needs experienced within NSW, Regional NSW, and Greater Sydney and Outer Metro, and outlines geographic-specific approaches for infrastructure planning, investment, and policy; and
- sectors: using the strategic and geographic infrastructure directions, policy and investment strategies are outlined across key infrastructure sectors (ie transport, energy, water, health, education, justice, culture, sport, and tourism).

The State Infrastructure Strategy identifies extractive industries as a key industry in several regions across NSW. Strategic objectives are presented for infrastructure that supports the industry, particularly water and transportation, to ensure its continued economic viability.

iii The South East and Tablelands Regional Plan, 2036

The *South East and Tablelands Regional Plan* (the Regional Plan) (DPE 2017) guides land use planning priorities and decision making in the South East and Tablelands Region over the next two decades. The Regional Plan provides an overarching framework to guide local land use plans, development proposals and infrastructure funding decisions. The implementation component of the Regional Plan includes priority actions and medium-long term actions.

The four key goals for the region as outlined in the Regional Plan are:

7. a connected and prosperous economy;
8. a diverse environment interconnected by biodiversity corridors;
9. healthy and connected communities; and
10. environmentally sustainable housing choices.

The project directly and indirectly supports the achievement of these four goals. The project is consistent with Goal 1, as it provides economic diversification opportunities. The Regional Plan sets a number of 'directions' for each goal. The project is consistent with Direction 6, 'position the region as a hub of renewable energy excellence'. The Regional Plan also includes priorities for individual councils to guide further investigation and implementation. Priorities for Goulburn Mulwaree include:

- build capacity and self-sufficiency to create a resilient community;
- support the resources, transport, health, and tourism sectors to facilitate employment and economic growth; and
- grow existing businesses by establishing networks and providing information to business owners and business groups.

The project will contribute to these priorities through providing additional employment opportunities and supporting use of local goods and services through industry procurement and spending at local establishments.

A.3.4 State guidelines

i SIA Guideline 2021

a Social Impact Assessment Guideline for State Significant Projects,

The SIA Guideline (DPIE 2021a) provides direction on assessing impacts arising from SSD projects in the context of the environmental impact assessment process under the EP&A Act. In this guideline, SIA is the process of identifying, predicting, evaluating and developing responses to the social impacts of a proposed SSD project which requires proportionate and tailored assessment to suit each project's context and the nature and scale of its potential impacts and benefits.

The SIA Guideline 2021 requires that all State significant projects have a clear and consistent approach to assessing social impacts. The SIA Guideline 2021 builds upon the SIA Guideline 2017 which applies to State significant resource projects. The SIA Guideline 2021 aims to:

- build higher levels of community understanding of projects;
- help proponents to understand what is required to meet the department's expectations;
- give stakeholders and the community confidence that their concerns and perspectives are being considered early in the assessment;
- reduce project risks and costs related to unplanned or reactive management of social impacts;
- create better proponent-community relations and more socially sustainable outcomes;
- streamline assessments by reducing departmental requests for more information; and
- better integrate the SIA and Environmental Impact Assessment (DPIE 2021a).

The SIA Technical Supplement 2021 accompanies the SIA Guideline 2021 to provide specific methods and techniques for the identification and assessment of social impacts and benefits (DPIE 2021b).

b Undertaking Engagement Guidelines for State Significant Projects (Undertaking Engagement Guidelines 2021)

The *Undertaking Engagement Guidelines 2021* (DPIE 2021c) describes the requirements for effective engagement on State significant projects in NSW. The *Undertaking Engagement Guidelines 2021* outlines the actions the DPIE will take, identifies opportunities for community participation, and outlines requirements for proponents. It emphasises early planning and engagement, effective engagement, proportionate engagement, innovation, and transparency. The primary audience of this guideline is proponents and their teams, who are responsible for engaging with the community and other stakeholders during each phase of the environmental assessment. These guidelines also provide the community and other stakeholders with a better understanding of how, when and on what they can provide feedback, and how it will be addressed by proponents and decision-makers.

The *Undertaking Engagement Guidelines 2021* outlines specific requirements for engagement for all phases of the planning approvals process, including:

- scoping of the EIS;
- preparation of the EIS;
- EIS exhibition and responding to submissions;
- assessment and determination;
- post-approval; and
- during modifications.

A.3.5 Local

The project is located in Goulburn Mulwaree LGA which has the highest proportion of directly impacted stakeholders. The project also has the potential to impact stakeholders within Queanbeyan-Palerang LGA. The plans and strategies supported by local government are representative of the needs of local communities and identify strategies and opportunities to further improve the liveability and resilience of these communities, which could be affected by the project. A summary of the relevant Mayors and Councillors (Cr) is provided in Table A.2 and Table A.3.

Table A.2 Councillors, Goulburn Mulwaree Council, 2021

Role	Councillors	
Mayor	Cr Bob Kirk	
Deputy Mayor	Cr Peter Walker	
Councillors	Cr Alfie Walker	Cr Andrew Banfield
	Cr Carol James	Cr Denzil Sturgiss
	Cr Leah Ferrara	Cr Margaret O'Neill
	Cr Sam Rowland	

Table A.3 Councillors, Queanbeyan-Palerang Regional Council, 2021

Role	Councillors	
Mayor	Cr Tim Overall	
Deputy Mayor	Cr Michele Biscotti	
Councillors	Cr Brian Brown	Cr Mark Scweikert
	Cr Trudy Taylor	Cr Trevor Hicks
	Cr Kenrick Winchester	Cr Peter Marshall
	Cr Pete Harrison	Cr Radmila Noveska

Goulburn Mulwaree Council and Queanbeyan-Palerang Regional Council have regional and strategic plans that articulate their vision for the future of their community. These are summarised in Table A.4.

Table A.4 Regional planning context

Plan/strategy	Summary	Responsibility	Timeframe
Social Sustainability Strategy and Action Plan	The Social Sustainability Strategy and Action Plan provides a road-map for Goulburn Mulwaree Council to enhance social sustainability in the community. The Strategy identifies and leverages local social and community asses, aims to strengthen the management of those assets and resources, and integrates them with Council's other planning activity. The Strategy identifies four key roles for Council in the delivery of social sustainability, including leading and advocating; listening, planning and regulating; building relationship, partnerships and capacity; and delivering infrastructure, services and grants.	Goulburn Mulwaree Council	2019–2029
Local Strategic Planning Statement (LSPS)	The Planning Statement is a 20-year vision for land-use in the Goulburn Mulwaree area including visions, objectives, and planning priorities to achieve the broader goals of the community. The LSPS works with the *Tablelands Regional Community Strategic Plan 2016–2036* (CSP) towards all Council planning activities achieving the community's long-term vision and aspirations. It includes 10 planning priorities with short, medium, and long-term goals designed to preserve heritage, character, environment, and space; while continuing to grow and building upon services and facilities the community desires.	Goulburn Mulwaree Council	2020–2040
Goulburn Mulwaree Local Environmental Plan 2009 (LEP)	The LEP outlines zoning and land use planning regulations, and development standards.	Goulburn Mulwaree Council	2009–present
Community Participation Plan (CPP)	The CPP outlines how the community can participate in the planning and approvals system, designed to make participating in planning matters simpler for community members. The "… [Goulburn Mulwaree] Council recognises that community participation is an integral part of making transparent and well-informed planning decisions".	Goulburn Mulwaree Council	2019–present
The Tablelands Regional Community Strategic Plan 2016–2036 (CSP) (Cardno 2016)	The CSP encompasses Goulburn Mulwaree Council, Upper Lachlan Shire Council, and Yass Valley Council. The CSP is a joint venture between the three councils, based on consultation with each areas' communities. The CSP identifies priorities and expectations of the communities for the next 20 years and outlines plans and strategies to achieve them.	Goulburn Mulwaree Council, Upper Lachlan Shire Council, Yass Valley Council	2016–2036
Community Engagement Strategy & Communications Plan (CESCP) (Cardno 2017)	The CESCP is a follow up document from the CSP which outlines the engagement strategy developed "… to allow Council staff, Councillors, stakeholders, and community members to be active participants in the development of an innovative Regional CSP in line with the NSW [Integrated Planning and Reporting Framework]" (Cardno 2017).	Goulburn Mulwaree Council, Upper Lachlan Shire Council, Yass Valley Council	

Table A.4 Regional planning context

Plan/strategy	Summary	Responsibility	Timeframe
Queanbeyan-Palerang Regional Economic Development Strategy	The objective of the Queanbeyan Palerang Economic Development Strategy is "to support economic development for social advancement across the community". The Strategy elements were derived from an analysis of the endowments that underpin the Region's strengths, followed by examination of current industry specialisations and emerging specialisations, identified in consultation with the community and councils. The strategic elements include: 1. improve the digital connectivity to harness the innovative capacity of the workforce; 2. re-establish the town centres as 'Places for People'; 3. grow the population and internal markets of the region; and 4. further develop specialised agriculture and food and cultural tourism.	Queanbeyan-Palerang Regional Council	2018–2022
Queanbeyan-Palerang Community Strategic Plan	The Community Strategic Plan is a high-level aspirational plan which identifies a community's main priorities and aspirations for the future and identifies the strategies for achieving these. It also sets out the community's long term 'Vision' for their region. The Community Strategic Plan identifies five Strategic Pillars to guide strategic priorities. The five Strategic Pillars are: community, choice, character, connection, and capability.	Queanbeyan-Palerang Regional Council	2018–2028

A.4 Demographic profile

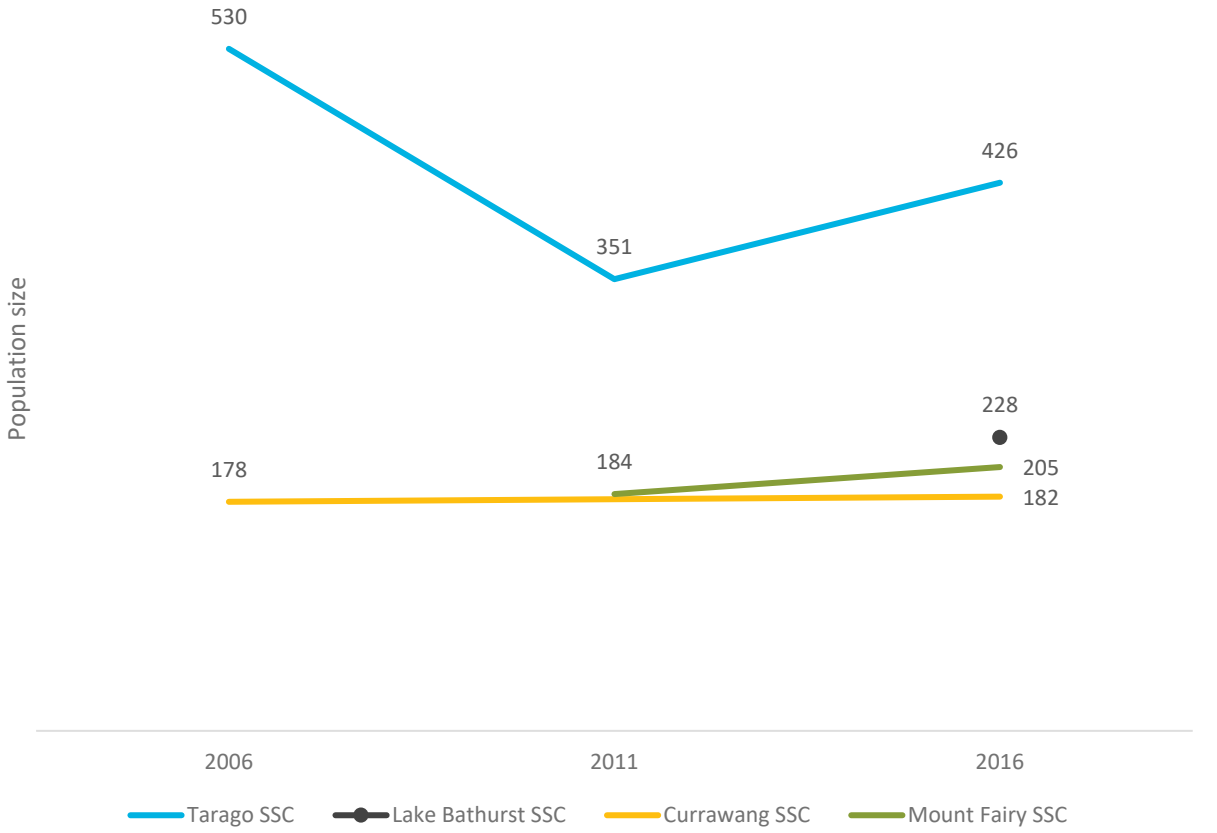
According to the 2016 Census of Population and Housing, the local area had a total population of 1041, including a population of 426 in Tarago SSC, 228 in Lake Bathurst SSC, 182 in Currawang SSC, and 205 in Mount Fairy SSC (ABS 2016a). The smaller population size within the local area may reflect the limited number of services available (see Section A.4). The regional area had a 2016 population of 35,768 (ABS 2016a). Population data was not available for 2006 and 2011 across the SSCs in the local area due to changing ABS structures. As a result, population trends and analysis may be skewed. However, population trends from the available data of the regional area demonstrate an increasing population, with a 20.5% increase of the total population between 2006–2016. It is anticipated that most of this growth is concentrated in Goulburn within the regional area. The population trends in the study area are presented in Table A.5.

Table A.5 Population trends, 2006–2019

Location	2006	2011	2016	Total % change 2006–2011	Total % change 2011–2016	Total % change 2006–2016
Tarago SSC	530	351	426	-33.8%	21.4%	-19.6%
Lake Bathurst SSC	NA	NA	228	NA	NA	NA
Currawang SSC	178	NA	182	NA	NA	2.2%
Mount Fairy SSC	NA	184	205	NA	11.4%	NA
Local area	**708[1]**	**535[2]**	**1041**	**-24.4%**	**94.6%**	**47.0%**
Regional area	**29,677[3]**	**32,525[4]**	**35,768**	**9.6%**	**10.0%**	**20.5%**
NSW	**6,549,174**	**6,917,656**	**7,480,228**	**5.6%**	**8.1%**	**14.2%**

Source: ABS 2006; ABS 2011; ABS 2016a, Census of Population and Housing: General Community Profiles.

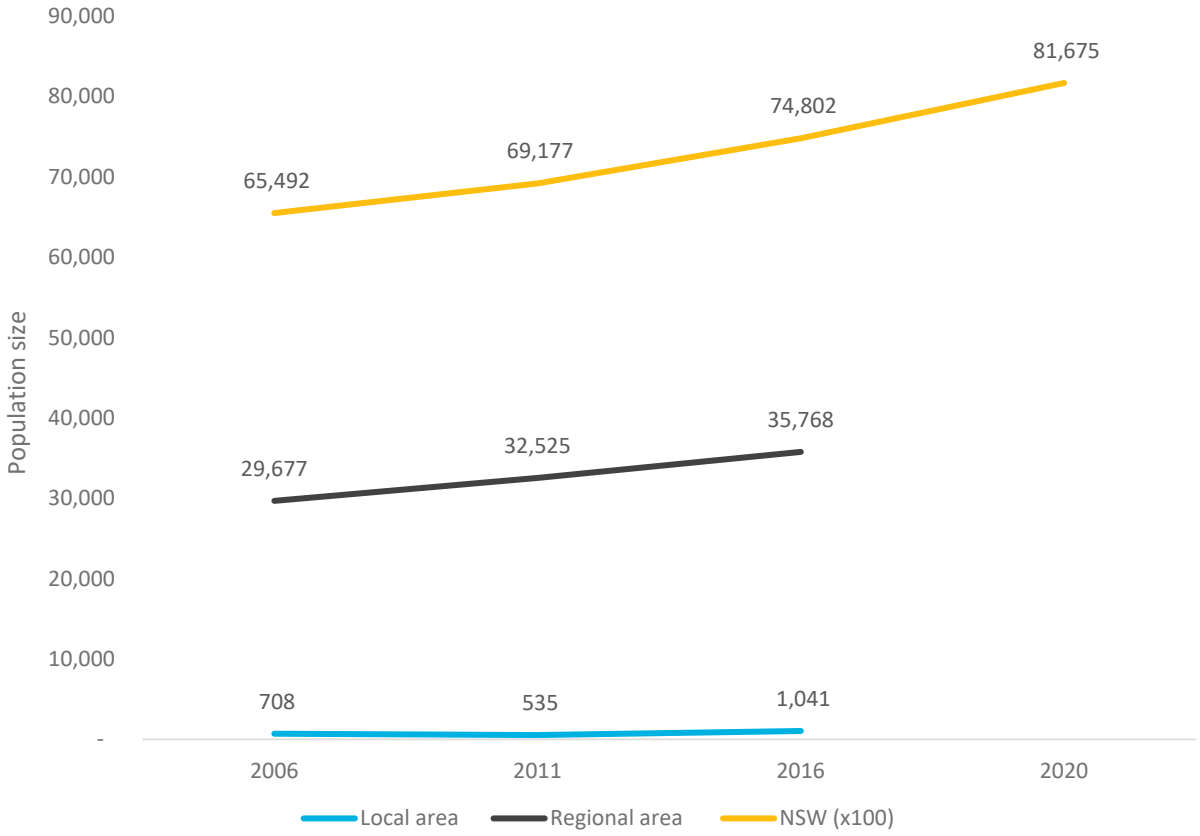
Notes:
1. Population totals for Lake Bathurst SSC and Mount Fairy SSC are not available for 2006 and have not contributed to the local area total for 2006. As such, the 2006 population within the local area is likely skewed.
2. Population totals for Lake Bathurst SSC and Currawang SSC are not available for 2011 and have not contributed to the 2011 local area total for 2011. As such, the 2011 population within the local area is likely skewed.
3. Population totals for Lake George SSC, Mulloon SSC, Mount Fairy SSC, Boro SSC and Manar SSC are not available for 2006 and have not contributed to the regional area total for 2006. As such, the 2006 population within the regional area is likely skewed.
4. Population totals for Lake George SSC, Boro SSC, and Manar SSC were not available for 2011 and have not contributed to the 2011 regional area total for 2011. As such, the 2011 population within the regional area is likely skewed.



Source: ABS 2016, Census of Population and Housing: General Community Profiles.

Notes: 1. Population totals for Lake Bathurst SSC and Mount Fairy SSC are not available for 2006.
2. Population totals for Lake Bathurst SSC and Currawang SSC are not available for 2011.

Figure A.2 Population trends in the local area, 2006–2016



Source: ABS 2016, Census of Population and Housing: General Community Profiles.

Notes:
1. Population totals for Lake Bathurst SSC and Mount Fairy SSC are not available for 2006 and have not contributed to the local area total for 2006. As such, the 2006 population within the local area is likely skewed.
2. Population totals for Lake Bathurst SSC and Currawang SSC are not available for 2011 and have not contributed to the 2011 local area total for 2011. As such, the 2011 population within the local area is likely skewed.
3. Population totals for Lake George SSC, Mulloon SSC, Mount Fairy SSC, Boro SSC and Manar SSC are not available for 2006 and have not contributed to the regional area total for 2006. As such, the 2006 population within the regional area is likely skewed.
4. Population totals for Lake George SSC, Boro SSC, and Manar SSC were not available for 2011 and have not contributed to the 2011 regional area total for 2011. As such, the 2011 population within the regional area is likely skewed.

Figure A.3 Population trends across the study area, 2006–2016

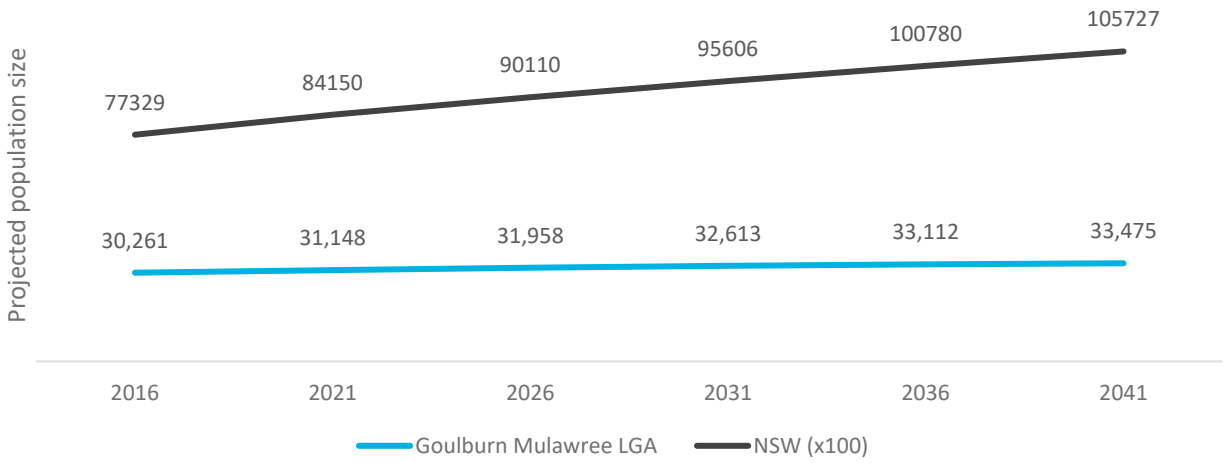
Projected population data for the area is only available for the LGA level. Trends for Goulburn Mulwaree LGA are assumed to generally reflect the trends across the regional area. Population projections published by DPIE (2019) suggest that the projected population of Goulburn Mulwaree LGA is estimated to increase by 3,214 people from 2016–2041, representing a total change of 10.6% and an average annual growth rate of 0.4% (DPIE 2019). This is much lower than the trend projected for NSW, with a 36.7% total increase and average annual increase of 1.5%. These projections indicate a large proportion of rural to urban migration, particularly from more regional areas like the local area. This migration could be influenced by people seeking education or work opportunities not readily available in regional communities and enhanced access to community, social and health services (AIHW 2005; Hugo, & Harris 2011; D'Alessandro & Bassu 2015). The slower rate of population growth in Goulburn Mulwaree LGA may also reflect the aging population within the local and regional area (see Section A.4.1) as aging populations are associated with lower fertility rates and ultimately shrinking populations (Jarzebski et al. 2021). Population projections for the study area are presented in Table A.6 and Figure A.4.

Table A.6 Projected population, 2016 – 2041

Area	2016	2021	2026	2031	2036	2041	Total change 2016–2041	Total % change 2016–2041	Average annual growth rate 2016–2041
Goulburn Mulwaree LGA	30,261	31,148	31,958	32,613	33,112	33,475	**3,214**	**10.6%**	**0.4%**
NSW	**7,732,858**	**8,414,978**	**9,011,010**	**9,560,567**	**10,077,964**	**10,572,696**	**2,747,061**	**36.7%**	**1.5%**

Source: DPIE 2019, NSW 2019 Population Projections: ASGS 2019 LGA projections.

Notes: 1. Population projection data was not available at the SSC level.
2. The projected population has been determined by using the ABS ERP population count which takes Census counts of people where they usually live (accounting for interstate visitors and removing overseas visitors), adjusts for Census undercount and overcount using the Census Post Enumeration Survey (PES), adds in Australians who are temporarily overseas, and applies further demographic adjustments.



Source: DPIE 2019, NSW 2019 Population Projections: ASGS 2019 LGA projections.

Figure A.4 Projected population, 2016–2041

A.4.1 Population by age and sex

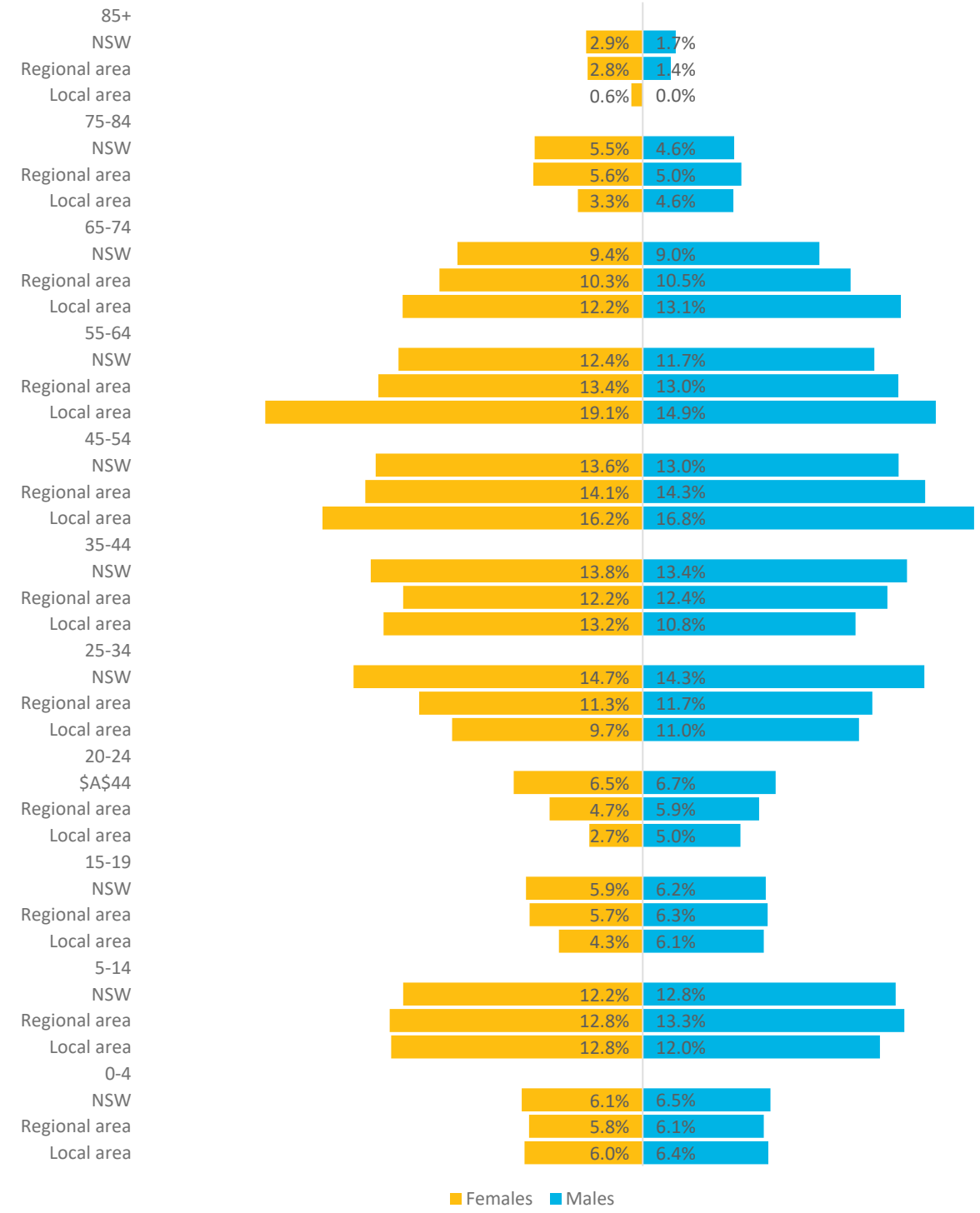
In the local area, the largest age groups are persons aged 55–64 years (17.6%), 45–54 years (17.2%), and 65–74 years (13.2%). The proportion of persons aged between 45–64 is significantly higher across the local area (34.8%) compared to the regional area (27.6%) and NSW (25.0%). The local area also has a higher proportion of persons aged 65 years and older (17.5%) compared to NSW (16.3%), but slightly lower than the regional area (17.9%). The local area also has a higher proportion of persons aged 14 years and younger (19.3%) compared to NSW (15.6%), although smaller compared to the regional area (19.2%). Within the local area there is a smaller proportion of youth aged 15–24 (9.1%) compared to the regional area (11.5%) and NSW (12.5%). This suggests a significantly older population in the local area compared to NSW, as well as a continued aging population. This is also reflected in the median ages across the local area, which includes 44 years in Tarago SSC, 46 years in Lake Bathurst SSC, 42 years in Currawang SSC, and 47 years in Mount Fairy SSC which is older than the median age for NSW (38 years).

The distribution of males and females in the local area is 52.2% male and 47.8% female (ABS 2016a). When considering the distribution of males and females, the largest demographics in the local area are females 55–64 years (19.1%), males aged 45–54 years (16.8%), and females aged 45–54 years (16.2%). However, there is a smaller proportion of the local area population aged 15–24 years for both males and females, as well as a smaller proportion of females aged 25–44 years compared to NSW. The age group distribution and median age for the study area is presented in Table A.4. The distribution of the population by age and sex is presented in Figure A.5.

Table A.7 Aged group distribution and median age, 2016

	0–4 years	5–14 years	15–19 years	20–24 years	25–34 years	35–44 years	45–54 years	55–64 years	65–74 years	75–84 years	85 years and older	Median age of persons 2016
Tarago SSC	6.6%	13.4%	4.7%	4.0%	13.1%	9.9%	17.8%	16.0%	13.8%	3.5%	0.7%	44
Lake Bathurst SSC	6.1%	8.3%	3.5%	4.8%	15.4%	11.0%	18.4%	18.0%	11.4%	3.5%	0.0%	46
Currawang SSC	6.6%	11.5%	6.0%	4.4%	7.7%	21.4%	12.6%	17.0%	13.2%	9.3%	0.0%	42
Mount Fairy SSC	6.3%	18.0%	6.8%	2.9%	3.4%	11.2%	18.5%	21.0%	13.7%	1.5%	0.0%	47
Local area	**6.4%**	**12.9%**	**5.1%**	**4.0%**	**10.8%**	**12.4%**	**17.2%**	**17.6%**	**13.2%**	**4.1%**	**0.3%**	--
Regional area	**6.0%**	**13.2%**	**6.1%**	**5.4%**	**11.6%**	**12.4%**	**14.3%**	**13.3%**	**10.5%**	**5.3%**	**2.1%**	--
NSW	**3.3%**	**12.3%**	**6.0%**	**6.5%**	**14.3%**	**13.4%**	**13.1%**	**11.9%**	**9.1%**	**5.0%**	**2.2%**	**38**

Source: ABS 2016, Census of Population and Housing: General Community Profiles.



Source: ABS 2016, Census of Population and Housing: General Community Profiles.

Figure A.5 Population distribution, 2016

A.4.2 Aboriginal and Torres Strait Islander population

At the time of the 2016 Census, 1.5% of the total population within the local area and 3.7% of the regional area population identified as Aboriginal and/or Torres Strait Islander. This proportion in the local area is lower than the proportion of the population who identify as Aboriginal and/or Torres Strait Islander in NSW (3.0%). However, the proportion of people who identify as Aboriginal and/or Torres Strait Islander in the regional area is slightly higher. The proportion of Aboriginal and/or Torres Strait Islander persons in the study area is presented in Table A.8.

Table A.8 Indigenous persons as percentage of population, 2016

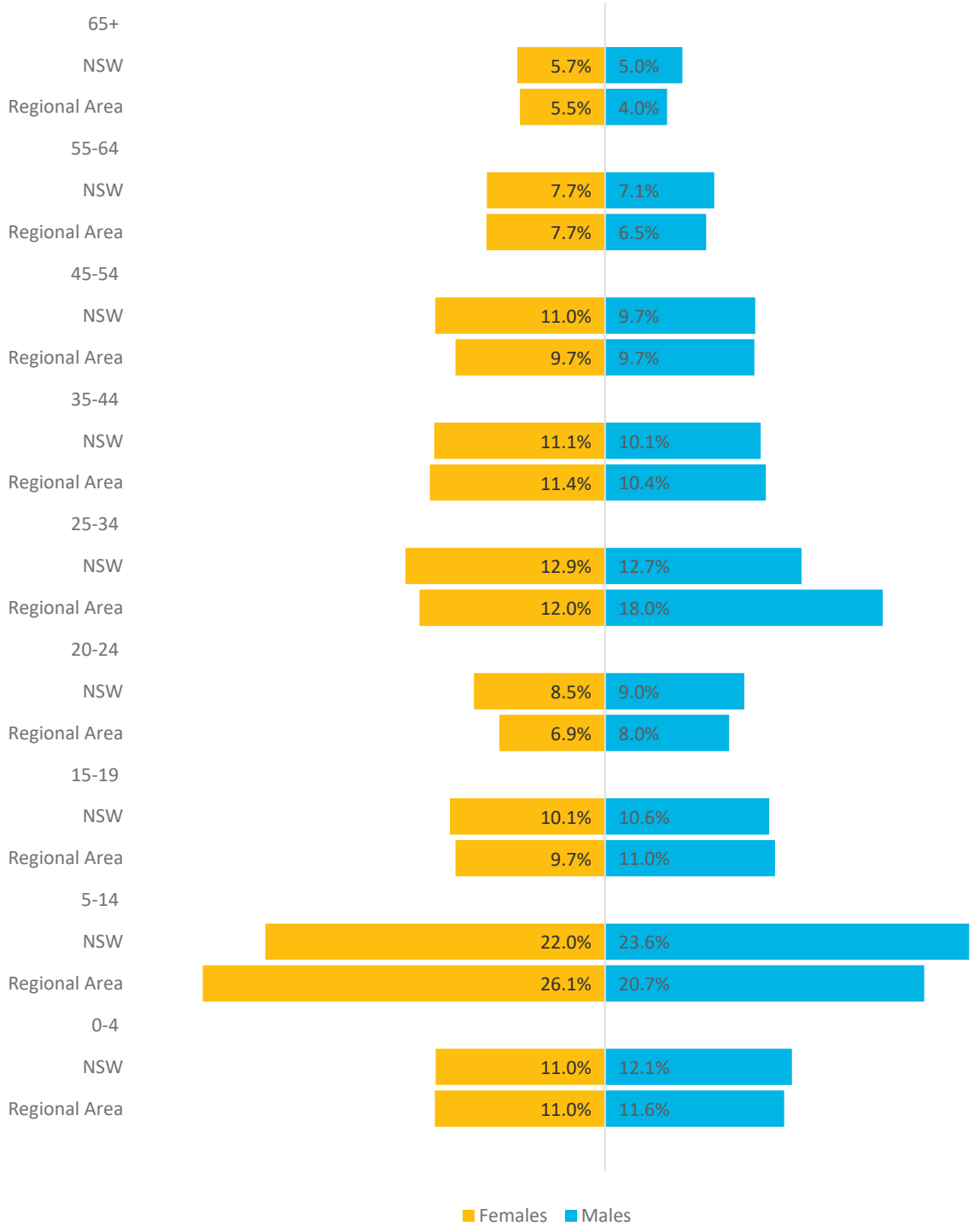
Location	Indigenous population
Tarago SSC	1.6%
Lake Bathurst SSC	1.3%
Currawang SSC	1.6%
Mount Fairy SSC	1.5%
Local area	1.5%
Regional area	3.7%
NSW	3.0%

Source: ABS 2016, Census of Population and Housing: General Community Profiles.

Data relating to the age distribution and sex of persons who identify as Aboriginal and/or Torres Strait Islander is not available for the local area[2].

Within the regional area, there is a higher proportion of Aboriginal and/or Torres Strait Islander males (52.3%) compared to females (47.8%). The largest demographic in the Aboriginal and/or Torres Strait Islander community in the regional area is children (aged 5–14 years). Compared to the total population of the regional area and NSW, there is a much smaller proportion of persons aged 65 years and older who identify as Aboriginal and/or Torres Strait Islander. The Indigenous population's smaller proportion of the population (both males and females) living beyond 65 years aligns with the lower life expectancy among Indigenous Australian's nationally that is particularly acute in Indigenous males (AIHW 2019), with much of this gap explained by the relationships between increased socio-economic disadvantage, worsened mental health outcomes, and related health risk behaviours, including greater proportions of smoking and alcohol use (AHMAC 2017). The distribution of persons who identify as Aboriginal and/or Torres Strait Islander within the study area is presented in Figure A.6.

[2] There are small random adjustments made to all cell values to protect the confidentiality of data. These adjustments may cause age group distributions to differ by small amounts from actual totals which may result in more extreme population distributions in areas with small populations, such as those amongst the Aboriginal and/or Torres Strait Islander populations within the suburbs that comprise the local area.



Source: ABS 2016, Census of Population and Housing: General Community Profiles.

Figure A.6 Population distribution of Aboriginal and/or Torres Strait Islander persons, 2016

A.4.3 Socio-economic advantage and disadvantage

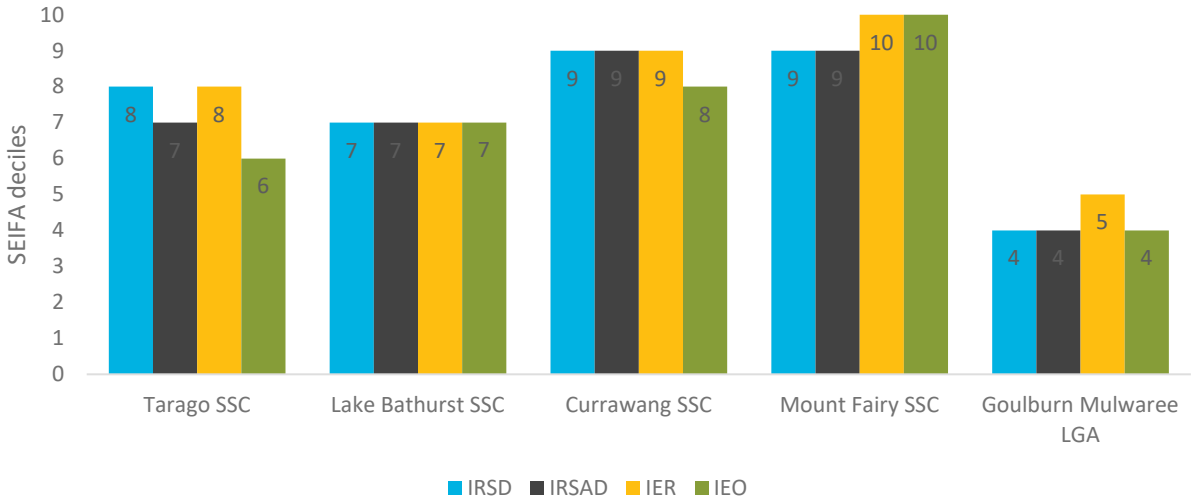
The level of disadvantage or advantage in the population is indicated in the Socio-Economic Indexes for Areas (SEIFA) which focuses on low-income earners, relatively lower education attainment, high unemployment and dwellings without motor vehicles. SEIFA is a suite of four summary measures that were created from Census data, including:

- the Index of Relative Socio-Economic Disadvantage (IRSD);
- the Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD);
- the Index of Education and Occupation (IEO); and
- the Index of Economic Resources (IER).

Each index is a summary of a different subset of Census variables and focuses on a different aspect of socio-economic advantage and disadvantage. Low rankings are deemed most disadvantaged and high rankings least disadvantaged within a decile ranking system where the lowest 10% of areas are given a decile number of 1 and the highest 10% of areas are given a decile number of 10. The rankings of the communities within the study area for each of the four summary measures are demonstrated in Figure A.7.

According to the 2016 SEIFA, there is some variation in terms of socio-economic advantage and disadvantage between communities within the local area. However, compared to other suburbs across NSW there are higher levels of advantage and lower levels of disadvantage within the suburbs which comprise the local area, as each suburb is within the 6th decile or higher for all indexes. Decile rankings of 7 and above for IRSD (8 in Tarago SSC, 7 in Bathurst SSC, 9 in Currawang SSC, and 9 in Mount Fairy SSC) and IRSAD (7 in Tarago SSC, 7 in Lake Bathurst SSC, 9 in Currawang SSC, and 9 in Mount Fairy SSC) within the local area means that compared to other suburbs across NSW, there are likely a higher proportion of households with high income (see Section A.7), people with qualifications (see Section A.6), and people in skilled occupations (see Section A.7) in the local area, as well as a smaller proportion of households with low incomes (see Section A.7), or a smaller proportion of people in low-skilled occupations (see Section A.7). Ranking in the 7th decile or above for IER suggests that compared to other suburbs across NSW, there are a greater proportion of households in the local area with high income or households paying high rent/mortgage repayments compared to NSW (see Section A.8). This also suggests a larger proportion of households with high income (see Section A.7). Ranking in the 6th decile or above for IEO suggests that there may be more people with qualifications and more people in skilled occupations, as well as fewer people without qualifications or in low-skilled occupations (particularly in Mount Fairy SSC and Currawang SSC). This is consistent with data shown in Section A.6 and A.7.

Within the Goulburn Mulwaree LGA, the SEIFA scores indicate that these areas experience a medium amount of overall socio-economic disadvantage and advantage, with rankings of 4–5 across each of the SEIFA indexes. This could indicate that these areas likely have a medium amount of people with higher education qualifications and working in skilled occupations, a more equal amount of people with high and low incomes, and a more balanced amount of more households earning higher incomes and owning their own homes compared to other LGAs within NSW. The higher levels of disadvantage and lower levels of advantage in Goulburn Mulwaree LGA may also reflect the slightly higher proportion of Aboriginal and/or Torres Strait Islander population compared to NSW (see Section A.4.2).



Source: ABS 2016, 2033.0.55.001 – Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA).

Figure A.7 SEIFA deciles in the study area, 2016

A.4.4 Cultural diversity

Compared to NSW averages, the local area and regional area have a lower level of cultural diversity compared to greater NSW. In 2016, 76.5% of the local area population was Australian born. Australian-born persons also constitute a much higher proportion of the population in the regional area (82.1%) compared to NSW (65.5%). The local area and regional area also have a much higher proportion of intergenerational Australians, with 61.6% of people in the local area and 68.8% of people in the regional area with both parents born in Australia, compared to 45.4% across NSW (ABS 2016a). A significantly smaller proportion of households in the local area (2.9%) and regional area (4.1%) speak a non-English language at home compared to 26.5% in NSW. The low proportion of migrants in the local area and regional area is representative of the trend of migrants within Australia to settle in major cities over smaller regional areas, which can be driven by a greater availability of support services for newly arrived migrants, job opportunities, education opportunities, well-established transportation and service infrastructure, and long-term multicultural histories of major cities with existing migrant communities (Australian Chamber of Commerce and Industry 2019). Cultural diversity in the study area is presented in Table A.9.

Table A.9 Country of birth, 2016

	Born in Australia	Both parents born in Australia	English only spoken at home	Households where a non-English language is spoken
Tarago SSC	81.1%	64.7%	87.1%	4.0%
Lake Bathurst SSC	69.1%	52.3%	84.6%	7.9%
Currawang SSC	75.0%	65.5%	78.9%	NA
Mount Fairy SSC	82.6%	62.9%	95.5%	NA
Local area	**76.5%**	**61.6%**	**85.3%**	**2.9%**
Regional area	**82.1%**	**68.8%**	**87.3%**	**4.1%**
NSW	**65.5%**	**45.4%**	**68.5%**	**26.5%**

Source: ABS 2016, Census of Population and Housing: General Community Profiles.

A.4.5 Vulnerable groups

i Disability

The population within the local area generally requires less assistance than that in the rest of NSW, while the population within the regional area has a slightly greater need for assistance compared to NSW. In the local area, 2.9% of the of people have a need for assistance in one or more of the three core activities of self-care, mobility and communication due to a long-term health condition (lasting 6 months or longer), a disability (lasting 6 months or longer), or old age. The reduced need for assistance in the local area may be attributable to less access to and availability of social services, in particular disability services, in the local area compared to larger regional area and more urban areas of NSW. Baxter, Hayes and Gray (2011) of the Australian Institute of Family Studies reveal that people living in major cities are less likely to have problems accessing services such as doctors and disability services, while those in outer regional or remote areas have the most trouble accessing these services. This likely prompts people to migrate to regional centres and larger cities where those services are more readily available. Core activity need for assistance in the study area is demonstrated in Table A.10.

Table A.10 Core activity need for assistance, 2016

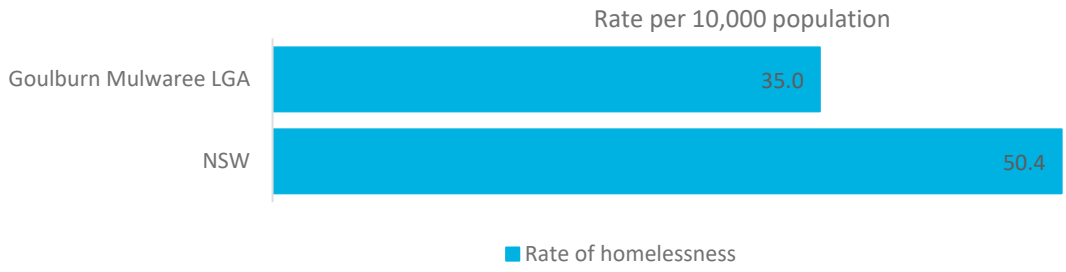
	Has need for assistance	Does not have need for assistance
Tarago SSC	3.1%	84.7%
Lake Bathurst SSC	3.5%	80.7%
Currawang SSC	0.0%	79.7%
Mount Fairy SSC	4.4%	89.3%
Local area	**2.9%**	**83.9%**
Regional area	**5.8%**	**85.3%**
NSW	**5.4%**	**87.7%**

Source: ABS 2016, Census of Population and Housing: General Community Profiles.

ii Homelessness

As explained by the Australian Human Rights Commission (AHRC) (n.d.), "the causes of homelessness are numerous and complex. Homelessness can be caused by poverty, unemployment or by a shortage of affordable housing, or it can be triggered by family breakdown, mental illness, sexual assault, addiction, financial difficulty, gambling or social isolation. Domestic violence is the single biggest cause of homelessness in Australia". Homelessness can lead to health problems including poor nutrition, depression, substance abuse, poor dental health, and mental health conditions (AHRC 2021). For homeless persons, hardships with finances, transport, identification, Medicare, and difficulty with appointment maintenance/treatment plans make accessing health care services more difficult than the average person (AHRC 2021). As such, homeless persons are at greater risk of being negatively affected by potential impacts on livelihoods and health and wellbeing.

Rates of homeless are not available at the SSC level but are available at the LGA level. Rates of homelessness in Goulburn Mulwaree LGA have been used as the local area is primarily located within this LGA. According to the 2016 Census estimations on homelessness, rates of homelessness in Goulburn Mulwaree LGA are lower than NSW rates, with a rate of 35.0 persons per 10,000 across the regional area compared to the NSW average of 50.4 persons per 10,000. Rates of homelessness in the study area are presented in Figure A.8.



Source: ABS 2016, 2049.0 – Census of Population and Housing: Estimating Homelessness.

Figure A.8 Rates of homelessness per 10,000 persons, 2016

A.5 Community culture, values, and aspirations

The Goulburn Mulwaree community values its natural environment, bushland, parks, and rural landscapes, as well as its heritage character with many buildings dating to the late 1800s still standing and in use today, including the Post Office, the Gaol, Hospital and Kenmore Mental Hospital, among others (Goulburn Mulwaree Council 2020a; Goulburn Mulwaree Council 2020b).

A.5.1 Indigenous history

Information about the socio-cultural structure of Aboriginal society prior to European contact largely comes from ethno-historic accounts made by Europeans. These accounts and observations were made after massive social disruption due to disease and displacement. As a result, this information is often contentious, particularly in relation to language area boundaries.

The traditional custodians of the land around Goulburn Mulwaree LGA are reported as two major language groups, to the north of Goulburn were the Gandangara (also known as Gundungurra, Gundungari, Gurra-gunga, and Burragorang) and to the south were the Ngun(n)awal (also known as Ngunuwal, Ngoonawal, Wonnawal, Nungawal, Yarr, Yass tribe, Lake George, Five Islands, tribe or Molonglo tribe) (AMBS 2012). Key places of significance for Aboriginal cultural heritage in the regional area are Rocky Hill, the old railway quarry on the Wollondilly River, Mulwaree Flats near Lansdowne Bridge at the brewery, and the site of the current Goulburn rail station, all of which are identified as places where large gatherings of Aboriginal people, such as corroborees, took place (Goulburn Mulwaree Council 2020b). European settlement in the region had a disastrous effect on the local Aboriginal population, with diseases introduced by the colonisers killing many, reducing the once numerous populations to around 20–100 individuals (Goulburn Mulwaree 2020b).

The traditional custodians of the Queanbeyan-Palerang Regional Council area were the Ngambri, Ngarigu, Ngunnawal and Walbunja Aboriginal peoples.

Aboriginal and/or Torres Strait Islander persons throughout Australia have experienced trauma due to the violence and loss of culture associated with colonisation, and subsequent settler policies including the forced removal of children, known as the Stolen Generations (Australians Together 2020). This trauma can be passed down from the first generation of survivors to future generations in the process of intergenerational trauma. According to Healing Foundation (nd), those experiencing intergenerational trauma "may experience difficulties with attachment, disconnection from their extended families and culture and high levels of stress from family and community members who are dealing with the impacts of trauma. This can create developmental issues for children, who are particularly susceptible to distress at a young age. This creates a cycle of trauma, where the impact is passed from one generation to the next". Within Australia, intergenerational trauma mainly affects the children, grandchildren and future generations of the Stolen Generations. Intergeneration trauma is often associated with violence, harmful substance use, and mental health issues amongst Aboriginal and/or Torres Strait Islander populations (Healing Foundation nd).

A.5.2 Non-Indigenous history

Non-Indigenous history of the Goulburn Mulwaree area dates back to 1798, when the first exploratory part of John Wilson and John Price reached Towrang in the regional area (Goulburn Mulwaree Council 2020b). In 1818 a settlement, originally named Goulburn Plains for the Undersecretary of State for the Colonies Henry Goulburn, was established by explorer Hamilton Hume on exploration with Charles Crosby, James Meehan, and John Oxley (Britannica 2014; Goulburn Mulwaree Council 2020b). In 1833 the town of Goulburn was founded as a garrison and convict town, 1859 saw it declared a municipality, and it became a city in 1864 (Britannica 2014). The population of Goulburn in the mid to late-1800s saw extreme growth, from 655 people to 1,200 in the four years between 1841–1845, from five stores and five inns in 1844 to more than 20 hotels in 1867 (Goulburn Mulwaree Council 2020b). The railway was constructed in 1869, connecting the city to Sydney in the north, and later extending south in 1875; the city was the regional centre of the Southern Tablelands (Goulburn Mulwaree Council 2020b). Expansion continued during the late 1800s, aided by the construction of branch railway lines. Gradual growth took place from the 1960s to the 1990s, with the population increasing from about 21,000 in 1966 to 25,000 in 1991. The population increased slightly from the 1990s, rising to nearly 28,000 in 2011 (profile.id 2021). Today, the Goulburn Mulwaree Council area is predominantly rural, with a city in Goulburn and small villages at Bungonia, Lake Bathurst, Marulan, Tallong and Tarago. Land is used largely for agriculture, particularly sheep grazing, with some cattle grazing and boutique industries (profile.id 2021). Goulburn is recognised as a regional centre within the area.

Within the Queanbeyan-Palerang region, the townships of Queanbeyan, Braidwood and Bungendore in particular are representative of early settlement in the area, driven by opportunities for farming and then by the discovery of gold in the district. This history is particularly relevant when contrasted with the planned development of Canberra as the national capital during the 1900's (Queanbeyan-Palerang Regional Council 2021). European settlement dates from the 1820s, with land used mainly for sheep and cattle grazing. Several townships were established in the late 1830s. Population was minimal until the 1850s, spurred by gold discoveries and the establishment of mining. Substantial growth took place in the 1880s, aided by the construction of the railway line from Sydney, with gradual increase during the early 1900s. The most significant development occurred in the post-war years, with rapid growth from the 1960s. The population of the Council area continued to increase from the 1990s, rising from about 34,000 in 1991 to nearly 53,000 in 2011 (profile.id 2021). Today, the major towns in Queanbeyan-Palerang are Queanbeyan and Bungendore. Rural land is used mainly for sheep and cattle grazing, orchards, nurseries, crop growing, honey production and vineyards. Tourism is also an important industry (profile.id 2021).

A.6 Social infrastructure

A.6.1 Childcare and early learning

In 2021 in the local area there was one childcare service available providing preschool/kindergarten services with a total of 19 places for enrolment (ACECQA 2021). It is anticipated that services located in the regional area service the local area. Within the regional area there are 27 childcare services available providing a total of 1,330 places for enrolment (ACECQA 2021). The services available include long day care, preschool, and outside of school hours care (OSHC). Most of the available services are centre-based service providers, with only one family day care provider within the regional area. Within the regional area, childcare services are mainly located in the suburb of Goulburn. The childcare services available in the study area are presented in Table A.11.

Table A.11 Childcare services, 2021

Area	Service name	Type	Service	Number of places
Local area				
Tarago	Tarago Preschool	Centre-based care	Preschool/ Kindergarten	19
Regional area				
Goulburn	Anglicare Goulburn Early Childhood Centre	Centre-based care	Long day care	45
	Fun Club @ Goulburn West	Centre-based care	OSHC	57
	Fun Club @ Wollondilly	Centre-based care	OSHC	48
	Goodstart Early Learning Goulburn	Centre-based care	Long day care	76
	Goulburn Academy of Early Learning	Centre-based care	Long day care and OSHC	39
	Goulburn Family Day Care	Family day care	Day care	--
	Goulburn Pre-school	Centre-based care	Preschool/ Kindergarten	40
	Imaginations Early Education (Lagoon Street)	Centre-based care	Long day care and OSHC	96

Table A.11 Childcare services, 2021

Area	Service name	Type	Service	Number of places
	Imaginations Early Education (Poidevin Place)	Centre-based care	Long day care and OSHC	75
	Jump Start Early Learning	Centre-based care	Long day care and OSHC	57
	Lilac Early Learning Goulburn North	Centre-based care	Long day care and OSHC	76
	Milestones Early Learning Goulburn	Centre-based care	Long day care and OSHC	96
	Orana Preschool	Centre-based care	Preschool/ Kindergarten	28
	Reynolds Street Community Preschool 0–5	Centre-based care	Long day care	70
	River Heights Child Care	Centre-based care	Long day care	38
	Romp and Stomp OSHC	Centre-based care	OSHC	60
	Scaliiwags Childrens Centre	Centre-based care	Long day care and OSHC	51
	SDN Lady McKell Children's Education and Care Centre	Centre-based care	Long day care	73
Marulan	Country Kids Club Marulan	Centre-based care	OSHC	14
	Marulan Children's Centre - Little Treasures	Centre-based care	Long day care	29
	Marulan Preschool	Centre-based care	Preschool/ Kindergarten	20
Tallong	Country Kids Club Tallong	Centre-based care	OSHC	14
Bungendore	Bungendore Children’s Cottage	Centre-based care	Long day care	40
	Bungendore Preschool	Centre-based care	Preschool/ Kindergarten	39
	Country Kids Club	Centre-based care	OSHC	25
	Milestones Early Learning Bungendore	Centre-based care	Long day care	62
	YMCA Bungendore OSHC	Centre-based care	OSHC	62

Source: ACECQA 2021.

A.6.2 Education

Within the local area in 2016 there was a slightly larger proportion of persons attending preschool (7.2%) compared to the regional area (5.9%) and the whole of NSW (5.7%) (ABS 2016a). However, the proportion of students attending primary school and secondary school was lower in the local area (20.2% and 13.8% respectively) compared to the regional area (27.2% and 20.2% respectively) and NSW – particularly in Lake Bathurst SSC, where only 7.1% of education attendees attended primary school, and another 7.1% attended secondary school. This likely reflects the aging population within the local area, particularly within the suburb of Lake Bathurst (see Section A.4.1). Within the local area, there was also a significantly smaller proportion of persons attending university or other tertiary institution (7.5%) compared to NSW (16.2%). Lower university and other tertiary institution attendance could reflect lower rates of secondary school attendance and completion (see Section A.6.2i). However, this may also reflect availability of jobs within the local area, particularly within the agriculture industry (see Section A.7), as most people working within this industry do not possess a post-school qualification (National Skills Commission 2021). Within the local area, the most common education institution attendance was at an 'other' type of education institution (36.0%), however the types of education institutions are not specified. Education institution attendance in the study area, as a percentage of total attendees, is demonstrated in Table A.12.

Table A.12 Education institution attendance, 2016

	Preschool	Infants/primary	Secondary	Technical or further educational institution	University or other tertiary institution	Other type of educational institution
Tarago SSC	7.7%	26.9%	14.6%	6.2%	6.2%	30.8%
Lake Bathurst SSC	7.1%	7.1%	7.1%	3.6%	11.9%	41.7%
Currawang SSC	4.5%	16.4%	10.4%	10.4%	4.5%	53.7%
Mount Fairy SSC	9.1%	27.3%	24.2%	6.1%	7.6%	21.2%
Local area	**7.2%**	**20.2%**	**13.8%**	**6.3%**	**7.5%**	**36.0%**
Regional area	**5.9%**	**27.2%**	**20.2%**	**6.7%**	**7.3%**	**30.6%**
NSW	**5.7%**	**26.1%**	**20.1%**	**6.2%**	**16.2%**	**23.0%**

Source: ABS 2016, Census of Population and Housing: General Community Profiles.

i Primary and secondary

In 2021 there was one government primary school in the local area. However, schools located within the regional area service the local area. In 2021 there were 15 primary schools, three secondary schools, and one special school in the regional area. Of these schools, 15 were government schools and four were non-government schools. The school ranges from kindergarten to Year 12, with 5,209 student enrolments across the local area and regional area. At the time of the 2016 Census there were 4,711 children aged 5–14 years in the regional area, indicating that there is anticipated to be sufficient capacity within the existing schools due to the availability of schools, student enrolments, and full-time equivalent teaching staff. Information on primary and secondary schools in the local area is presented in Table A.13.

Table A.13 Schools in the local area, 2021

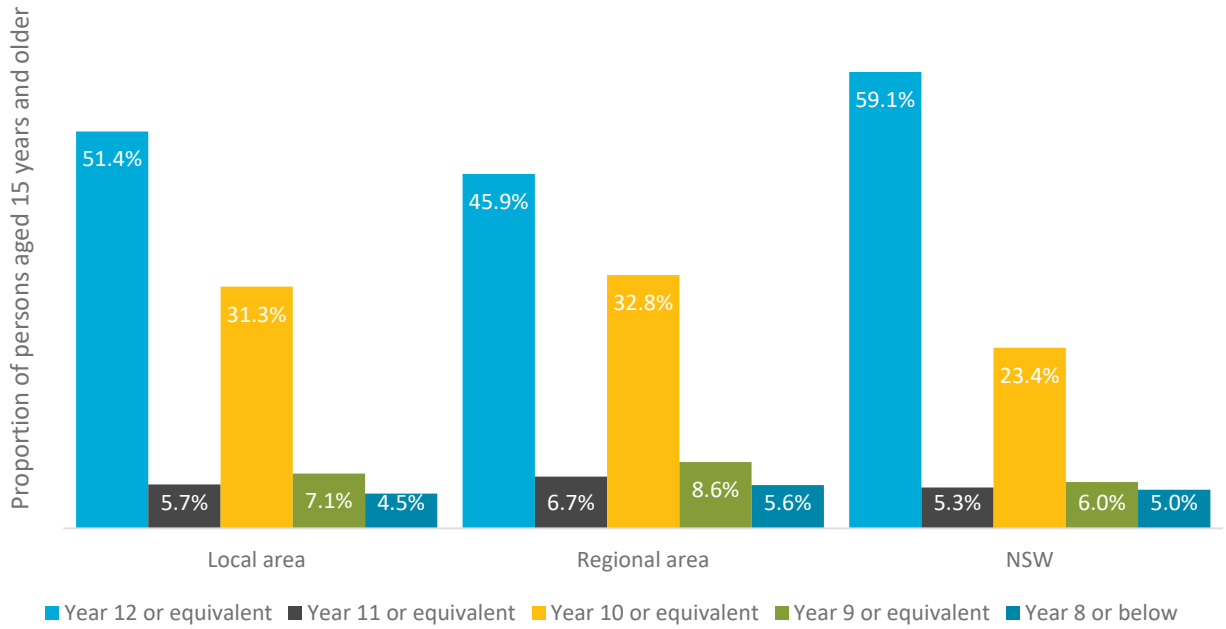
Area	School	Sector	Type	Year range	Student enrolments	Full-time equivalent teaching staff
Local area						
Tarago	Tarago Public School	Government	Primary	K–6	34	2.6
Regional area						
Goulburn	The Crescent School	Government	Special	U	72	12.5
	Bradfordville Public School	Government	Primary	K–6	289	16.5
	Goulburn East Public School	Government	Primary	K–6	155	9.8
	Goulburn Public School	Government	Primary	K–6	167	13.0
	Goulburn South Public School	Government	Primary	U, K–6	160	15.4
	Goulburn West Public School	Government	Primary	K–6	403	23.2
	Tirranna Public School	Government	Primary	K–6	9	1.3
	Windellama Public School	Government	Primary	K–6	25	2.5
	Wollondilly Public School	Government	Primary	K–6	355	28.1
	Saints Peter and Paul's Primary School	Non-government	Primary	K–6	242	15.3
	St Joseph's Primary School	Non-government	Primary	K–6	327	18.4
	Tambelin Independent School	Non-government	Primary	K–6	30	1.8
	Goulburn High School	Government	Secondary	7–12	600	53.3
	Mulwaree High School	Government	Secondary	7–12	916	68.9
	Trinity Catholic College Goulburn	Non-government	Secondary	7–12	488	46.0
Goulburn North	Goulburn North Public School	Government	Primary	K–6	264	14.2
Marulan	Marulan Public School	Government	Primary	K–6	101	6.2
Tallong	Tallong Public School	Government	Primary	K–6	62	3.8
Bungendore	Bungendore Public School	Government	Primary	K–6	510	29.3

Source: ACARA 2021.

The local area has a smaller proportion of persons who have completed Year 12 or equivalent (51.4%) compared to NSW (59.1%). However, the local has a slightly higher proportion of persons who have completed Year 12 or equivalent compared to the regional area (45.9%). Within the local area, Mount Fairy has the highest proportion of persons who have completed Year 12 or equivalent at 57.1% compared to 52.2% in Lake Bathurst, 49.1% in Currawang SSC and 48.9% in Tarago SSC. In the local area persons over 15 years of age with Years 11, 10 and 9 as the highest levels of schooling were all higher than the state average. However, the most common highest level of education in the local area was still Year 12. Although this demonstrates a higher percentage of the population within the local area who have not completed secondary level schooling compared to the NSW average, there is still a significant proportion who have. The highest level of schooling completed within the study area is presented in Table A.14 and Figure A.9.

Table A.14 Highest level of schooling completed for persons 15 years and over, 2016

	Year 12 or equivalent	Year 11 or equivalent	Year 10 or equivalent	Year 9 or equivalent	Year 8 or equivalent
Tarago SSC	48.9%	7.7%	30.3%	7.7%	5.3%
Lake Bathurst SSC	52.2%	4.5%	31.8%	5.7%	5.7%
Currawang SSC	49.1%	2.6%	37.9%	7.8%	2.6%
Mount Fairy SSC	57.1%	5.4%	27.2%	6.8%	3.4%
Local area	**51.4%**	**5.7%**	**31.3%**	**7.1%**	**4.5%**
Regional area	**45.9%**	**6.7%**	**32.8%**	**8.5%**	**5.6%**
NSW	**59.1%**	**5.3%**	**23.4%**	**6.0%**	**5.0%**



Source: ABS 2016, Census of Population and Housing: General Community Profiles.

Figure A.9 Highest level of schooling completed for persons 15 years and older, 2016

ii Tertiary

In the regional area there are three tertiary institutions: TAFE NSW – Goulburn, Charles Sturt University, Goulburn Campus, and a College of Transformation, Education, and Training (CTET). A summary of the tertiary institutions within the local area is provided in Table A.15.

Table A.15 Tertiary institutions in the local area, 2021

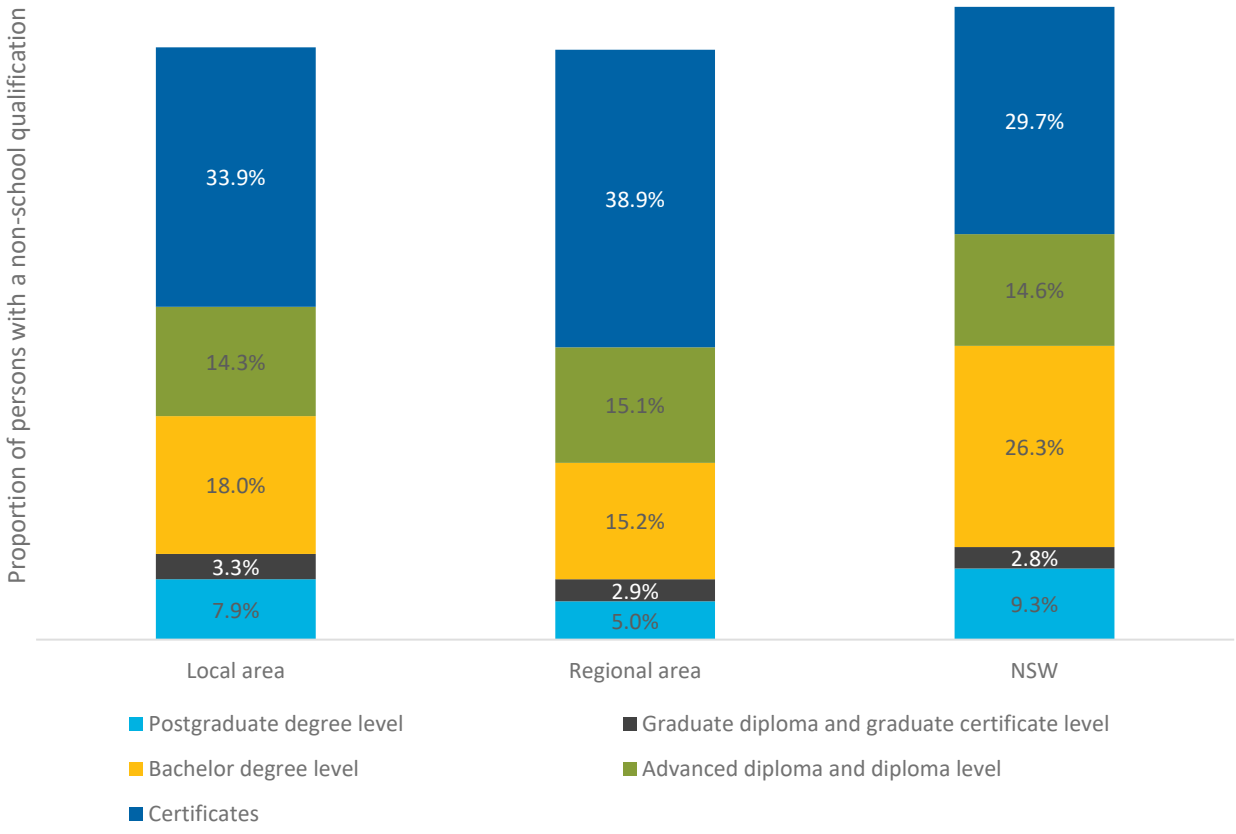
Location	Institute	Education and training courses
Goulburn	TAFE NSW, Goulburn Campus	TAFE NSW Goulburn is the largest TAFE location in the Highlands district. A diverse range of courses at the certificate and diploma levels are offered, including (but not limited to) tertiary preparation, veterinary nursing and animal studies, agriculture and horticulture related study, carpentry, education, plumbing, digital media and technology, and hairdressing. This campus also offers short workshops and statements of attainment courses.
Goulburn	Charles Sturt University, Goulburn Campus	Associate degree in Policing Practice from the NSW Police Force Academy. This degree focuses on the foundational studies and applied skills and knowledge necessary for the modern police professional. The knowledge and skills developed through the course are designed to meet the education needs of individuals seeking future employment with the NSW Police Force.
Goulburn	College of Transformation, Education and Training (CTET)	CTET provides certificate and diploma level courses in the areas of leadership and management, hairdressing, hospitality, community services, and work health and safety, including apprenticeship opportunities.

Source: Charles Sturt university 2021; TAFE 2021; CTET 2021.

Within the local and regional areas, certificates comprise the largest proportion of non-school qualifications held by people over 15 years (33.9% and 38.8% respectively). The proportion of persons with a certificate qualification in the local area and regional area is higher compared to 29.7% across NSW. There is also a smaller proportion of people with Bachelor's and postgraduate level degrees across the local area compared to the regional area and NSW. This may be in part due to the lower rates of secondary schooling completion (see Section A.6.i), making it difficult to directly enter university programs. This may also coincide with the higher percentage of certificate qualifications, as certificate qualifications often do not require the completion of Year 12 or equivalent. This may also be a result of the prevalent industries of employment in the local and regional areas, particularly the agriculture industry (see Section A.9), as most people working within this industry do not possess a post-school qualification (National Skills Commission 2021). However, in Lake Bathurst SSC and Mount Fairy SSC within the local area, there is a higher proportion of persons with a Bachelor's degree (21.5% and 21.1% respectively) and postgraduate degree (9.2% and 9.6% respectively) compared to the rest of the local area and the regional area. This reflects the second and third most dominant industries of employment in the area, which are 'education and training' and 'public administration and safety' – both of which largely require educational attainment at the Bachelor degree level or higher (National Skills Commission 2021). The proportion of persons with a graduate diploma or graduate certificate qualification is also higher in the local area (3.3%) compared to the regional area (2.9%) and NSW (2.8%). Non-school qualifications in the study area are presented in Table A.16 and Figure A.10.

Table A.16 Proportion of persons over 15 with a non-school qualification, 2016

	Postgraduate degree level	Graduate diploma and graduate certificate level	Bachelor degree level	Advanced diploma and diploma level	Certificates
Tarago SSC	7.3%	3.4%	14.6%	13.6%	41.7%
Lake Bathurst SSC	9.2%	3.1%	21.5%	10.0%	31.5%
Currawang SSC	5.7%	3.3%	17.1%	9.8%	33.3%
Mount Fairy SSC	9.6%	3.5%	21.1%	25.4%	22.8%
Local area	**7.9%**	**3.3%**	**18.0%**	**14.3%**	**33.9%**
Regional area	**5.0%**	**2.9%**	**15.2%**	**15.1%**	**38.8%**
NSW	**9.3%**	**2.8%**	**26.3%**	**14.6%**	**29.7%**



Source: ABS 2016, Census of Population and Housing: General Community Profiles.

Figure A.10 Proportion of persons over 15 with a non-school qualification, 2016

A.6.3 Health

The local area is located within the Southern NSW LHD.

i Hospital

The Southern NSW LHD looks after all public hospitals and healthcare facilities provisions in the local area.

Source: NSW Health 2021

Figure A.11 Southern NSW LHD

The closest hospital to the local area, providing the most comprehensive services, is Goulburn Base Hospital in the regional area. Goulburn Base Hospital is an 80-bed hospital providing 24-hour emergency and a wide range of medical services. There are two other public hospitals within the regional area, both located in Goulburn. Bourke Street Health Service is a smaller multipurpose service, while Kenmore Hospital specialises in mental health. The details of the closest hospitals to the local area are presented in Table A.17.

Table A.17 Hospitals, 2021

Hospital	Location	Type	Number of beds
Goulburn Base Hospital	Goulburn	Public	80
Bourke Street Health Service	Goulburn	Public	25
Kenmore Hospital	Goulburn	Public mental health hospital	NA

Source: AIHW 2021, MyHospitals.

As shown in Table A.18, The total number of patients admitted to Goulburn Base Hospital decreased from 2013–2014 to 2015–2016 and increased in 2016–2017. However, almost all of the hospital stays in Goulburn Base Hospital are attributable to surgical emergencies and surgical non-emergencies. The high incidences of surgical emergencies in the Hospital may be indicative of the proportion of manual labour occupations, such as technicians, trades workers and labourers, machinery operators and drivers, and also community and personal workers within the regional area (see Section A.7). In 2017–2018 these occupations experienced the highest rates of work-related injury or illness, with technicians and trades workers having 72 per 1,000 employed persons injured or ill, community and personal workers 69 per 1,000 persons employed, and machinery operators and drivers 57 per 1,000 persons employed (ABS 2018). The local and regional areas also have a high proportion of employment in the construction industry (see Section A.9), the industry with the highest work-related injury or illness (59 per 1,000 employed persons), followed by manufacturing (58 per 1,000) and health care and social assistance (55 per 1,000), also large industries in the area of social influence (ABS 2018). There have consistently been low hospital admissions for other acute non-emergencies and mental health, the latter of which indicates that patients are accessing mental health facilities and services outside of Goulburn Base Hospital for mental health related treatment. This may be due to the Kenmore Hospital (a mental health hospital) being located nearby, or the provision of mental health services through GPs (see section below) and other community services (see Section A.6.6). From 2011–2017 there have been relatively low numbers of admissions for childbirth, which may be reflective of the small population of women aged 20–34 years in the local and regional areas compared to NSW (see Section A.3).

Table A.18 Number of admissions to Goulburn Base Hospital, 2011 – 2017

Admission category	2011–2012	2012–2013	2013–2014	2014–2015	2015–2016	2016–2017
Childbirth	332	302	287	282	301	276
Surgical (emergency)	3,399	3,367	3,474	3,165	3,173	3,159
Surgical (non-emergency)	2,931	2,774	3,064	2,888	3,170	3,475
Medical (emergency)	752	697	635	788	799	890
Medical (non-emergency)	103	119	115	130	137	172
Other acute (emergency)	927	855	885	866	876	925
Other acute (non-emergency)	48	73	68	126	172	130
Mental health	59	100	64	71	77	50
Rehabilitation	51	136	300	288	268	343
Palliative	276	300	299	305	287	416
Other subacute and non-acute	1,300	1,367	1,423	1,364	1,363	1,526
Total	**10,178**	**10,090**	**10,614**	**10,273**	**10,623**	**11,362**

Source: AIHW 2021, Hospitals.

Notes: 1. Medical is defined as stays to hospital that do not require surgery.
2. Surgical is defined as stays to hospital that require surgery (ie physical medical intervention).
3. Other acute care is defined as stays that have neither a surgical nor a medical Australian Refined Diagnosis Related Group.
4. Surgical, medical and other acute care stays are further divided into 'emergency' and 'other', based on the recorded urgency of admission, ie whether admission was considered necessary within 24 hours or not.

ii Primary health

a General practitioners

General practitioner (GP) services in the regional area service the local area. GP services are offered via both public and private practices. A total of 14 GP practices were identified in the regional area, with most of these services located in the Suburb of Goulburn. GP services include standard GP services, as well as services relating to community health, Indigenous health, mental health, maternal, child and family health, aged care and special services. Goulburn Community Health Service offers the largest diversity of services within the regional area. GP practices in the regional area are summarised in Table A.19.

Table A.19 GP services by location, 2021

Service name	Location	GP services	Community health services	Indigenous health services	Mental health services	Maternal, child, and family health services	Aged care services	Other specialist services
Goulburn Community Health Service	Goulburn	✓	✓	✓	✓	✓	✓	✓
Argyle Medical Centre - Goulburn	Goulburn	✓	✗	✗	✓	✓	✓	✓
Clinton Medical Practice	Goulburn	✓	✗	✗	✗	✓	✗	✗
Goulburn Doctors	Goulburn	✓	✗	✗	✗	✓	✗	✓
Goldsmith Street Surgery	Goulburn	✓	✗	✗	✓	✓	✓	✓
Goulburn Medical Clinic	Goulburn	✓	✗	✗	✓	✓	✓	✓
Marima Medical Clinic	Goulburn	✓	✗	✗	✓	✓	✗	✓
Goulburn Health Hub Medical Centre	Goulburn	✓	✗	✗	✓	✓	✓	✓
Bradfordville Family Medical Centre	Goulburn	✓	✗	✗	✗	✓	✗	✓
Headspace	Goulburn	✓	✗	✓	✓	✗	✗	✗
Marulan Family Medical Centre	Marulan	✓	✗	✗	✗	✗	✗	✓
Marulan Medical Centre	Marulan	✓	✗	✗	✗	✗	✗	✗
Bungendore Community Centre	Bungendore	✓	✓	✗	✗	✓	✗	✗
Bungendore Medical Centre	Bungendore	✓	✗	✗	✓	✓	✗	✓

Source: Healthdirect 2021.

A.6.4 Emergency

The number of available emergency services in the local area and regional area is shown in Table A.20. Within the local area there is one police station and three rural fire service brigades. However, the local area is largely serviced by emergency services located in the regional area.

Table A.20 Emergency services in the local area, 2021

	Police station	Ambulance station	Fire and rescue station	Rural fire service brigades	State Emergency Service
Local area	1	0	0	3	0
Regional area	4	2	1	15	3

Source: police.nsw.gov.au; ambulance.nsw.gov.au; fire.nsw.gov.au; rfs.nsw.gov.au; ses.nsw.gov.au

A.6.5 Transport infrastructure

i Modes of travel

Based on the 2016 Census the predominant mode of travel to work in the local area is by car, either as the driver or as a passenger (67.9%) which is slightly higher than the NSW average (64.6%) but lower than the regional area average (75.8%). Travel using public transport varies throughout the local area. A substantially lower proportion of people travel to work by public transport in the regional area (0.7%) compared to NSW (16.0%). Within the local area, the slightly higher proportion of people travelling to work by car but substantially lower proportion of people using public transport suggests that a significant proportion of the population does not have to travel to work. Which may reflect the large proportion of registered agricultural businesses and the prevalence of employment in the agriculture industry in the local area (see Section A.10). Modes of travel to work in the study area are summarised in Table A.21.

Table A.21 Modes of travel, 2016

	By car (as driver, as passenger)	By public transport (train, bus, ferry, tram)
Tarago SSC	72.8%	0.0%
Lake Bathurst SSC	75.6%	3.5%
Currawang SSC	62.5%	0.0%
Mount Fairy SSC	69.7%	2.9%
Local area	**67.9%**	**NA**
Regional area	**75.8%**	**0.7%**
NSW	**64.6%**	**16.0%**

Source: ABS 2016, Census of Population and Housing: General Community Profiles.

ii Public transport

Public transport services are not located in the local area. However, there are public transport services available in the suburbs of Goulburn and Bungendore in the regional area. There are multiple train services running through Goulburn Station, including Moss Vale to Campbelltown, Central (Sydney) to Melbourne (Southern Cross), Central to Canberra, and Goulburn to Griffith. There are also coach buses available from Goulburn Station which run from Goulburn to Campbelltown, Goulburn to Canberra, and from Wollongong to Canberra (stopping in Goulburn). There is one public bus service running between Goulburn and Crookwell (TfNSW 2021). From Bungendore Station, there is also access to the services running between Central and Canberra (TfNSW 2021). There are also taxi services operating in Goulburn and Bungendore which service the local and regional areas.

iii Road network

The main roads running through the local area include Braidwood Road (runs north and south through Tarago SSC and Lake Bathurst SSC), Bungendore Road (connects Tarago SSC with Bungendore SSC in the regional area), Collector Road (runs northwest from Tarago SSC through Currawang SSC) and Currawang Road (runs northeast from Currawang SSC). Braidwood Road connects the local area to the Hume highway (M31) to the north, providing connections to Wollongong, Sydney and Melbourne, and the Kings Highway (B52) to the south., providing connections to Canberra and Batemans Bay. The Federal Highway (M23) is also available from the local area via Collector Road.

iv Air

The local and regional service can access air transport from Goulburn Airport. The airport consists of one sealed runway and provides corporate air services, flight training (Goulburn Flight Training Centre and Goulburn Aviation), and recreational flight services (skydiving).

The nearest airports offering domestic and international flights are Canberra Airport, approximately 55 minutes' drive (67 km) from the local area, or Shellharbour Airport, approximately 2 hours and 15 minutes' drive (165 km) from the local area.

A.6.6 Community services

Community services located in the regional area service the local area. Community services in the regional area are mainly concentrated in Goulburn SSC. They include aged care and senior services, children's services, youth services, disability and accessibility services, housing and homelessness services, women's services and family services, Aboriginal services, employment services, and domestic violence services (Healthdirect 2021; Ask Izzy 2021). A summary of community services that service the local area is presented in Table A.22.

Table A.22 Community services in the local and regional areas, 2021

	Local area	Regional area
Aboriginal services	✗	✓
Child and family services	✗	✓
Youth services	✗	✓
Housing and homelessness services	✗	✓
Employment services	✗	✓
Disability services	✗	✓
Aged care services	✗	✓
Women's services	✓	✓
Arts and cultural facilities	✗	✓
Recreation services	✗	✓

Source: My Community Directory 2021; Healthdirect 2021; Ask Izzy 2021

i Aboriginal community services

Aboriginal community services are available through eight service providers in the regional area. Aboriginal health services are available from Grand Pacific Health in Goulburn, specifically assistance with chronic health conditions, free health check and case management services, and a diabetes clinic. Aboriginal health services are also available from the Goulburn Community Health Centre. The Local Aboriginal Land Councils (LALCs) which provide information, referrals, and support to the Aboriginal community in the regional area include: Pejar LALC and Nungaroo LALC (NSW Aboriginal Land Council 2021). LALCs acquire and administer land through the NSW Aboriginal Land Rights Act legislation and protect the interests and furthers the aspirations of their members and the broader Aboriginal community. Additional Aboriginal services are available in Goulburn, including Aboriginal Housing Services provided by DCJ Housing Services; hearing services provided through Hearing Australia (part of the National Disability Insurance Scheme (NDIS); and permanency program support through the South Coast Medical Service Aboriginal Corporation. There are also social support groups which provide information, social and recreational activities for the elderly, including Aboriginal elders, operating in Goulburn (Warrigal Social) and Marulan (Seniors' Day Activity Centre).

ii Child and family services

There are a range of child and family services available in the regional area. Child and family services are available through both multi-service providers and individual service providers and are mostly located in the suburb of Goulburn. Child and family health support is available through the Goulburn Base Hospital and the Queanbeyan Health Service – Child and Family Health in Bungendore. Child and adolescent mental health support is also available through the Goulburn Community Health Service. The most comprehensive child and family services are offered through DCJ Community Services in Goulburn, which includes adoption and permanent care services, early intervention programs, protection and intervention, case management, out of home care, and a child protection helpline and satellite sites. Mission Australia Brighter Futures operates in both Goulburn and Bungendore, offering services aimed at prevention of child abuse and neglect, including early intervention, case management, and support for families experiencing difficulties. Child and family support services are offered through an additional seven service providers in Goulburn, including permanency programs, foster care, out of home care, parents support and education programs, a school breakfast program, and supported playgroups. Additional childcare services across the local area are offered by the Family and Child Services department of Goulburn Mulwaree Council and Queanbeyan-Palerang Regional Council. These services include childcare, kindergarten, parenting education and support, and health services.

iii Youth community services

There are five identified youth services operating in the regional area. Youth services are primarily located in the suburb of Goulburn. Anglicare NSW South West and ACT in Goulburn provides a variety of youth programs, including case managed support programs to assist with improving family functioning and confidence for parents, and youth aged 12–17 years, as well as holiday camps for youth aged 12–18 years. In Goulburn, headspace provides youth mental health services, including access to psychologists, psychiatrists and counsellors; information referrals and opportunities for youth aged 12–25 years; general medical services for youth aged 12–25 years; and programs to help parents communicate with their teenagers. There is also a Police and Community Youth Club (PCYC) operating in Goulburn which provides recreational and sporting activities, including mentorship programs. Goulburn Mulwaree Council and Queanbeyan-Palerang Regional Council also provide youth services, including information, assistance, and referral services.

iv Housing and homelessness services

Within the regional area there are six housing and homelessness services operating within Goulburn. Services offered include tenancy management, Aboriginal housing services, family accommodation, crisis accommodation, transitional accommodation, community housing, and specialist homelessness services. Two of these services offer housing and homelessness services specifically for youth, including crisis and short-term accommodation, as well as intensive support, early intervention and referral services.

v Employment services

There are five identified employment service providers in the regional area, all located in Goulburn. Two of these services provide Jobactive – a service which provides employment placement and training for unemployed young people and adults, individually tailored job plans, assistance looking for work, resume writing, interview preparation, case management and wage subsidies. Other available services skills checkpoint programs, financial counselling, and apprenticeship services. Mission Australia provides an opportunity pathways service for persons aged 17 years and older who live in social housing, receive a rent choice subsidy, or are on the NSW housing register to access education, training and work opportunities.

vi Disability services

There are a wide range of disability services and disability service providers within the regional area. However, all 16 providers are located in Goulburn. The services range from disability employment services, social support groups and recreational activities, disability case management and coordination support, day programs for adults with disabilities, coordination and support of the National Disability Insurance Scheme (NDIS), accommodation and home support services, and transition assistance programs.

vii Aged care services

Within the regional area there are 11 identified aged care service providers operating in Goulburn. The available services include home care (which is also available for persons with disabilities), domestic assistance, low and high-level care accommodation (which includes dementia specific care), residential respite care, and independent living units for people aged 55 years and older. Other services include older persons mental health services offered through the Goulburn Community Health Service, and aged care assessment to make informed decision about housing and a persons' required level of care. The University of the Third Age provides adult and community education, particularly for persons who are retired and elderly. There is also a Goulburn Senior Activities Club which offers social activities for persons aged over 55 years.

viii Women's services

There are four branches of the Country Women's Association (CWA) within the regional area, located in Tarago in the local area, as well as Goulburn, Bungendore and Marulan. These services provide support for personal growth and the opportunity to pursue and address key social issues for women within these areas. There is also a multicultural women's group offered through the Goulburn Multicultural Centre.

A.6.7 Arts and cultural community facilities

There are a range of arts and cultural community facilities in the regional area. The regional area offers the following arts and cultural community facilities: art galleries and installations, museums and heritage sites, library, hall, and conference/meeting rooms. Most of these facilities are available in Goulburn SSC and Bungendore SSC in the regional area. A theatre and cinema are also present in Goulburn SSC.

A.6.8 Recreation services

There are many recreational and outdoor activities throughout the regional area which includes parks and reserves, as well as a variety of sporting facilities which include ovals, aquatic centres/swimming pools, netball courts, soccer fields, indoor courts, golf courses, bowling greens, skate parks, motocross, and racing facilities. Most of the sporting facilities available are located in the suburb of Goulburn. There is also a variety of national parks and outdoor activities available throughout the regional area, including rivers and creeks where people can go fishing, bird watching, kayaking, caving, canoeing, hiking, and cycling.

A.7 Workforce and income

A.7.1 Employment

At the time of the 2016 Census the unemployment rate across the local area (3.5%) was significantly lower than the unemployment rate in the regional area (5.6%) and the NSW rate of 6.3%. However, there is some variation in the employment rate amongst the SSCs that comprise the local area. The unemployment rates in Tarago SSC (2.3%) and Mount Fairy SSC (2.8%) are significantly lower compared to the other SSCs within the local area, the regional area and NSW, while the unemployment rate in Lake Bathurst is slightly higher (6.5%), although similar to trends across NSW. The youth unemployment rate within the local area is 0.0%, which is substantially lower than the rate within the regional area (11.3%) and across NSW (13.6%). This likely reflects the lower proportion of youth within the local area (see Section **Error! Reference source not found.**). Unemployment and labour force participation rates are presented in Table A.23.

Table A.23 Unemployment and labour force participation rates, 2016

	Unemployment rate	Youth unemployment rate	Labour force participation rate (15 years and older)
Tarago SSC	2.3%	0.0%	64.0%
Lake Bathurst SSC	6.5%	0.0%	45.6%
Currawang SSC	4.1%	0.0%	63.2%
Mount Fairy SSC	2.8%	0.0%	67.8%
Local area	**3.5%**	**0.0%**	**59.4%**
Regional area	**5.6%**	**11.3%**	**58.4%**
NSW	**6.3%**	**13.6%**	**59.2%**

Source: ABS 2016, Census of Population and Housing: General Community Profiles.

In the local area the top three occupations are managers (23.5%), technicians and trades workers (17.9%) and professionals (16.3%). The significant proportion of managers throughout the local area is likely due to the prevalence of the agriculture, forestry and fishing industry (see Section A.9), as farmers comprise the largest share of managers across Australia (approximately 12%) (National Skills Commission 2021). The high proportion of persons with a certification level qualification in the study area aligns with the large proportion of technicians and trades workers, as most technicians and trades workers across Australia hold a Cert III or higher vocational and education and training (VET) qualification (National Skills Commission 2021). Occupations within the study area are presented in Table A.24.

Table A.24 Occupations, 2016

Occupations	Tarago SSC	Lake Bathurst SSC	Currawang SSC	Mount Fairy SSC	Local area	Regional area	NSW
Managers	25.6%	26.4%	22.0%	18.1%	**23.5%**	**13.4%**	**13.5%**
Professionals	12.3%	23.0%	20.9%	15.2%	**16.3%**	**15.9%**	**23.6%**
Technicians and trades workers	18.7%	14.9%	16.5%	20.0%	**17.9%**	**14.5%**	**12.7%**
Community and personal service workers	8.2%	11.5%	8.8%	6.7%	**8.6%**	**13.9%**	**10.4%**
Clerical and administrative workers	10.0%	11.5%	13.2%	16.2%	**12.2%**	**13.4%**	**13.8%**
Sales workers	6.4%	4.6%	3.3%	7.6%	**5.8%**	**9.2%**	**9.2%**
Machinery operators and drivers	7.3%	6.9%	0.0%	0.0%	**4.4%**	**7.5%**	**6.1%**
Labourers	11.9%	9.2%	9.9%	7.6%	**10.2%**	**10.5%**	**8.8%**

Source: ABS 2016, Census of Population and Housing: General Community Profiles.

A.7.2 Income

There is significant variation across the individual and household median weekly incomes in the SSCs and LGAs which comprise the local area and regional area. Within the local area, median weekly individual income and median weekly household income was the highest in Currawang SSC ($1,038 and $2,200 respectively). These are significantly higher compared to the NSW medians. This reflects the high SEIFA scores within Currawang SSC, which suggest very high levels of advantage and low levels of disadvantage compared to other suburbs across NSW (see Section A.3). Median weekly individual income in Tarago SSC ($803) and Mount Fairy SSC ($792) was also higher compared to the NSW median ($664). Median weekly individual income was the lowest in Lake Bathurst SSC ($507), which is lower compared to the NSW median individual income ($664). Median weekly household income was similar in Tarago SSC ($1,645) and Lake Bathurst SSC ($1,649), both of which are higher than NSW ($1,486). Throughout the regional area, median weekly individual income and median weekly household income was lower throughout Goulburn Mulwaree LGA compared to NSW but was higher in each of the suburbs included in the regional area. The lower median weekly household and individual incomes in Goulburn Mulwaree is reflective of the area's SEIFA scores, which suggest slightly higher levels of disadvantage and lower levels of advantage compared to other LGAs across NSW (see Section A.4.3). Median incomes in the study area are presented in Table A.25.

Table A.25 Median income, 2016

	Individual (median income $ weekly)	Household (median income $ weekly)
Tarago SSC	803	1,645
Lake Bathurst SSC	507	1,649
Currawang SSC	1,038	2,200
Mount Fairy SSC	792	1,875
Local area[1]	–	–
Goulburn Mulwaree LGA	625	1,196
Lake George SSC	1,202	2,625
Bungendore SSC	1,096	2,514
Mulloon SSC	888	2,200
Bywong SSC	1,061	2,450
Boro SSC	739	2,049
Manar SSC	735	2,249
Regional area[2]	–	–
NSW	**664**	**1,486**

Source: ABS 2016, Census of Population and Housing: General Community Profiles.

Notes: 1. Data for the total local area median mortgage repayments and rent payments was not available.
2. Data for the total regional area median mortgage repayments and rent payments was not available.

A.8 Housing and accommodation

A.8.1 Housing type and structure

The most common housing type and structure within the local area in 2016 was separate houses (98.2%), followed by other dwelling (1.2%) (ABS 2016a). The proportion of occupied dwellings in the local area (79.5%) is significantly lower compared with the regional area (86.0%) and NSW (90.1%) and reflects trends of departure from the local area and the regional area to regional centres and larger cities. Housing type and structure is presented in Table A.26.

Table A.26 Housing type and structure, 2016

	Separate house	Semi-detached, row or terrace house, townhouse	Flat or apartment	Other dwelling	Total private dwellings	Total occupied dwellings
Tarago SSC	96.4%	0.0%	0.0%	2.9%	173	80.3%
Lake Bathurst SSC	100.0%	0.0%	0.0%	0.0%	102	66.7%
Currawang SSC	100.0%	0.0%	0.0%	0.0%	68	85.3%
Mount Fairy SSC	97.4%	0.0%	0.0%	0.0%	86	88.4%
Local area	**98.2%**	**0.0%**	**0.0%**	**1.2%**	**429**	**79.5%**
Regional area	**88.9%**	**6.8%**	**2.8%**	**0.9%**	**15,023**	**86.0%**
NSW	**66.4%**	**12.2%**	**19.9%**	**0.9%**	**2,889,057**	**90.1%**

Source: ABS 2016, Census of Population and Housing: General Community Profiles

In 2016, most households were family households in the local area (78.4%), regional area (70.8%), and NSW (72.1%) (ABS 2016a). The proportion of family households across the local area is larger compared to NSW, with a smaller proportion of lone person households. However, within Lake Bathurst in the local area there is a smaller proportion of family households (67.7%) and a higher proportion of lone person households (24.6%) compared to the rest of the local area. This may align with the higher proportion of persons aged 45 years and older in Lake Bathurst compared to the rest of the local area and the regional area. Household composition in the study area is presented in Table A.27.

Table A.27 Household composition, 2016

Household type	Family households	Group households	Lone person households
Tarago SSC	82.7%	0.0%	17.3%
Lake Bathurst SSC	67.7%	0.0%	24.6%
Currawang SSC	79.3%	0.0%	19.0%
Mount Fairy SSC	78.9%	0.0%	19.7%
Local area	**78.4%**	**0.0%**	**19.5%**
Regional area	**70.8%**	**2.3%**	**26.8%**
NSW	**72.1%**	**4.2%**	**23.7%**

Source: ABS 2016, Census of Population and Housing: General Community Profiles.

A.8.2 Tenure

At the time of the 2016 Census most dwellings in the local area were owned with a mortgage (35.4%). This is consistent with the regional area (30.7%) and NSW (32.3%). The proportion of homes owned outright in the local area (31.5%), regional area (29.3%) and NSW (32.2%) is only slightly smaller. However, the proportion of homes that are rented in the local area (9.8%) is much smaller compared to the regional area (22.8%) and NSW (31.8%). Within the local area, there is a particularly small proportion of rented homes within Currawang SSC (4.4%) and Mount Fairy SSC (4.7%). The higher proportion of homes owned with a mortgage and outright may reflect the older population of the local area and regional area compared to NSW, as well as an undersupply of available rental housing (see Section A.8.4iii). Tenure within the study area is presented in Table A.28.

Table A.28 Tenure (based on total private dwellings), 2016

	Owned outright	Owned with a mortgage	Rented	Other tenure
Tarago SSC	31.2%	34.1%	11.0%	0.0%
Lake Bathurst SSC	29.4%	28.4%	15.7%	0.0%
Currawang SSC	35.3%	32.4%	4.4%	5.9%
Mount Fairy SSC	31.4%	48.8%	4.7%	0.0%
Local area	**31.5%**	**35.4%**	**9.8%**	**0.9%**
Regional area	**29.3%**	**30.7%**	**22.8%**	**0.7%**
NSW	**32.2%**	**32.3%**	**31.8%**	**0.9%**

Source: ABS 2016, Census of Population and Housing: General Community Profiles.

A.8.3 Mortgage repayment and rent

Rent and mortgage repayments constitute a significant proportion of household costs. Within the local area, median mortgage repayments are lower within Tarago SSC ($1,578 per month) and Lake Bathurst SSC (1,571 per month) compared to NSW (1,986) and are more consistent with mortgage repayment trends across Goulburn Mulwaree LGA (1,986). However, mortgage payments within Mount Fairy SSC, Currawang SSC and across the suburbs which comprise the rest of the regional area are higher compared to NSW averages. Within the local area, rent payments are lower compared to the NSW average of $380 per week. However, there is some variability across the regional area, ranging from a high median rent payment in Bungendore SSC ($450 per week) to a relatively low median rent payment in Mulloon SSC ($210 per week) and Boro SSC ($0 per week). Mortgage and rent repayments are presented in Table A.29.

Table A.29 Mortgage repayment and rent, 2016

	Mortgage repayments (median mortgage repayments $ monthly)	Rent payments (median rent $ weekly)
Tarago SSC	1,578	220
Lake Bathurst SSC	1,571	300
Currawang SSC	2,100	0
Mount Fairy SSC	2,167	250
Local area[1]	**NA**	**NA**
Goulburn Mulwaree LGA	1,517	260
Lake George SSC	2,600	250
Bungendore SSC	2,383	450
Mulloon SSC	2,531	210
Bywong SSC	2,426	340
Boro SSC	2,509	0
Manar SSC	2,028	350
Regional area[2]	**NA**	**NA**
NSW	**1,986**	**380**

Source: ABS 2016, Census of Population and Housing: General Community Profiles.

Notes: 1. Data for the total local area median mortgage repayments and rent payments was not available.
2. Data for the total regional area median mortgage repayments and rent payments was not available.

Housing stress is considered to occur when households in the lower 40% of income distribution spend more than 30% of their income in housing costs (rents or mortgage repayments) (AHURI 2019). This can mean that local people who are not employed in high-paying jobs may be unable to afford local rents which can be pushed up by higher salaries. Housing affordability in the study area is demonstrated in Table A.30.

In the local area in 2016, a significantly smaller proportion of households had rent payments greater than or equal to 30% of household income compared to NSW (12.9%) (ABS 2016a). This is likely reflective of the lower proportion of rental tenures in the local area (see Section A.8.2) and lower rent costs (see Section A.8.3). However, mortgage affordability was lower in the local area compared to NSW, with 7.6% of households in Tarago SSC, 10.9% of households Lake Bathurst SSC, 14.5% of households in Currawang SSC, and 10.1% of households in Mount Fairy SSC with mortgage repayments greater than or equal to 30% of household income. This may reflect lower housing demand in Tarago SSC and Lake Bathurst SSC and fewer people moving to the Tarago SSC and Lake Bathurst SSC due to developments potentially deterring people from moving to the local area, which was raised by nearby neighbours during the SIA field study (personal comms. 2021). Housing affordability in the study area is demonstrated in Table A.30.

Table A.30 Housing affordability, 2016

	Households where rent payments are greater than or equal to 30% of household income (%)	Households where mortgage payments are greater than or equal to 30% of household income (%)
Tarago SSC	2.3%	7.6%
Lake Bathurst SSC	4.5%	10.9%
Currawang SSC	0.0%	14.5%
Mount Fairy SSC	5.3%	10.1%
Local area[1]	**NA**	**NA**
Goulburn Mulwaree LGA	10.4%	5.9%
Lake George SSC	NA	NA
Bungendore SSC	4.1%	8.6%
Mulloon SSC	10.0%	13.5%
Bywong SSC	2.0%	6.5%
Boro SSC	NA	NA
Manar SSC	11.1%	0.0%
Regional area[2]	**NA**	**NA**
NSW	**12.9%**	**7.4%**

Source: ABS 2016, Quickstats.

Notes: 1. Data for the total local area median mortgage repayments and rent payments was not available.
2. Data for the total regional area median mortgage repayments and rent payments was not available.

A.8.4 Housing and rental market trends

i Mortgage repayment and rent trends

Within the study area mortgage repayments and rent growth rates varied. Mortgage repayment and rent growth rate data was not available for all SSCs due to changing ABS structures. Therefore, analysis of mortgage repayment and rent growth rates is limited to the SSCs and LGAs where data is available. Overall, between 2006–2016 there has been an increase of mortgage repayments within the study area. This aligns with trends in greater NSW where mortgage repayments between 2006–2016 have increased by 30.9%. Within the local area, mortgage repayment rates between 2006–2016 for Tarago SSC were lower (18.4%) than greater NSW (30.9%), whilst mortgage repayment rates in Currawang SSC were higher (38.4%). There were general increases across the regional area within Goulburn Mulwaree LGA (27.8%), Bungendore SSC (48.7%) and Bywong SSC (48.3%). However, repayment rates between 2011–2016 decreased specifically within Mulloon SSC and Boro SSC where repayments decreased by 100%.

Across the study area, rent repayments between 2006–2011 generally increased. In the same period, rent payments rates were relatively high in Tarago SSC and increased by 175.0%, which is higher than trends for greater NSW (81.0%). With the exception of Currawang SSC where rent payments between 2006–2016 decreased by 100.0%. Rent payments in between 2006–2011 within the regional area, specifically Goulburn Mulwaree LGA (73.3%), Bungendore SSC (80.0%), and Bywong SSC (36.0%) increased at a lower rate when compared to NSW (81.0%). Whereas for 2011–2016 there were stark increases particularly in Tarago SSC (214.3%) and Bywong SSC (126.7%). Mortgage and rent repayment growth rates in the study area are presented in Table A.31.

Table A.31 Mortgage repayment and rent growth rates, 2006 – 2016

	Mortgage repayments			Rent payments		
	2006–2011	2011–2016	2006–2016	2006–2011	2011–2016	2006–2016
Tarago SSC	52.9%	-22.5%	18.4%	-12.5%	214.3%	175.0%
Lake Bathurst SSC[1]	NA	NA	NA	NA	NA	NA
Currawang SSC[2]	NA	NA	38.4%	NA	NA	-100.0%
Mount Fairy SSC	NA	NA	NA	NA	NA	NA
Local area[3]	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Goulburn Mulwaree LGA	27.8%	0.0%	27.8%	23.3%	40.5%	73.3%
Lake George SSC	NA	NA	NA	NA	NA	NA
Bungendore SSC	41.9%	4.7%	48.7%	45.6%	23.6%	80.0%
Mulloon SSC[4]	NA	-100.0%	NA	NA	-100.0%	NA
Bywong SSC	37.5%	7.8%	48.3%	-40.0%	126.7%	36.0%
Boro SSC	NA	-100.0%	NA	NA	0.0%	NA
Manar SSC	NA	NA	NA	NA	NA	NA
Regional area[5]	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
NSW	**31.4%**	**-0.4%**	**30.9%**	**42.9%**	**26.7%**	**81.0%**

Source: ABS 2016, Census of Population and Housing: General Community Profiles.

Notes: 1. Mortgage repayments and rent growth data for Lake Bathurst SSC, Mount Fairy SSC, Lake George SSC and Manar SSC was not available for 2006, 2011 and 2016.

2. Mortgage repayments and rent growth data for Currawang SSC was not available for 2011.

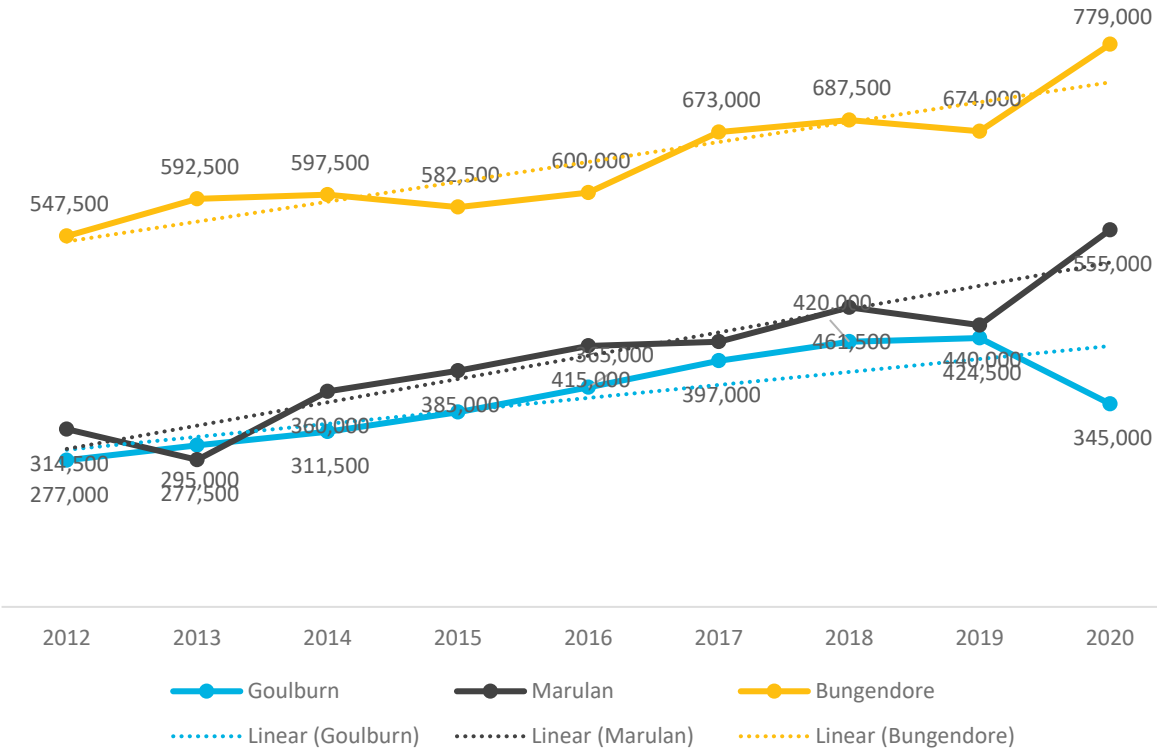
3. Data for the total local area median mortgage repayments and rent payments was not available.

4. Mortgage repayments and rent growth data for Mulloon SSC and Manar SSC was not available for 2006 and 2011.

5. Data for the total regional area median mortgage repayments and rent payments was not available.

ii Median property prices

Housing prices data is not available for the suburbs within the local area. Selected suburbs within the regional area, which include Goulburn, Marulan, and Bungendore, have been used to provide an indication of the median housing price trends which may be experienced in the local area. Based on the housing price trends of Goulburn, Marulan and Bungendore, housing prices in the regional area have generally been increasing from 2012–2020. The highest housing prices have consistently been within the suburb of Bungendore. Median housing price trends for the local area are demonstrated in Figure A.12.



Source: realestate.com.au/neighbourhoods.

Figure A.12 Median house price, 2012–2020

iii Residential vacancy rates

On 21 June 2021, there were four properties for sale and one property for rent in the local area (REA Group 2021). However, in the regional area there were 183 properties for sale and 56 properties for rent, with the vast majority of these properties located within the suburb of Goulburn (126 properties for sale and 41 properties for rent). Properties for sale in selected suburbs within the local area are presented in Table A.31.

Table A.32 Properties for sale and rent in the local area, 21 June 2021

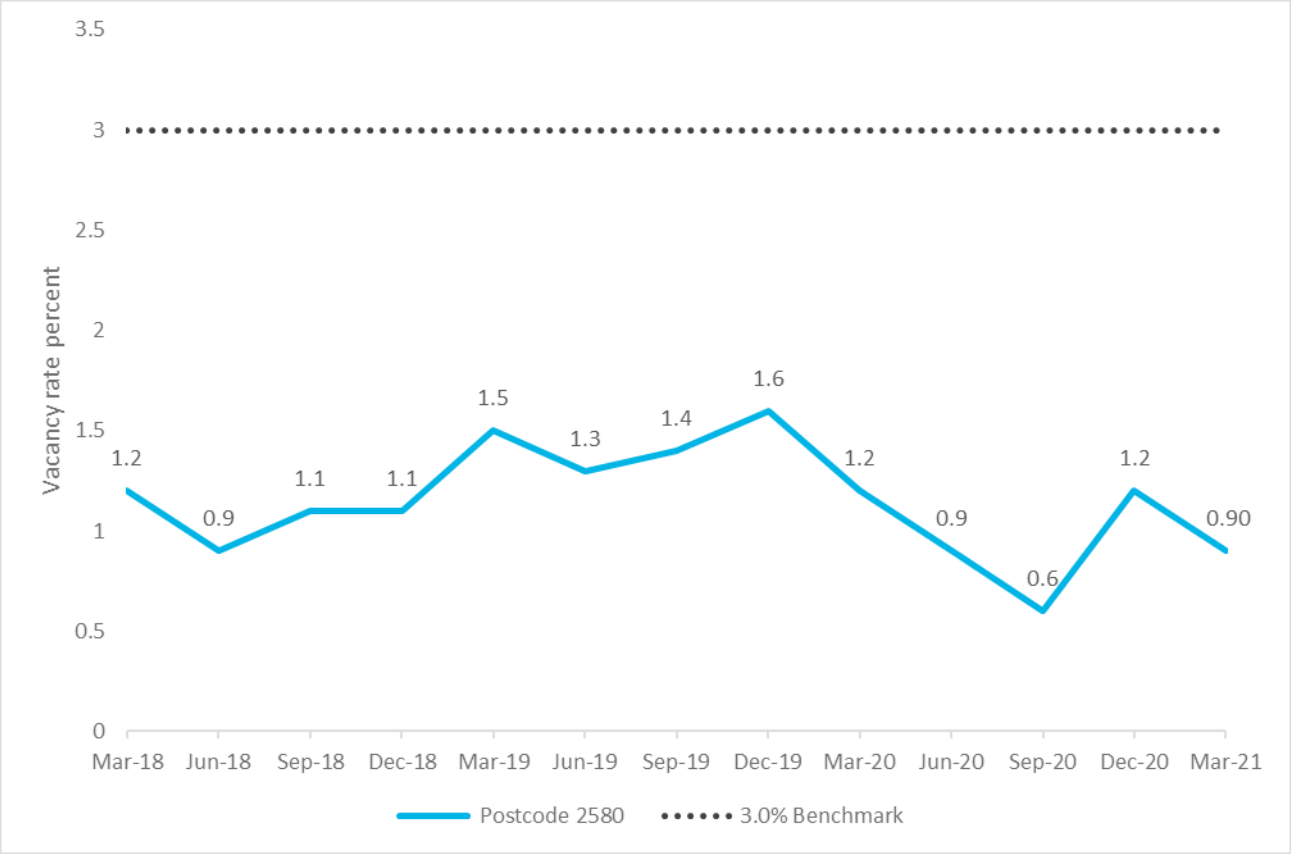
Suburb	Number of properties for sale	Number of properties for rent
Local area		
Tarago	2	1
Lake Bathurst	0	0
Currawang	2	0
Mount Fairy	0	0
Total	**4**	**1**
Regional area		
Goulburn	126	41
Brayton	0	0
Carrick	0	0
Marulan	16	4
Tallong	11	0
Towrang	1	0
Tarlo	1	0
Middle Arm	0	0
Kingsdale	0	0
Wayo	0	0
Bungonia	5	0
Boxers Creek	1	0
Gundary	0	0
Brisbane Grove	0	0
Baw	0	0
Mummel	0	0
Pomeroy	0	0
Parkesbourne	0	0
Yarra	0	0
Wollogorang	0	0
Tirrannaville	0	0
Quialigo	0	0
Windellama	3	0
Oallen	1	0
Lower Boro	1	0

Table A.32 Properties for sale and rent in the local area, 21 June 2021

Suburb	Number of properties for sale	Number of properties for rent
Lake George	0	0
Bungendore	8	7
Mulloon	1	0
Bywong	6	4
Boro	2	0
Manar	0	0
Total	**183**	**56**

According to REINSW, rental vacancy rates are traditional market indicators that "measure the proportion of residential properties vacant and available for rent at any point in time" (REINSW 2019). A higher vacancy rate indicates that there are a higher proportion of vacant (unoccupied) units, based on the total number of units in an area. Vacancy rates under 3% are low and indicate a tight rental market with an undersupply of rental options while vacancy rates above 3% indicate an oversupply of rental options. A rental market with a vacancy rate of 3% is considered at equilibrium (Brewsters Property Group nd).

From March 2018 – March 2021 the residential vacancy rate for postcode 2580, which encompasses most of the local area and regional area, has consistently remained significantly below the equilibrium level of 3.0%. This indicates that there has been a substantial undersupply of rental housing in the local area and regional area, which is reflected in the lower rates of rental tenure in the local area and regional area compared to NSW (see Section A.8.2). The residential vacancy rate trends for postcode 2580 is available in Figure A.13.



Source: SQM Research 2021, Residential Vacancy Rates.

Figure A.13 Residential vacancy rate trends, 2018–2021

A.8.5 New housing and rental supply

Housing forecasts are only available at the LGA level. Forecasts for Goulburn Mulwaree LGA have been used to provide an indication of the trends within the local area and regional area. Housing forecasts for Goulburn Mulwaree LGA predict an increase of 2,748 required dwellings from 2016–2041 in response to population growth and shifting patterns in household structure and number (DPIE 2019). Household requirements and population growth forecasts in Goulburn Mulwaree LGA are presented in Table A.32.

Table A.33 Household requirement and population growth forecasts for Goulburn Mulwaree LGA, 2016 – 2041

	2016	2021	2026	2031	2036	2041
Goulburn Mulwaree LGA						
Total households	12,234	12,880	13,421	13,905	14,307	14,591
Average household size	2.36	2.31	2.27	2.23	2.20	2.17
Required dwellings	14,262	15,015	15,645	16,210	16,679	17,010
Total dwelling change (required new dwellings)	**–**	**753**	**630**	**565**	**469**	**331**

Source: DPIE 2019, NSW 2019 Population projections.

Notes: 1. The projected population has been determined by using the ABS ERP population count which takes Census counts of people where they usually live (accounting for interstate visitors and removing overseas visitors), adjusts for Census undercount and overcount using the Census Post Enumeration Survey (PES), adds in Australians who are temporarily overseas, and applies further demographic adjustments.
2. Average household size is taken from NSW DPIE 2019 but there is a mathematical discrepancy – average household size is not equal to the total population divided by the total number of households.

Recent growth in housing supply can be estimated from residential building approval figures for Goulburn Mulwaree LGA. In 2020–2021 fiscal year-to-date (FYTD), there was a total of 259 new residential building approvals for the year in Goulburn Mulwaree LGA. This represents a total increase of 30 approvals from the previous year. Total residential building approvals in the local area are presented in see Table A.33.

Table A.34 Total residential building approvals in Goulburn Mulwaree LGA, 2012 – 2021

	2012–2013	2013–2014	2014–2015	2015–2016	2016–2017	2017–2018	2018–2019	2019–2020	2020–2021 April FYTD
Goulburn Mulwaree LGA									
New Houses	128	115	165	107	86	183	151	136	196
New Other Residential	15	4	12	22	12	43	109	93	63
Total	**143**	**119**	**177**	**129**	**98**	**226**	**260**	**229**	**259**

Source: ABS 2021, 8731.0 – Building Approvals, Australia.

To determine if residential building approvals in the local area will adequately support expected demand for new dwellings, the median of the total residential building approvals in the local area from 2012–2020, equalling 177 approvals per year, is used to create a reasonable estimation of residential building approvals into the future. The median of the total number of residential approvals from 2012–2020 provides a conservative estimate of the expected trends for building approvals in the local area into the future, as it takes into account the fluctuations present in the previous approval rates. Although it is possible that actual residential approval totals could be higher or lower, without complete certainty in the factors that are driving approval decisions year on year, the median provides a reasonable degree of confidence in these estimations. The projected residential building approvals from 2016–2041 are demonstrated in Table A.34.

Table A.35 Estimates of future building approvals in the local area, 2016 – 2041

	2016–2021[1]	2021–2026[2]	2026–2031	2031–2036	2036–2041
Projected required new dwellings	753	630	565	469	331
Estimated residential building approvals	1072	885	885	885	885

Source: profile.id 2021.

Notes: 1. 2016–2021 includes number of actual approvals from 2016–2021.
2. Projections from 2021–2041 are based on an estimate of 177 residential approvals per year.

Based on the above calculations, estimated future residential building approvals in Goulburn Mulwaree are largely anticipated to accommodate estimated required new dwellings within the LGA.

A.8.6 Tourist accommodation

There is very minimal tourist accommodation available within the local area, with one hotel located in Tarago SSC. Most tourist accommodation is available in the regional area, particularly in the suburb of Goulburn. Within the regional area, accommodation options include hotels/motels, caravan parks, bed and breakfasts, and far-stays/homestays. The most abundant form of tourist accommodation is hotel/motel. There are additional short stay accommodation options available in the local area and regional area in the form of private holiday rentals through platforms such as Airbnb. Tourist accommodation in the local area is summarised in Table A.36.

Table A.36 Tourist accommodation, 2021

Suburb	Hotel/motel	Caravan park	Bed and breakfast	Farm-stay/homestay
Local area				
Tarago SSC	1	0	0	0
Lake Bathurst SSC	0	0	0	0
Currawang SSC	0	0	0	0
Regional area				
Goulburn SSC	27	2	1	1
Marulan SSC	3	0	0	0
Lake George SSC	0	0	0	0
Bungendore SSC	6	1	0	0

Source: Google Travel 2021.

A.9 Local business and industry

Across the local area, the top industries of employment are public administration and safety (17.1%), agriculture, forestry and fishing (12.7%), and education and training (9.0%). Within the local area, public administration and safety is the largest industry of employment within Tarago SSC (10.5%); the agriculture, forestry and fishing industry is the largest industry of employment in Lake Bathurst SSC (21.8%); and public administration is the largest industry of employment in Currawang SSC (23.1%) and Mount Fairy SSC (29.5%). The high proportion of employment within the agriculture, forestry and fishing industry throughout the local area corresponds with the higher proportion of both certificate and graduate diploma and graduate certificate qualifications held in the local area (see Section A.6.2ii) as formal qualifications related to this industry are largely obtained through VET (National Skills Commission 2021). Within the agriculture, forestry and fishing industry within the local area, sheep farming (specialised) is the dominant industry (ABS 2016a). The high proportion of people employed in the public administration and safety industry throughout the local area and regional area, which includes occupations within Central Government Administration and the police, could be due to the proximity of the local area to Canberra, as well as the presence of the NSW Police Force Academy in Goulburn. The industries of employment within the study area are available in Table A.37.

Table A.37 Industry of employment, 2016

Industry	Tarago SSC	Lake Bathurst SSC	Currawang SSC	Mount Fairy SSC	Local area	Regional area	NSW
Agriculture, forestry and fishing	9.6%	21.8%	17.6%	7.6%	12.7%	3.6%	**2.1%**
Mining	1.8%	0.0%	0.0%	0.0%	0.8%	1.3%	**0.9%**
Manufacturing	3.2%	3.4%	4.4%	0.0%	2.8%	5.1%	**5.8%**
Electricity, gas, water and waste services	1.4%	0.0%	3.3%	0.0%	1.2%	1.2%	**0.9%**
Construction	9.6%	11.5%	6.6%	5.7%	8.6%	9.4%	**8.4%**
Wholesale trade	1.4%	0.0%	0.0%	0.0%	0.6%	1.8%	**3.1%**
Retail trade	7.8%	5.7%	5.5%	12.4%	8.0%	9.8%	**9.7%**
Accommodation and food services	5.9%	0.0%	0.0%	2.9%	3.2%	7.1%	**7.1%**
Transport, postal and warehousing	7.3%	0.0%	3.3%	0.0%	3.8%	4.6%	**4.7%**
Information media and telecommunications	0.0%	0.0%	3.3%	0.0%	0.6%	1.0%	**2.2%**
Financial and insurance services	0.0%	0.0%	0.0%	2.9%	0.6%	1.4%	**4.9%**
Rental, hiring and real estate services	1.8%	0.0%	0.0%	0.0%	0.8%	1.4%	**1.8%**
Professional, scientific and technical services	7.3%	3.4%	12.1%	5.7%	7.2%	4.9%	**8.1%**
Administrative and support services	3.7%	3.4%	0.0%	8.6%	4.0%	3.0%	**3.5%**
Public administration and safety	10.5%	12.6%	23.1%	29.5%	17.1%	14.1%	**6.0%**
Education and training	6.4%	19.5%	12.1%	2.9%	9.0%	7.5%	**8.4%**

Table A.37 Industry of employment, 2016

Industry	Tarago SSC	Lake Bathurst SSC	Currawang SSC	Mount Fairy SSC	Local area	Regional area	NSW
Health care and social assistance	6.8%	4.6%	3.3%	4.8%	5.4%	13.3%	**12.5%**
Arts and recreation services	0.0%	0.0%	3.3%	3.8%	1.4%	1.2%	**1.5%**
Other services	4.1%	3.4%	0.0%	5.7%	3.6%	4.2%	**3.7%**

Source: ABS 2016, Census of Population and Housing: General Community Profiles.

In 2020, there were 2,391 registered businesses across Goulburn Mulwaree LGA, none of which employed more than 200 employees. Of these registered businesses, 39.7% were classed as small businesses employing fewer than 20 people, with an additional 58.4% classed as sole operators/non-employing. Within Goulburn Mulwaree LGA, 5.3% of businesses in 2020 turned over $2 million or more, with the greatest proportion of businesses operating within the $200,000 to $2 million range. Registered businesses by employment size and turnover range are provided in Table A.38 and Table A.39.

Table A.38 Registered businesses by employment size, 2020

Area	Non-employing	1–19 employees	20–199 employees	200+ employees	Total
Goulburn Mulwaree LGA	58.4%	39.7%	2.0%	0.0%	2,391

Source: ABS 2020, 8165.0 — Counts of Australian Businesses, including Entries and Exists, June 2016 to June 2020.

Table A.39 Registered businesses by turnover range, 2020

Area	$0 to less than $50k	$50k to less than 200k	$200k to less than $2m	$2m or more	Total number
Goulburn Mulwaree LGA	28.6%	31.1%	35.2%	5.3%	2,391

Source: ABS 2020, 8165.0—Counts of Australian Businesses, including Entries and Exists, June 2016 to June 2020.

Of the 2,391 registered businesses in Goulburn Mulwaree LGA, 20.4% were in the agriculture, forestry and fishing industry. The industries with the next highest proportion of registered businesses across the local area was construction (18.3%), and professional, scientific and technical services (7.9%). Registered businesses by industry in the local area are presented in Table A.40.

Table A.40 Registered businesses by industry, 2020

Industry	Goulburn Mulwaree LGA
Agriculture, forestry and fishing	20.4%
Mining	0.5%
Manufacturing	4.0%
Electricity, gas, water and waste services	0.5%
Construction	18.3%
Wholesale trade	2.1%
Retail trade	6.4%
Accommodation and food services	3.9%
Transport, postal and warehousing	6.2%
Information media and telecommunications	0.5%
Financial and insurance services	5.5%
Rental, hiring and real estate services	7.2%
Professional, scientific and technical services	7.9%
Administrative and support services	3.1%
Public administration and safety	0.3%
Education and training	1.4%
Health care and social assistance	4.6%
Arts and recreation services	1.8%
Other services	5.3%
Total number	**2,391**

Source: ABS 2020, 8165.0 — Counts of Australian Businesses, including Entries and Exists, June 2016 to June 2020.

Notes: Excludes businesses with industry 'not stated'.

A.10 Health and community well-being

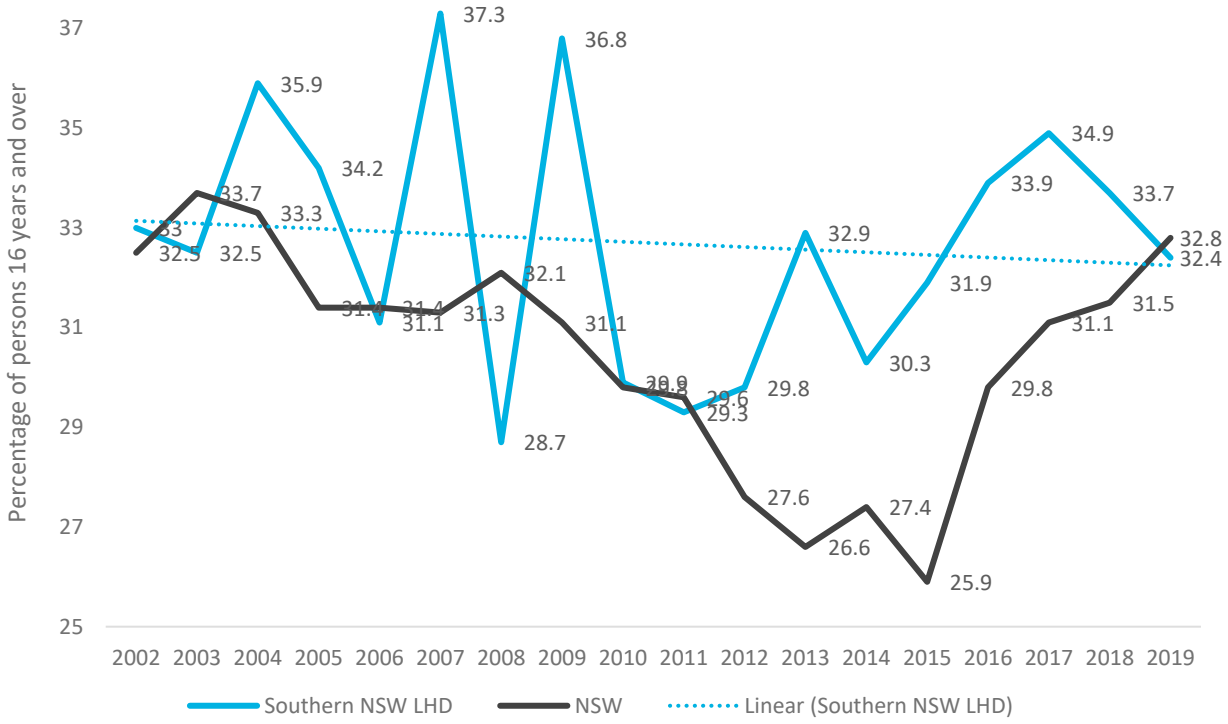
A.10.1 Community health

Social determinants of health, described as "the circumstances in which people grow, live, work, age, and the systems put in place to deal with illness…which are shaped by political, social, and economic forces" (AIHW 2020), indicate the health of a population. These include factors such as conditions of employment, provision of social services and support, and socioeconomic position. Within the local area, there is a much lower level of unemployment and fewer household with low income compared to the rest of NSW, suggesting lower rates of socio-economic disadvantage. However, although the regional area has a substantially lower level of unemployment compared to greater NSW, there are relatively more households with low income and fewer people in high-skill occupations compared to the rest of NSW, suggesting higher rates of socio-economic disadvantage. Furthermore, the provision of social infrastructure and social services is anticipated to be less comprehensive compared to more urban regions of NSW, which may require travel outside of the local area to access specialist health and community services.

i Physical health

Three major health risk factors can also be used as an indicator of population health: alcohol consumption, smoking, and obesity. Southern NSW LHD, which encompasses the local area and regional area, has generally had a higher proportion of the population who consumed alcohol at levels considered to be a high risk to health[3] compared to NSW from 2002–2019 (NSW Health 2020). Within Southern NSW LHD trends of alcohol consumption have varied significantly. Between 2002–2019 there have been several stark decreases and increases in the proportion of persons within Southern NSW LHD who engage in risky drinking, with notable increases occurring in 2007 and 2009. Since 2017 there has been a gradual decrease in the proportion of persons engaging in high-risk drinking. The proportion of people who consumed alcohol at levels considered to be a high risk to health are presented in see Figure A.14.

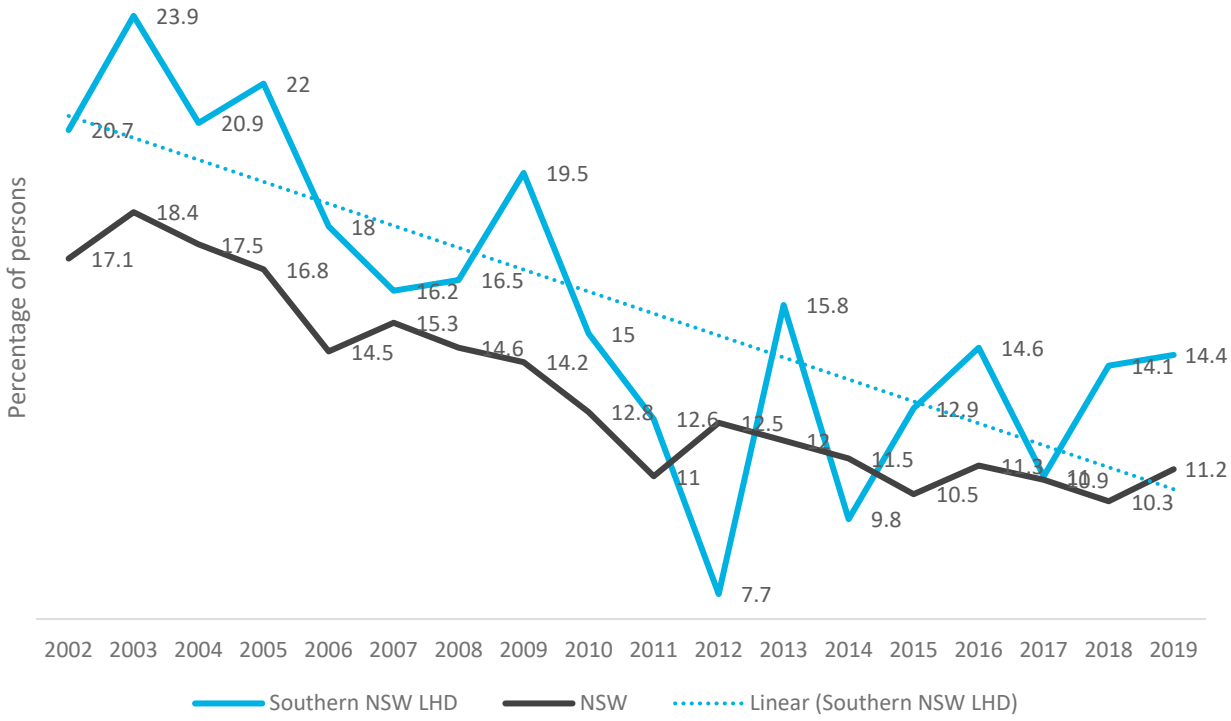
[3] High risk drinking is defined as the consumption of more than 2 standard drinks per day.



Source: NSW Health 2020, Health Statistics NSW.

Figure A.14 Alcohol consumption at levels posing a long-term health risk (proportion of persons aged 16 years and older), 2002–2019

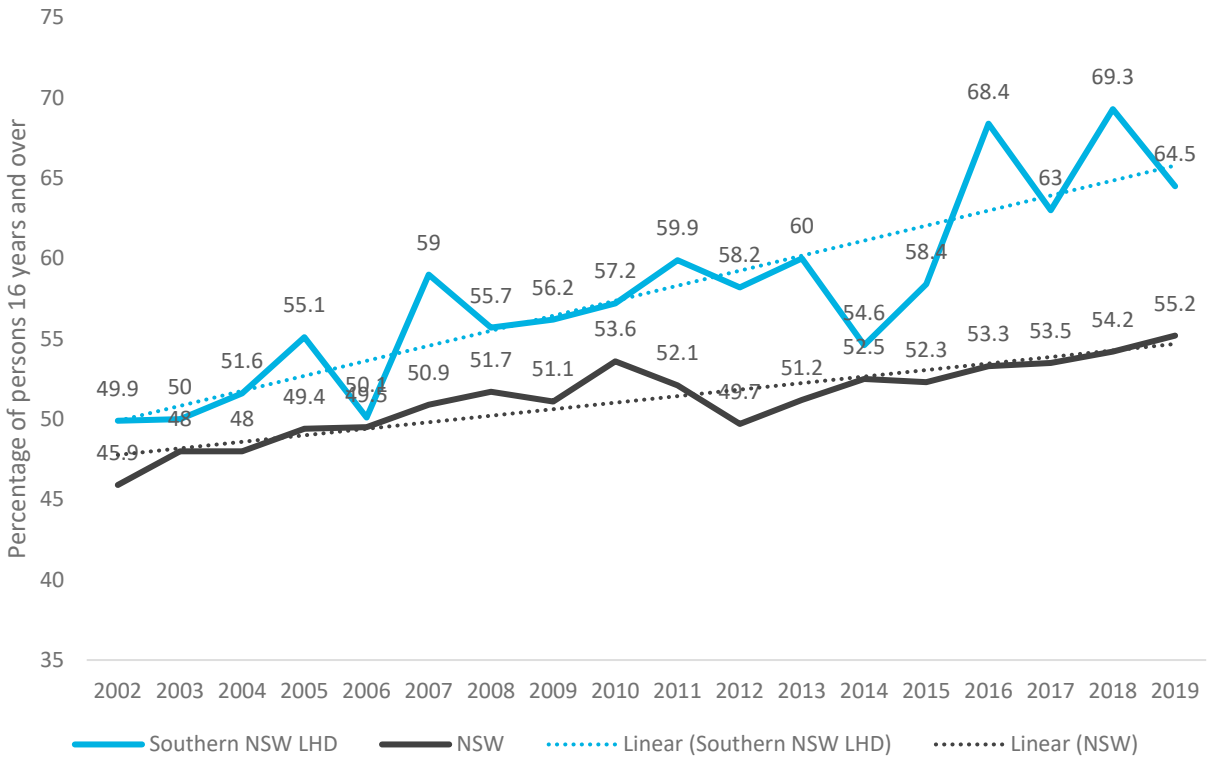
The proportion of persons who smoke in Southern NSW LHD has varied from 2002–2019 but has also generally been above the state average. Although there has been volatility in the rate of daily smoking in adults within Southern NSW LHD, the trend in the rate in daily smoking adults is decreasing both within Southern NSW LHD and across NSW (NSW Health 2020). Daily smoking in adults is presented in Figure A.15.



Source: NSW Health 2020, Health Statistics NSW.

Figure A.15 Daily smoking in adults (proportion of persons), 2002–2019

Physical inactivity and overweight and obesity are significant public health problems in NSW which have been generally increasing since 2002–2019. The instances of overweight and obese persons have also been increasing in Southern NSW LHD, with a higher proportion of overweight and obese persons on average compared to the rest of NSW (NSW Health 2020) (see Figure A.16).

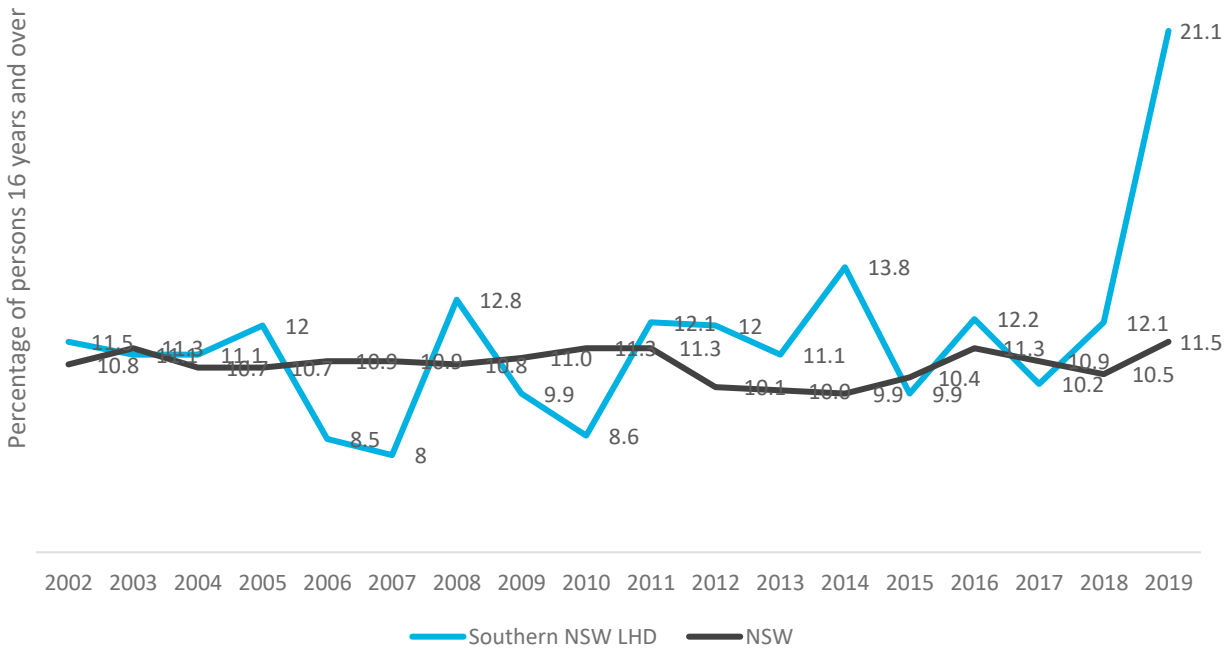


Source: NSW Health 2020, *Health Statistics NSW*.

Figure A.16 Overweight or obese adults (proportion of persons aged 16 years and older), 2002–2019

ii Asthma

Prevalence of asthma has varied significantly year on year in Southern NSW LHD from 2002–2019. In Southern NSW LHD there was a significant increase in prevalence of asthma from 2018–2019, resulting in a significantly greater prevalence of asthma in in Southern NSW LHD in 2019 (21.1%) compared to NSW (11.5%). Data for asthma in persons aged 16 years and over is presented in Figure A.17.



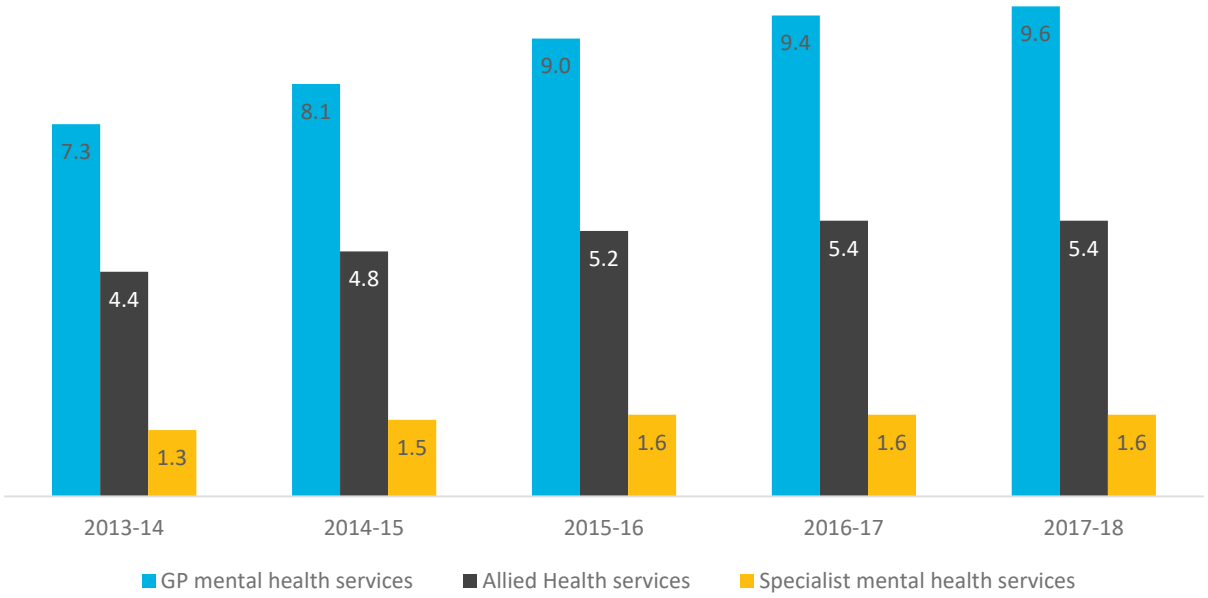
Source: NSW Health 2020, *Health Statistics NSW*.

Figure A.17 Prevalence of asthma in persons aged 16 years and older, 2002–2019

iii Mental health

Information concerning mental health within the local and regional area is available within the South Eastern NSW LHD and Primary Health Network (PHN). The local and regional area fall within the South Eastern PHN, with data concerning patients of mental health services collected by Australian Institute of Health and Welfare (AIHW). The following data represents from the PHN demonstrates the number of patients residing within the South Eastern NSW PHN who have claimed non-hospital Medicare-subsidised services, specifically mental health related Allied Health services, GP mental health and specialist mental health services (AIHW 2019).

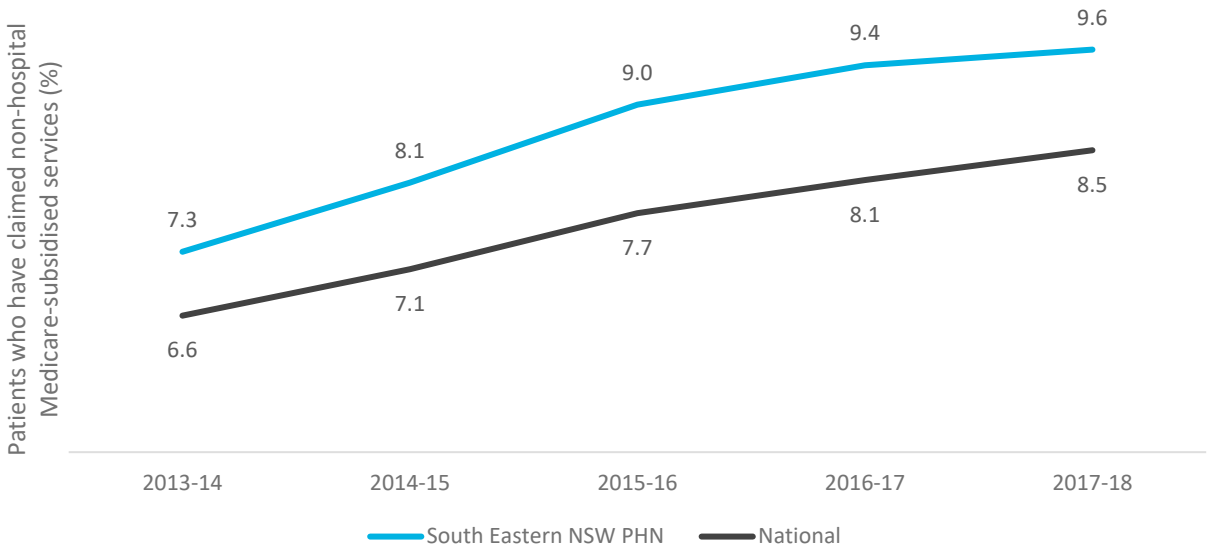
When comparing the number of patients accessing mental health services within the South Eastern PHN, more residents access GP mental health services in comparison to Allied Health or specialist mental health services. This may reflect a lack of allied health and specialist services within the local and regional area.



Source: AIHW 2019, Medicare-subsidised services, by PHN area: 2013–14 to 2017–18.

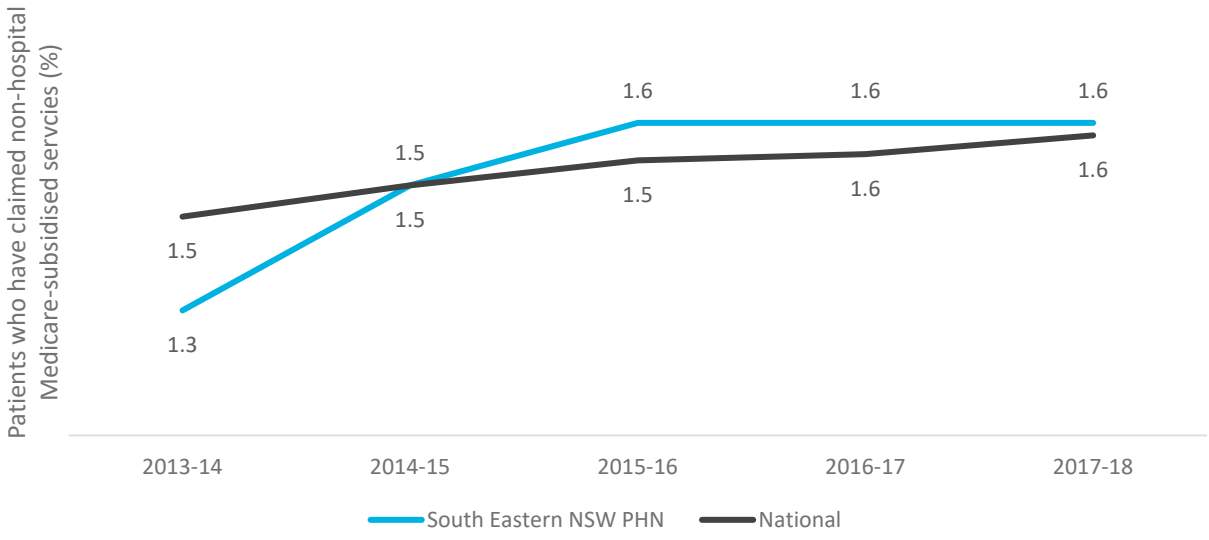
Figure A.18 Patients who have claimed non-hospital Medicare-subsidised mental health services in South Eastern NSW PHN, 2013–2018

When comparing the national percentage of patients with residents in South Eastern NSW PHN, the proportion of patients within South Eastern NSW PHN accessing GP mental health services is higher than the national proportion of patients accessing GP mental health services (see Figure A.19). The proportion of patients within the South Eastern NSW PHN accessing allied mental services is also higher when compared to the national proportion (see Figure A.21). Whilst the proportion of patients within the South Eastern NSW PHN accessing specialist health services is aligned with the national proportions, with the exception of 2013–2014 where patients who accessed specialist mental health services was lower than the national proportion (Figure A.20). This suggests higher rates of mental health issues within the South Eastern NSW PHN, which is assumed to include the local and regional areas. Across all health services the number of patients has increased between 2013–2018.



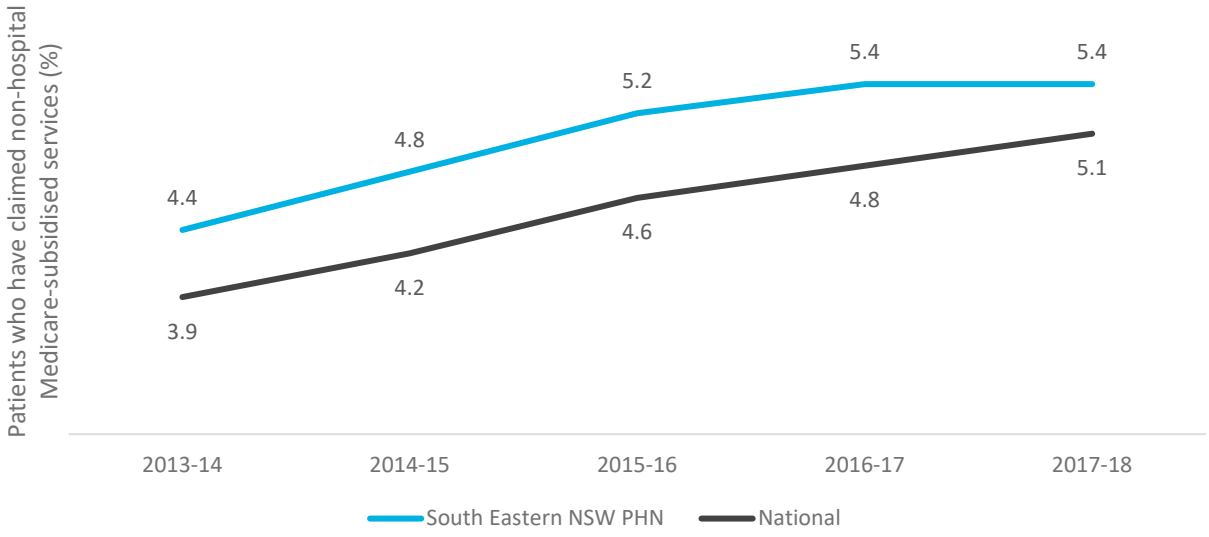
Source: AIHW 2019, Medicare-subsidised services, by PHN area: 2013–2014 to 2017–2018.

Figure A.19 Patients who have claimed non-hospital Medicare-subsidised GP mental health services, 2013–2018



Source: AIHW 2019, Medicare-subsidised services, by PHN area: 2013–2014 to 2017–2018.

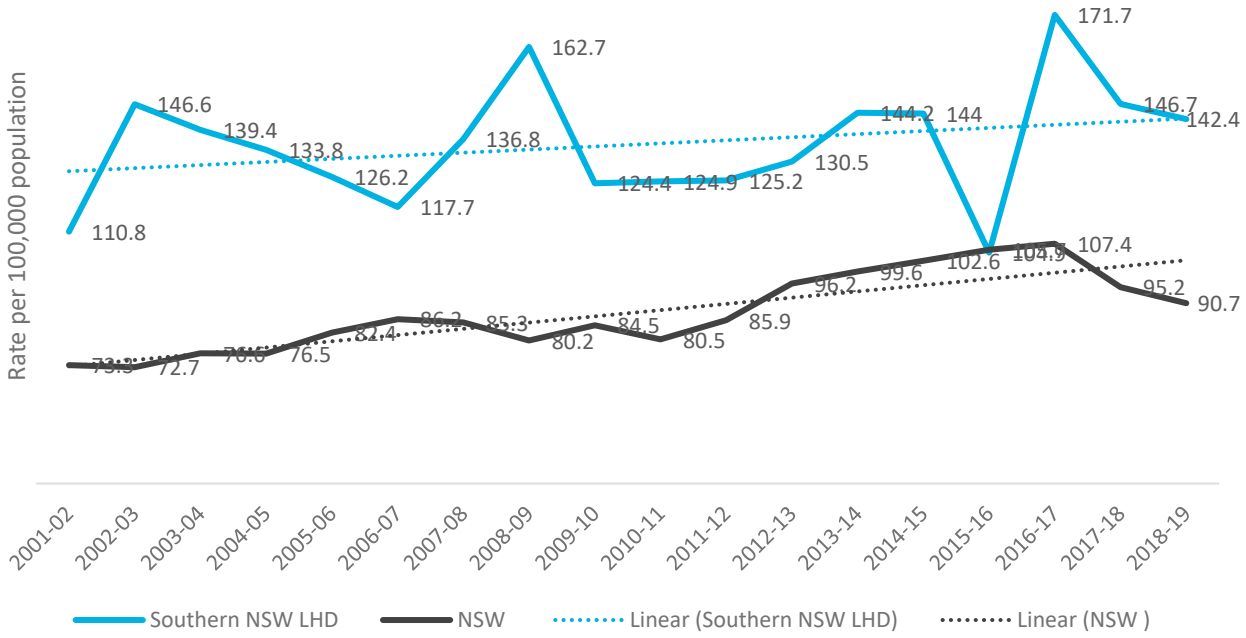
Figure A.20 Patients who have claimed non-hospital Medicare-subsidised specialist mental health services, 2013–2018



Source: AIHW 2019, Medicare-subsidised services, by PHN area: 2013–14 to 2017–18.

Figure A.21 Patients who have claimed non-hospital Medicare-subsidised Allied Health services, 2013–2018

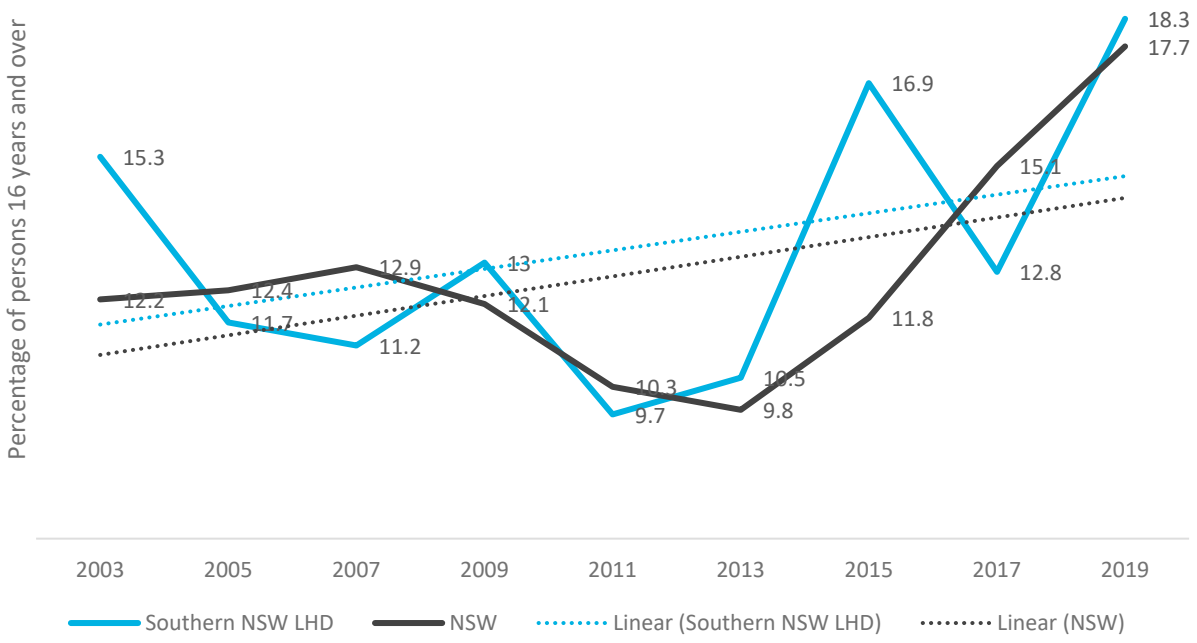
Data is also collected by NSW Health regarding the level of psychological distress using the Kessler 10 (K10) approach. This approach uses a 10-item questionnaire that measures anxiety, depression, agitation, and psychological fatigue in the most recent 4-week period and has been adopted by NSW Health as an indicator of mental health. Data relating to the number of people that have been hospitalised as a result of self-harm is indicative of very poor and/or poorly managed mental health. Intentional self-harm hospitalisations trends in Southern NSW LHD have generally been increasing from 2001–2019, with a significant increase from 2011–2017. Trends in Southern NSW LHD have consistently remained above the NSW average. Data for intentional self-harm hospitalisations is presented in Figure A.22.



Source: NSW Health 2020, *Health Statistics NSW*.

Figure A.22 Intentional self-harm hospitalisations (rate per 100,000 persons of all ages), 2001–2002 to 2018–2019

Data is also collected by NSW Health regarding the level of psychological distress using the Kessler 10 (K10) approach. This approach uses a 10-item questionnaire that measures anxiety, depression, agitation, and psychological fatigue in the most recent 4-week period and has been adopted by NSW Health as an indicator of mental health. The trend data is only available at the LHD level and indicates that trends of psychological distress rated between high and very high in Southern NSW LHD have remained relatively consistent with trends across greater NSW, with both areas experiencing a general decrease from 2003–2013, followed by a general increase from 2013–2019. Levels of high and very high psychological distress in 2019 were similar across Southern NSW LHD (18.3%) and greater NSW (17.7%) (see Figure A.23 for more detail).



Source: NSW Health 2020, *Health Statistics NSW*.

Figure A.23 High and very high levels of psychological distress based on Kessler 10 scale (proportion of persons aged 16 years and older), 2003–2019

A.10.2 Voluntary work

Volunteering rates can give an indication of social cohesion in a community, and the willingness of people to help each other. Rates of volunteering in 2016 were significantly higher in the local compared to NSW, with 26.9% of persons in the local area having done voluntary work in the last 12 months compared to 18.1% in NSW (ABS 2016a). The proportion of persons who had volunteered through an organisation or group was particularly significant in Lake Bathurst SSC at 28.9%. The proportion of persons who volunteered in the study area is presented in Table A.41.

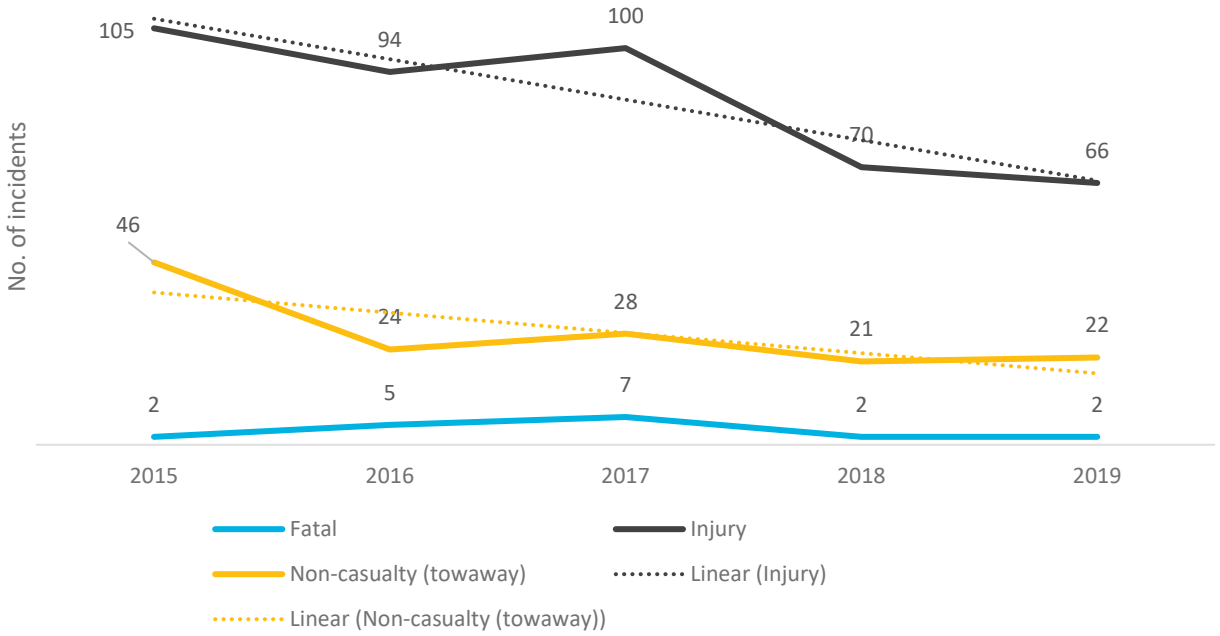
Table A.41 Volunteering rates, 2016

Location	Did voluntary work through an organisation or group (last 12 months)
Tarago SSC	25.7%
Lake Bathurst SSC	28.9%
Currawang SSC	20.6%
Mount Fairy SSC	26.9%
Local area	**25.8%**
Regional area	**19.6%**
NSW	**18.1%**

Source: ABS 2016, Census of Population and Housing: General Community Profiles.

A.10.3 Road incidents

Crash trends data is only available at the LGA level. This data is for Goulburn Mulwaree LGA as the local area is encompassed within this LGA. Incidents resulting in injury have generally been decreasing across Goulburn Mulwaree LGA from 2015–2019. Non-casualty incidents have generally been decreasing as well, with a significant decrease from 2015–2016. Fatal incidents have remained relatively stable, however there was an increase in fatal incidents in 2017 compared to other years. Crash trends for Goulburn Mulwaree LGA are presented in Figure A.24.

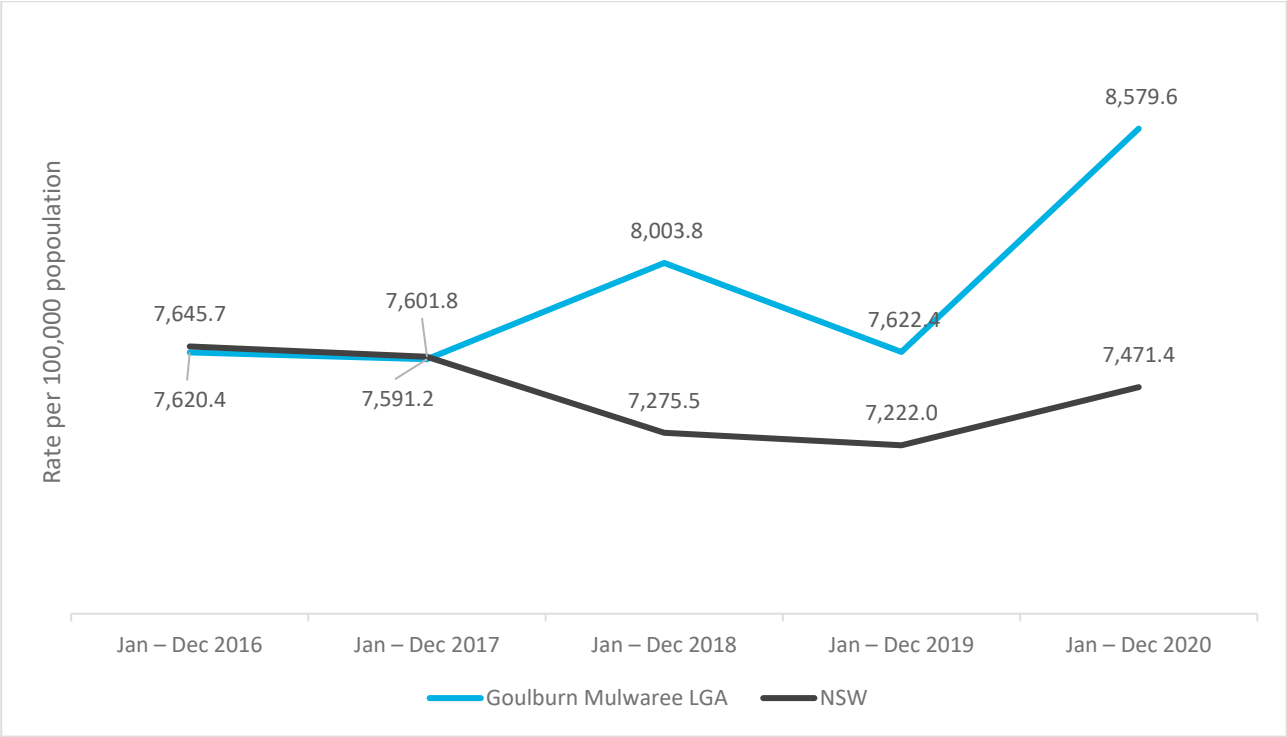


Source: TfNSW 2021, *Interactive Crash Statistics.*

Figure A.24 Crash trends in Goulburn Mulwaree LGA, 2015–2019

A.10.4 Community safety and crime

The following data has been sourced from the NSW Bureau of Crime Statistics and Research (BOCSAR). Data is only available at the LGA level. The following data is for Goulburn Mulwaree LGA, wherein the local area is located. Since 2017, rates of total offences (per 100,000 people) in Goulburn Mulwaree LGA has been increasing above the NSW average. In 2020, the rate of total offences in Goulburn Mulwaree LGA was 8,579.6 per 100,000 population compared to a rate of 7,471.4 per 100,000 population in NSW. The rate of total offences per 100,000 persons in Goulburn Mulwaree LGA is presented in Figure A.25.



Source: BOCSAR 2021 — NSW Local Government Area excel crime tables.

Notes: Total excludes transport regulatory offences.

Figure A.25 Total offences rates per 100,000 population, 2016–2020

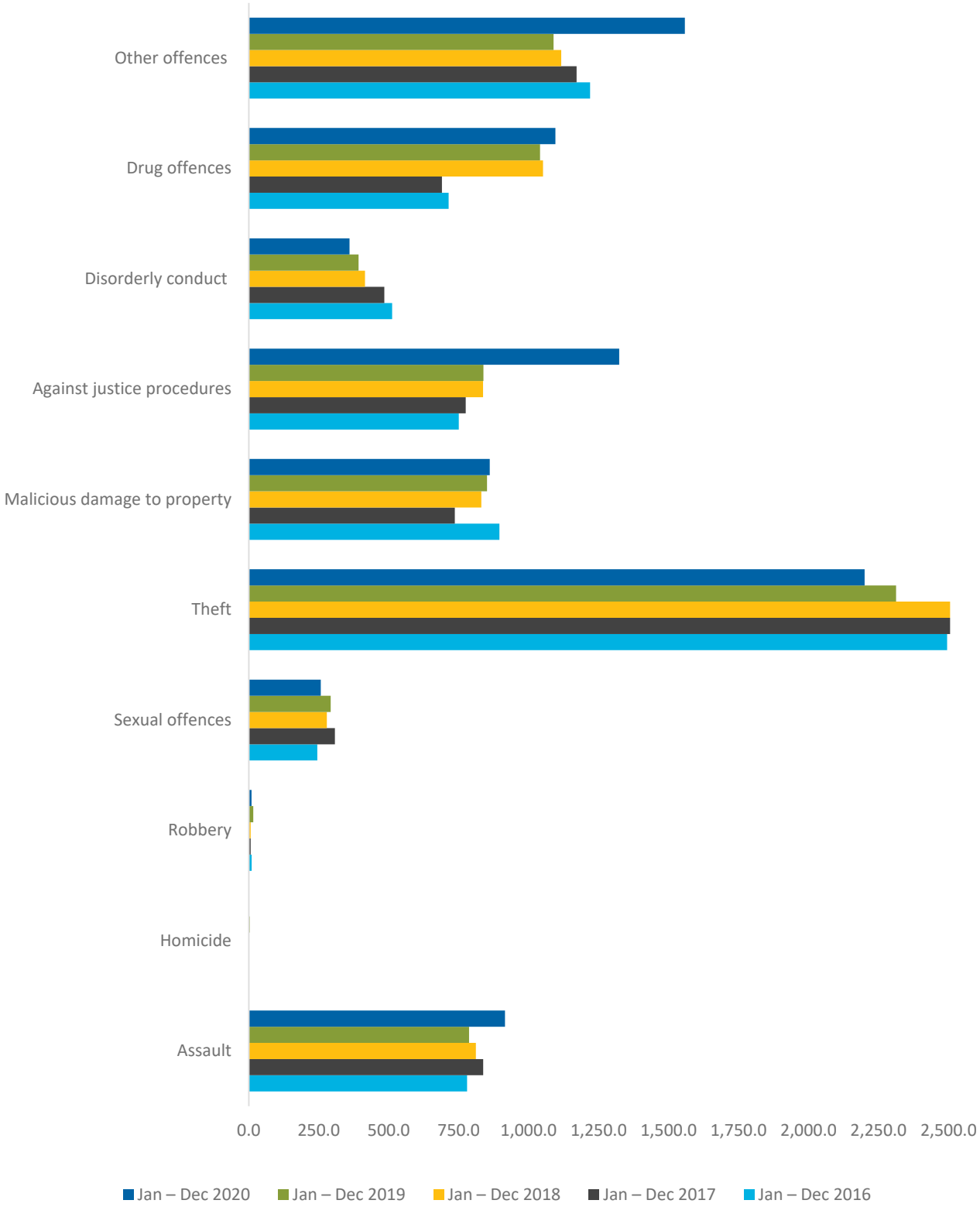
Recorded offences categories that have consistently had the highest rates throughout Goulburn Mulwaree are theft, other offences, drug offences and assault (see Table A.42 and Figure A.26). In 2020, the offence category with the highest rate in Goulburn Mulwaree LGA was theft (2,200.3 per 100,000 persons).

Table A.42 Crime trends, 2016 – 2020

Offence category	Rate per 100,000 population				
	Jan–Dec 2016	Jan–Dec 2017	Jan–Dec 2018	Jan–Dec 2019	Jan–Dec 2020
Goulburn Mulwaree LGA					
Assault	779.9	837.3	811.1	787.0	915.5
Homicide	0.0	0.0	0.0	3.2	0.0
Robbery	9.9	6.5	6.5	16.1	9.6
Sexual offences	244.5	307.4	279.0	292.3	257.0
Theft	2,495.0	2,583.8	2,657.1	2,312.7	2,200.3
Malicious damage to property	895.5	735.9	830.5	851.2	860.9
Against justice procedures	750.1	775.1	837.0	838.4	1,323.4
Disorderly conduct	512.2	484.1	415.3	391.9	359.8
Drug offences	713.8	690.1	1,051.2	1,040.7	1,095.3
Other offences	1,219.4	1,170.9	1,116.0	1,088.9	1,557.9
Total	**7,620.4**	**7,591.2**	**8,003.8**	**7,622.4**	**8,579.6**
NSW					
Assault	817.7	801.2	803.1	818.2	791.5
Homicide	1.4	1.0	1.3	1.4	1.2
Robbery	30.4	30.9	31.2	31.6	26.2
Sexual offences	158.8	174.9	174.6	182.4	185.6
Theft	3,030.9	2,855.2	2,803.8	2,796.6	2,204.9
Malicious damage to property	812.3	777.7	734.2	706.7	658.3
Against justice procedures	851.3	814.3	828.2	921.4	981.7
Disorderly conduct	282.2	260.3	247.9	251.0	228.5
Drug offences	609.9	580.3	600.3	652.0	641.1
Other offences	1,003.6	980.1	1,006.2	1,059.6	1,183.8
Total	**7,598.5**	**7,275.9**	**7,230.8**	**7,420.9**	**6,902.8**

Source: BOCSAR 2021 — NSW Local Government Area excel crime tables.

Notes: Total excludes transport regulatory offences.



Source: NSW Department of Justice 2020, Bureau of Crime Statistics and Research — NSW Local Government Area excel crime tables.

Figure A.26 Offences rates per 100,000 population in Goulburn Mulwaree LGA, 2016–2020

Appendix B
Supporting evidence

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B.1 Expected and perceived impacts

This section summarises the key expected and perceived impacts demonstrated across the social baseline data, findings from the SIA field study, and outcomes of Veolia community engagement. Examples of energy recovery infrastructure developments, other SIAs, and academic research have been drawn on to provide context and background information that will inform the social impacts discussed in Section 5.

The following key social impact themes were identified:

- trust and transparency;
- understanding of waste to energy technology;
- air quality and odour;
- corporate social responsibility and creating shared values; and
- traffic and road safety.

These are described below.

B.1.1 Trust and transparency

Effective planning systems and processes for SSDs require transparent, clear, and easy to understand decision making processes to promote effective planning systems and trust within the community (PIA 2019; Kaldas 2018). Trust can be achieved through establishing legitimacy and credibility which requires transparent, reasonable and fair processes as well as high-quality interactions between the community and project proponent (Jijelva & Vanclay 2018). The SIA field study found that there is a perceived lack of trust between the community and Veolia, specifically amongst nearby neighbours. Despite communications efforts from Veolia through their website, open days, community information session, dedicated phoneline and email for the Woodlawn Eco Precinct and the project, field studies found that stakeholders, particularly nearby neighbours infrequently engage with Veolia. The perceived lack of engagement between nearby neighbours and Veolia was raised as a concern by several nearby neighbours. It was found that the lack of trust was instilled after the development of the Bioreactor Landfill, where nearby neighbours felt that messaging for the project was misleading, which has influenced nearby neighbours' adverse sentiment to the Woodlawn Eco Precinct and the project. Whilst the local community is appreciative of the community contributions made by Veolia, nearby neighbours believe that Veolia lacks credibility and legitimacy which impacts their trust and relationship with Veolia.

B.1.2 Understanding of energy recovery technology

Significant concerns were raised during consultations about the safety of energy recovery facilities, specifically concerning health impacts, stack emissions and air quality. Energy recovery facilities are often subjected to community resistance due to negative perceptions and a lack of understanding of energy recovery technology (Hana, Laurian & Hee Goc 2020; Lonati, Cambiaghi & Cernuschi 2018). As a result, a lack of understanding can pose significant risks for the planning and development of energy recovery facilities. During SIA field studies, multiple stakeholders were unfamiliar with energy recovery technology, which instilled fear, concerns about impacts and a general opposition towards energy recovery facilities, despite energy recovery facilities promoting positive benefits for sustainable development and waste management (EPA NSW 2021). Misconceptions of energy recovery technology can be learned from the internet, which is commonly used as a means to gain information and is often a source of false information (Burcin & Ince 2010). As a result, the dissemination of false information about various technologies is common (Burcin & Ince 2010). This can lead to further misunderstanding of energy recovery technologies. Stakeholders consulted during the SIA field study shared that they had seen information on the internet regarding energy recovery facilities. Information found on the internet exacerbated their concerns and lack of understanding, despite the viability of the technology behind energy recovery facilities and the stringent measures they must adhere to (EPA NSW 2021; Hettiarachchi & Kshourad 2019).

B.1.3 Air quality and odour

Concerns regarding air quality relating to stack emissions and odour was frequently raised during the SIA field study. Odour has been an ongoing issue within the local area due to existing operations at the Woodlawn Eco Precinct. Odour was found to impact on the local area amenity, as well as incur some health impacts deriving from a lack of sleep and irritation of the throat. Research has shown that symptoms caused by odour are often related to the stress and annoyance experienced by those living within proximity of a waste facility (Aatamil et al 2011). Research concerning physical symptoms of residing nearby waste treatment centres found that the experience and perception of odour is more likely to incur health impacts (ie stress, anxiety) rather than odour causing illnesses (Aatamil et al 2011). In the regional area and South Eastern NSW PHN, the proportion of patients accessing non-Medicare subsidies mental health services (such as GP, Allied Health and specialist mental health services) has been higher than rates in greater NSW (see Section 3.4.2) (AIHW 2019). Levels of high and very high psychological distress in 2019 were similar across Southern NSW LHD (18.3%) and greater NSW (17.7%) (NSW Health 2020). Rates of intentional self-harm hospitalisations trends in Southern NSW LHD have consistently remained above the NSW average, and have been increasing from 2001–2019 (NSW Health 2020). This suggests that there is a higher proportion of persons experiencing mental illness in the regional area.

Asthma prevalence within the regional area and Southern NSW LHD has varied between 2002–2019. However, in 2019 rates of asthma for those 16 years and older were significantly higher in the regional area (21.1%) compared to NSW (11.5%). Multiple stakeholders were concerned about stack emissions, and how they will impact on the air quality and human health. Research has shown little evidence to suggest that energy recovery facilities increase the prevalence of respiratory symptoms, with facilities contribution to background levels of air pollution often found to be negligible (Nottingham Health Action Team 2005).

B.1.4 Corporate social responsibility and creating shared values

Enacting a social license to operate is essential for large scale developments, with benefits for communities from project proponents who are proactive with their corporate social responsibility (Jijelva & Vanclay 2018; Fordham & Robinson 201e). 'Shared value actions' can be created by aligning the ethical and philanthropic nature of corporate social responsibility with an agreed business case (Fordham & Robinson 2018).

SIA field studies found that whilst the local community acknowledges community contributions made by Veolia through the Goulburn Mulwaree Trust, Community Liaison Committee and higher education scholarships, there was a common perception that more could be done within the immediate local community. This was specifically raised in relation to odour and monitoring as well as adopting a more proactive approach to community investment through identifying needs in the community, rather than having to undergo an application process.

Adoption of shared value initiatives can simultaneously address community needs, take advantage of existing company assets and expertise, and promote business opportunities. Utilising the experience, resources, and innovation of the private sector to address the key social issues within a community has the potential to create significant long-term benefits for a range of groups and individuals. Ongoing actions should aim to contribute sustainable benefits to the community, maximise positive business outcomes and support the process of maintaining a social license to operate (Shared Value Project 2021).

B.1.5 Traffic and road safety

Operation of energy recovery facilities usually requires heavy vehicle movements due to the transportation of waste feedstock. The project proposes to use the existing approved haulage route for the Woodlawn Eco Precinct, where waste is transported from the Crisps Creek intermodal facility (IMF) to site via Bungendore Road and Collector Road. This raised concerns during the SIA field study, with stakeholders stating that conditions of the local roads, specifically Tarago Road and Bungendore Road, are not able to sustain heavy vehicle movements. As a result, reduced public safety as a result of truck movements along Tarago Road and Bungendore Road was a significant concern raised by stakeholders. Bungendore Road and Tarago Road are single lane roads, with Bungendore Road incorporated in the Woodlawn Eco Precinct's haulage route. Many stakeholders stated that both roads are narrow and unsafe due to limited slopes and shoulders. There was also a common concern that the project will increase approved truck movements. However, this is not the case during the operation phase as the project does not require any increase to the approved annual input rate for the operation phase.

Crash trends in the regional area show that incidents resulting in injury have generally been decreasing across Goulburn Mulwaree LGA from 2015–2019. Non-casualty incidents have generally been decreasing as well, with a significant decrease from 2015–2016. Fatal incidents have remained relatively stable, however, there was an increase in fatal incidents in 2017 compared to other years (TfNSW 2011). Transport for NSW have recognised that reducing fatalities and serious injuries on country roads is a significant challenge for the NSW Government (2021). Veolia also recognises the need to maintain road safety and maintenance of local road and participate in Section 94 for both Goulburn Mulwaree Council and Queanbeyan Palerang Regional Councils to allow for maintenance of sections of Bungendore/Tarago Road as well as sections of Collector Road and Bungendore Road.

Appendix C
Curricula vitae

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Chris Mahoney

Associate Director, National Technical Leader
EMM Consulting Pty Limited

Professional Overview

Chris is a highly experienced social scientist with specialist skills in the design and delivery of social performance programs, social impact assessment and community and stakeholder engagement programs. With over 25 years of professional experience across the infrastructure, resources and international development sectors, he has provided specialist social services to a wide range of complex initiatives throughout Australia and the Asia-Pacific region.

Chris has consistently demonstrated a commitment to assisting major projects manage the interface with the community in which they operate so as to attain the best possible outcomes for all parties. With an extensive body of experience to draw upon, he is able to offer genuine insights into how complex and contentious projects can achieve and maintain a social license whilst successfully balancing corporate, operational and social objectives. Such experience extends to managing multi-faceted community development programs and design and delivery of comprehensive community and stakeholder engagement programs.

Qualifications and licences

Master of Urban and Regional Planning (Environmental Planning), Griffith University

Bachelor of International Economic Relations, Griffith University

Member of the International Association of Impact Assessment (IAIA): Social Impact Assessment Group

Member of the Planning Institute of Australia (PIA)

Specialisation

Provision of Social Performance specialist advice

Delivery of Impact Assessments (SIA) for large projects

Provision of community engagement programs

Design and delivery of community development initiatives

Representative experience

Social specialist

- Valeria project, provided technical oversight of the social impact assessment and associated social impact management plan along with strategic communications and engagement support to the project. Completion of a detailed assessment of housing and accommodation options including potential utilization of the Glencore occupied township of Tieri. Implementation of an engagement program which included requirements for the Progressive Rehabilitation and Closure Plan (PRCP). Central QLD (Glencore)
- Winchester South project, lead author and project manager of the social impact assessment and social impact management plan for a proposed coal project involving developing comprehensive suite of management plans relating to housing and accommodation, workforce management, local industry procurement and community health and wellbeing, Central QLD (Whitehaven Coal)
- Meadowbrook project led author and project manager for delivery of the social impact assessment and social impact management plan for the underground expansion of the existing Lake Vermont coal mine. A focus of the SIA was analysis of the social opportunity cost of the project not proceeding and the subsequent closure of open cut operations. Project included a targeted program of stakeholder engagement informed the development of social commitments measures formalised through the social impact management plan, Central QLD (Jellinbah Resources)
- ARTC Inland Rail project, provided specialist technical assessments and expert advice as lead advisor, review of social and economic impact assessments, community development and social management plans, overseeing the development of frameworks supporting the projects monitoring and evaluation program, National (ARTC)
- Isaac Downs Coal project, author of the social impact assessment and social impact management plan in the EIS for a greenfield coal project, competed a detailed assessment of land use compatibility and potential conflict, Central QLD (Stanmore Coal)
- Wafi Golpu project, lead social performance advisor for the approvals phase of the project, responsible for the delivery of the Socio-economic Baseline and Socio-economic Impact Assessment in accordance with national and international standards, development of social management plans relating to community development, in-migration management and re-settlement, Papua New Guinea (Newcrest/Harmony Gold)
- Ravenswood Gold project, update and revision of the social impact management plan to align with the requirements of the Queensland Social Impact Assessment Guideline (2018) and document the current social context and community sentiment towards the project's planned transition. A primary objective was to design a SIMP which is a useable adaptive management tool, providing the rationale and schedule of delivery for investments in community infrastructure and other initiatives which serve to ensure the ongoing sustainability of the Ravenswood township, Central QLD (Ravenswood Gold).
- Cross River Rail project – community infrastructure assessments, lead social planner advising on the community infrastructure elements of the project precincts, preparation of detailed baseline assessments and negotiation with stakeholders, Brisbane QLD (Cross River Rail Development Authority)
- Salisbury to Beaudesert Corridor Protection Study, project manager for the delivery of engineering design and consultation programs to support the gazettal pf a passenger and freight 70 km rail corridor, involving the development of innovative engagement mechanics such as interactive web-based tools and collateral and direct engagement methods to refine project design and enable gazettal of the corridor, Brisbane, QLD (Qld Dept. of Transport)

- Warragamba Dam Raising project, lead author of the Socio-economic Impact Assessment, including delivery of multi-phased community and stakeholder engagement program and innovative assessment methodology, assessment of social vulnerability, Sydney, NSW (Water Infrastructure NSW)
- Cape York Water Planning Project, delivery of a social values assessment which included engagement with 12 communities, and the development of a decision support tool to assist the government to properly consider community values in natural resource planning processes (Queensland Department of Natural Resources)
- Frieda River project, social technical lead for the approvals phase for a large proposed open cut mine, delivery of the social impact assessment and social studies including resettlement, alluvial mining and in-migration management, Papua New Guinea (PanAust)
- PNG LNG Expansion project (P'nyang Project), development of a major gas field and pipeline including oversight across all social aspects of the project approvals process including socio-economic baseline, socio-economic impact assessment, stakeholder engagement program, health impact assessment and cultural heritage assessment, Western Province of PNG (Exxon Mobil)
- Waisoi Copper Project, technical oversight across all social elements of the environmental and social impact assessment, expansive fieldwork in 23 villages was undertaken to inform the ESIA and included implementation of stakeholder engagement programs involving studies on macro-economic effects, cultural heritage, traffic and land use, Fiji (Newcrest)
- Ok Tedi Mine Life Extension Review, gold and copper mine project involving peer review and adequacy assessment of social components of the feasibility study including community land and water resource utilization and potential health risks associated with mine life extension (OK Tedi)
- Telfer Mine, socio-economic baseline assessment of Traditional Owners of lands surrounding the mine which involved primary data collection in remote Aboriginal communities, included the preparation of a business development plan to assist in meeting ILUA obligations, Pilbara Region WA (Newcrest Mining)
- Kiribati Urban Development Program, project manager for the in-country implementation of New Zealand aid program compromising of urban development, water and sanitation, infrastructure delivery, economic development and capacity building projects, New Zealand (New Zealand Aid)
- United Nations Development Program (UNDP), social expert responsible for completing social and environmental risk assessments for climate change projects nominated by the countries for Global Environment Fund funding, Egypt, Bangladesh and Kyrgyzstan (UNDP)
- Bruce Highway Upgrade, author of the social impact assessment and social impact management plan for a major road infrastructure development, northern QLD (Department of Main Roads)
- Pacific Motorway Transit project, social impact assessment for the Pacific Motorway upgrade involving consultation with affected parties including the loss of affordable housing and an evaluation of social vulnerability (Department of Main Roads)
- Surat Basin Rail, technical lead responsible for the delivery of the social impact assessment, economic impact assessment and visual amenity assessment for a major proposed rail line, QLD (ATEC Rail Group)
- Toowoomba Pipeline project, completion of the social elements of the environmental impact statement for the construction of a 40 km pipeline, involving extensive community consultation and negotiation with landowners and Traditional Owners, Toowoomba (Toowoomba Pipeline Alliance)
- Bus Rapid Transport Project, author of the social impact assessment and the economic impact assessment of the Bus Rapid Transit System connecting inner Brisbane suburbs and the CBD (Brisbane City Council)
- Connors Range Rail Duplication, delivery of the social impact assessment and economic impact assessment for a coal rail line EIS, also co-managed delivery of the overall environmental impact assessment (Queensland Rail)
- Townsville Port Expansion, project manager for the delivery of the social impact assessment and economic impact assessment for a major port expansion project, including the development and implementation of an extensive stakeholder engagement program (North Queensland Bulk Ports)
- Legacy Way TransApex Tunnel, author of the social impact assessment for a road infrastructure project, involving design and delivery of the community consultation program supporting the project and specific consultation to inform the socio-economic impact assessment, Brisbane (Department of Transport)
- Social Infrastructure Model, development of a GIS-based social infrastructure model to determine social infrastructure gaps and the prediction of social infrastructure requirements in line with growth across the Mackay Regional Council area (Mackay Regional Council)
- Airport Link TransApex Tunnel, author of the social impact assessment for a major road infrastructure project (Department of Transport)
- Stuart Oil Shale Project, delivery of a social impact assessment addressing the proposed development of an oil shale industry, included extensive engagement with the community and key stakeholders and development of social impact management plans, QLD (Queensland Energy Resources)
- Exploration Projects, delivery of a community and stakeholder engagement program to support oil and gas exploration projects in the Otway and Cooper Basins, involved completing environmental management plans, VIC and SA (Beach Energy)
- LNG Plant Environmental Impact Statement, technical oversight of the social impact assessment and author of the social, economic and greenhouse gas assessment chapters of the EIS for a proposed LNG plant, QLD (Arrow Energy)
- Coal Infrastructure Masterplan, author of the 'social effects' chapter in the coal infrastructure master plan, QLD (Department of the Coordinator General)
- South East Queensland Priority Infrastructure Plan, preparation of policy guiding the delivery of essential infrastructure to service a region comprising 2.5 million people, involved extensive population modelling and collaborative policy development (QLD Department of Planning)

Andrea Kanaris

Associate, Social Impact Assessment National Technical Leader

Curriculum vitae

Andrea is a Social Scientist / Social Planner with over 20 years' experience across corporate and government sectors.

She is an innovative, result-driven leader and facilitator of positive change and strategic direction. She has gained a broad range of expertise in providing government and corporate stakeholders advice on policy, program management, quality assurance, planning, sustainability, and stakeholder engagement.

She has provided contemporary strategic advice on social impact assessment, led, and delivered policies and achieved quality stakeholder engagement outcomes.

Qualifications

- Masters Social Planning and Development (Post Graduate Diploma), University of Queensland (UQ),
- Bachelor of Social Science – Community and International Development, UQ
- Former Chair and Full Member Social Planning Chapter Queensland – Planning Institute Australia
- Member International Association of Impact Assessment

Career

- Associate, SIA National Technical Leader, April 2019-Present
- Principal Social Consultant, Umwelt Australia Pty Limited, March 2018–March 2019
- Social Consultant, Office of the Coordinator General, Department of State Development Strong and Sustainable Resources Communities Act & Social Impact Assessment, July 2017–March 2018
- Social Consultant, Queensland Health – Aboriginal and Torres Strait Islander Health Branch, March-July 2017
- Independent Consultant – Social Strategist / Social Planner, 2015–2017
- Director, Service Integration, Department of Housing and Public Works, March-July 2015
- Principal Consultant, ImpaxSIA Consulting, 2014–2015
- Director / Social Planner, Social Planning Services Australia, 2011–2015
- Project Manager, Metro South Hospital and Health Service, January-November 2014
- Chair Social Planning Chapter Queensland (Voluntary), The Planning Institute Australia, March-December 2013
- Social Planner, Sinclair Knight Merz, March-December 2011

Representative experience

Social impact assessments – NSW

- Moorebank Avenue Realignment, social assessment and engagement program (Qube Holdings Pty Ltd)

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- Canterbury Leisure and Aquatic Centre, Social Health Impact Comment (Kennedy Associates Architects)
- 241 pennant Hills Road Carlingford, Social Impact Comment (Triple 888 Constructions Pty Ltd)
- Hastings Secondary College, Social Impact Assessment (Schools Infrastructure NSW)
- Woodlawn Waste to Energy Project, Social Impact Assessment (Veolia)
- Birriwa Solar Farm, Social Impact Assessment (UPC\AC Renewables Australia)
- Burrawang to Avon Tunnel project Part 5 REF/ State Significant Infrastructure EIS (WaterNSW)
- Nyngan and Cobar Drought Water Security Project, Communications and Stakeholder Engagement (WaterNSW)
- Dungowan Dam, Society and Engagement (WaterNSW)
- Mole River Dam, Society and Engagement (WaterNSW)
- Snowy 2.0 Polo Flat Segment Factory, Social impact assessment of the proposed segment factory at Polo Flat. Snowy Monaro region, NSW (Snowy Hydro Ltd.)
- New Cobar Mine – Project Manager for the SIA for the expansion of Aurelia Metals zinc / lead Mine in Cobar NSW (Aurelia Metals)
- Hunter Valley Operations (HVO) Continuation Project – Lead for the SIA and community and stakeholder engagement for the HVO Continuation Project in the Hunter Valley, NSW (Glencore)
- Wongawilli Mod 2, Project Director for the social assessment and engagement program (Wollongong Coal)
- Dubbo Quarry Continuation Project, Social Impact Assessment, including community engagement and scoping workshop (Holcim (Australia) Pty Ltd)
- West Muswellbrook Exploration Project, social assessment and engagement program (Idemitsu Australia Resources)
- Hume Coal Project, social impact assessment revisions in response to the Independent Planning Commission Assessment Report, Southern Coalfield of NSW (Hume Coal Pty Limited)
- Berrima Rail Project, social impact assessment revisions in response to the Independent Planning Commission Assessment Report, Southern Coalfield of NSW (Hume Coal Pty Limited)
- Social Baseline for the Dendrobium and Bulli Seam operations, conducted a social baseline and social impact and opportunities assessment for Illawarra Metallurgical Coal operations, Illawarra and Wollondilly region, New South Wales (South32)

Social impact assessments - QLD

- Swanbank Waste to Energy Project, Technical lead for the social assessment (REMONDIS)
- MacIntyre Windfarm Precinct – Project Director for the SIA for the MacIntyre Windfarm located 50 km South-West of Warwick, QLD (ACCIONA)
- Baralaba South Project – Project Director for the SIA for the Baralaba South Project in the Bowen Basin, Queensland (Baralaba Coal)
- Ensham Residual Void project, conducted a social impact assessment on three options for the rehabilitation of the residual voids for the Ensham Mine, as well as undertaking the stakeholder engagement manager role which recently gained approval for using their residual voids for water storage, Central Queensland (Idemitsu)
- Strong and Sustainable Resource Communities Act (SSRC Act) implementation, assisted with the implementation of the SSRC Act, and led the drafting of the Social Impact Assessment (SIA) Guideline for consultation, Queensland (Office of Coordinator-General)
- LNG Plant and Pipeline project, conducted and the social impact assessment technical report and EIS chapter, and undertook the stakeholder engagement, Gladstone, Queensland (Arrow Energy)
- LNG Plant and Pipeline project, prepared the social baseline study, and undertook stakeholder engagement interviews and assessment of social impacts for social impact assessment, Gladstone, Queensland (Arrow Energy)
- AQUIS Resort, expert peer review and advice for social impact assessment component of EIS, Cairns, Queensland (AQUIS Resort at the Great Barrier Reef Pty Ltd)
- Gold Coast Quarry, prepared a social baseline study and community profile for social impact assessment and undertook community consultation activities, Gold Coast, Queensland (Boral).

Social impact assessments - VIC

- Wimmera Project – Project Director for the SIA for the Wimmera Project (Iluka Resources Limited)

Other projects

- Conducted an audit / review of Rio Tinto Coal's community development funds (CDF) and

Aboriginal community development funds (ACDF), Clermont, Mackay and Emerald in Queensland and Singleton and Muswellbrook in New South Wales (Rio Tinto)

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Amanda Micallef

Social Planner

Curriculum vitae

Amanda is a social planner with experience in social research, social impact assessment, and community and stakeholder engagement. Since joining EMM, Amanda has conducted a range of social planning and impact assessment projects, including baseline studies, risk assessments, social data collection, data analysis, and community and stakeholder engagement. Her community engagement experience includes online community engagement, indigenous engagement, and the co-creation of youth indigenous development programs in Guatemala.

Amanda has worked with clients across a range of sectors, including mining and extractives, renewable energies, critical infrastructure, and social infrastructure, in New South Wales, Queensland, and Victoria.

Qualifications

- Master of Development Practice, University of Queensland, 2019
- Bachelor of Arts in International Development, University of Guelph, 2017
- Member Planning Institute of Australia

Career

- EMM Consulting, May 2019 – present
- Developmental Economics Tutor, University of Guelph, 2015 – 2017

Representative experience

Social planning and impact assessment

- Hunter Valley Operations (HVO) Continuation Project, technical assistance for social impact assessment and community engagement, Hunter Valley NSW (Glencore)
- Cowal Gold Operation Open Pit Expansion, technical input for social impact assessment, Lake Cowal NSW (Evolution Mining)
- Wongawilli Mod 2, technical assistance for social impact assessment and community engagement, Wongawilli, NSW (Wollongong Coal)
- West Muswellbrook Exploration Project, social assessment and community engagement program, Muswellbrook NSW (Idemitsu Australia Resources)
- Baralaba South Project, technical input social impact assessment, Baralaba Qld (Mount Ramsay Coal)
- Moorebank Avenue Realignment Works, social baseline study, data analysis, social risk assessment Moorebank NSW (Qube Holdings Limited)
- Snowy 2.0 Polo Flat Segment Factory, community engagement, data analysis, social risk assessment, Polo Flat NSW (Snowy Hydro Limited)
- Snowy Hydro 2.0 Pacific Hills Workers Accommodation, community information sheet, Cooma NSW (Snowy Hydro Limited)

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- Gunlake Quarry Continuation Project, project manager for social impact assessment, assistance for community engagement program, Marulan NSW (Gunlake Quarries)
- New Cobar Complex Project, social baseline study, community engagement, data analysis, social risk assessment Cobar NSW (Aurelia Metals Ltd)
- Dubbo Quarry Continuation, social baseline study, community engagement, data analysis, social risk assessment, Dubbo NSW (Holcim Australia Pty Ltd)
- Hume Coal Project, social impact assessment revisions in response to the Independent Planning Commission Assessment Report, Southern Coalfield of NSW (Hume Coal Pty Limited)
- Berrima Rail Project, social impact assessment revisions in response to the Independent Planning Commission Assessment Report, Southern Coalfield of NSW (Hume Coal Pty Limited)
- Burrawang to Avon Tunnel Project, social baseline study including social infrastructure and housing information, Illawarra region of NSW (WaterNSW)
- Dungowan Dam, social impact assessment and engagement, development of community information sheets, community survey development, Tamworth region of NSW (WaterNSW)
- Mole River Dam, social impact assessment, development of community information sheets, community survey development, Tenterfield region of NSW (WaterNSW)
- MacIntyre Windfarm Precinct, technical assistance for social impact assessment and community engagement, 50 km South-West of Warwick, QLD (ACCIONA)
- Sundown Solar Farm Project, project manager for social impact assessment, Spring Mountain NSW (Canadian Solar)
- Woodlawn Advanced Energy Recovery Centre, technical input social impact assessment, (Veolia)
- New Primary School at Edmondson Park, project manager social impact assessment, Edmondson Park NSW (SINSW)

Publications

Micallef, A et al. 2016, ICT and Agriculture in the Global South, paper prepared for World Accord, presented at the University of Guelph.

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