

APPENDIX 5

Social Impact Assessment





MANGOOLA
OPEN CUT
GLENORE

**MANGOOLA COAL
CONTINUED OPERATIONS
PROJECT**

Social Impact Assessment

FINAL

June 2019



MANGoola COAL CONTINUED OPERATIONS PROJECT

Social Impact Assessment

FINAL

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
Mangoola Coal Operations Pty Ltd

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Executive Summary



Mangoola Coal Operations Pty Limited (Mangoola) operates the existing Mangoola Coal Mine and is preparing an application for development consent for the Mangoola Coal Continued Operations Project (MCCO Project). The MCCO Project will allow for the continuation of mining at Mangoola Coal Mine into a new mining area to the immediate north of the existing operations. The Mangoola Coal Mine has been operating in the Wybong area since 2010.

This Social Impact Assessment (SIA) has been prepared by Umwelt (Australia) Pty Limited (Umwelt), as part of the Environmental Impact Statement (EIS) for the MCCO Project, in accordance with the Social Impact Assessment: Guidelines for State Significant Mining Petroleum Production and Extractive Industry Development (SIA Guideline) (DPE, 2017) and the relevant project Secretary's Environmental Assessment Requirements provided to Mangoola on 15 February 2019. Commissioning of the SIA early in the project, and regular interactions with the community and the project team throughout the assessment program, has provided opportunities to effectively align assessment outcomes with the broader EIS process, and to inform pre-emptive project planning and mine plan design.

Mangoola Coal Mine is located in the Muswellbrook Local Government Area, within the Upper Hunter Region (or State Electoral District). The Upper Hunter Region includes the LGAs of Singleton, Muswellbrook and the Upper Hunter. The existing Mangoola Coal Mine operation is located approximately 20 km west of Muswellbrook and 10 km north of Denman. In this SIA, the primary social area of influence for the MCCO Project has been defined as the localities and communities proximal to the existing Mangoola Coal Mine operations and the stakeholders that reside within these areas. The primary state suburbs of interest (or proximal communities) as defined by the ABS (2016) include Mangoola, Castle Rock, Manobalai and Wybong. The townships of Sandy Hollow, Denman and Muswellbrook are also considered as the townships in closest proximity to the MCCO Project, with data for the Muswellbrook LGA, the Upper Hunter region and the State of NSW also utilised for comparative purposes.

The MCCO Project will extend the life of the existing operation for approximately five years, providing for ongoing employment opportunities for the Mangoola workforce. The design of the MCCO Project has been changed to reduce impacts as an outcome of preliminary environmental and social studies, and through applying the key learnings from the history of mining operations at the site.

A best practice approach to SIA has been adopted for the MCCO Project, that integrates international and NSW social guideline requirements and has involved a number of key phases:

- preparatory planning - utilising outputs of previous SIA and EIS processes and ongoing operational practice; and the development of a dedicated Stakeholder Engagement Strategy
- profiling - to define the baseline social context in which the MCCO Project is based

- scoping - to identify key social impacts/issues relevant to the MCCO Project
- assessment and prediction of impacts - according to defined social impact characteristics (extent, duration, vulnerability/sensitivity and severity) and including stakeholders perception of social impact and risk
- strategy development - identifying strategies to minimise negative impacts and enhance positive impacts associated with the MCCO Project
- monitoring and evaluation - development of a framework outlining how social impacts should be monitored and evaluated should the MCCO Project proceed.

Engagement with the community has been a key component of the SIA program, involving proximal landowners and local and regional stakeholders in the scoping of project issues and identification of strategies to address (negative) and enhance (positive) project impacts. This work builds on the engagement undertaken by Mangoola since commencement of operations.

Given the established presence of the operation in the community, Mangoola has a sound understanding of the key community issues of focus including noise, air quality, blasting, biodiversity and rehabilitation, visual amenity, traffic and transport, including the use of trains to transport coal from the site. This understanding of key issues of interest to the community comes from past SIA processes, the long history of community engagement and complaints tracking. Planning for the MCCO Project has included consideration of these previously identified key issues, with all of them considered in the development of the MCCO Project design. The most recent SIA prior to the MCCO Project was completed as part of the Modification 6 Environmental Assessment (Coakes Consulting, 2013) identified noise and dust as the two most commonly raised concerns and giving rise to the existing mitigation measures currently in place. These issues have also been key drivers of the iterative design of the MCCO Project whereby over the past five years of planning for the MCCO Project, Mangoola has amended the final mine plan to avoid or minimise impacts and put in place a range of mitigation and enhancement strategies to address these key issues.

Mangoola and the broader mining industry have functional associations with many of the communities within the Hunter Region. Current workforce data has been sourced to develop a profile of the operation and its social and economic linkages with the communities within the region. The vast majority of the current workforce is employed full-time, is predominantly male and with a median age of 41 years. Approximately 2% of the workforce identify as being of Aboriginal and Torres Strait Islander descent. The average service for all employees at Mangoola Coal Mine is approximately five years. The total workforce at Mangoola Coal Mine has increased since the time of the Modification 6 SIA (Coakes Consulting, 2013) from an estimated 296 (including contractors) to approximately 400 employees, in line with workforce predictions associated with that modification.

The MCCO Project is not anticipated to place any additional pressure on population as a result of the operation and/or construction workforces. The MCCO Project will provide ongoing employment opportunities for an additional five years of mine life, providing significant ongoing benefits for local and wider communities through employment, use of local services, community participation, local and regional expenditure, community investment and payment of royalties and taxes.

These benefits will continue to be experienced regionally with the majority of the Mangoola workforce (51.1%) residing within the Muswellbrook LGA followed by the Upper Hunter (22.2%) largely in the townships of Muswellbrook, Denman, Scone and Singleton; with employees and their families using local services and participating in community groups within these communities.

Around 56.4% of suppliers to the current operations are local, across the Muswellbrook LGA, including the State suburbs of Muswellbrook, Denman, Sandy Hollow and Wybong. A further 15.2% are drawn from the Singleton LGA and 0.9% from the Upper Hunter (Scone and Aberdeen); with others in the Lower Hunter - Maitland (11.5%), Cessnock (2.6%) and Newcastle (8.6%). This is further complemented by a significant community investment spend through existing programs and Voluntary Planning Agreement (VPA) mechanisms.

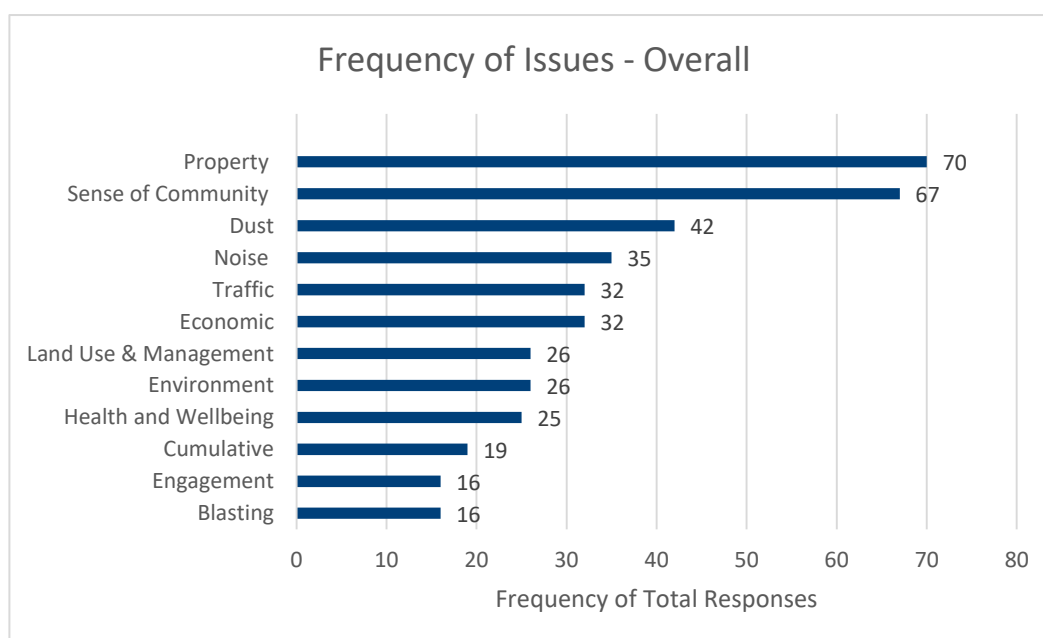
As part of the SIA for the MCCO Project, a wide range of stakeholders have been identified and involved. These stakeholders include proximal landholders residing in proximity to the current mining operations; key stakeholders (including Indigenous groups, local business, local and state government, community groups, service

providers); and community residents within the wider Muswellbrook LGA. Approximately 146 stakeholders have participated in the SIA engagement program, in addition to the engagement undertaken for the broader EIS process, across two rounds of engagement affording opportunity to identify perceived issues/impacts in relation to the MCCO Project, providing feedback on assessment outcomes and identify strategies for mitigation and enhancement. Engagement and communication mechanisms have included personal interviews and telephone correspondence, project briefings, community information sessions, surveys and provision of project information sheets at key stages of the assessment process.

Perceived impacts identified by proximal landholders cover a range of social impact categories, as defined in the SIA Guideline (DPE, 2017) and reflect the fears and aspirations of the stakeholders consulted. Social impacts relating to way of life (how people work, rest and play), surroundings, including access to and use of the natural and built environment, and its aesthetic value and/or amenity (social amenity), associated with noise and dust, were the most prominent impacts identified; followed by impacts relating to personal and property rights, community, and health and wellbeing.

The SIA identified the most significant (moderate and high) social risks based on stakeholder perceptions and unmitigated technical risk analysis. These related to:

- Property – a local community perception of the risk of decline in property values due to proximity to the mine operations, a sense of entrapment due to a perceived inability to sell and move on, and concerns relating to potential acquisition.
- Sense of Community - including concerns about potential loss of community members and population decline in the locality, and the subsequent impact on community cohesion.
- Social amenity impacts – concerns relating to dust/air quality with landholders expressing that dust was impacting on their way of life in a number of ways e.g. need for additional domestic cleaning, impact of dust on water tanks and solar panels; and operational noise due to mine vehicles reversing, dozers, loading of rock into empty trucks, and passing trains. Noise was also a key issue identified through analysis of operational complaints in 2017/18.



Source: Umwelt (2018)

Note: n=44, multiple responses allowed

Other issues identified were related to traffic (largely due to construction activities and road design); positive economic/livelihood impacts due to employment and economic benefits of the operation and the MCCO Project; a desire to see improved land use and management; health and wellbeing issues, particularly related to impacts of dust on health and stress; cumulative impacts of mining in the region (particularly impacts of noise and dust/air quality); issues relating to decision making and engagement processes; and blasting (noise, vibration, safety concerns).

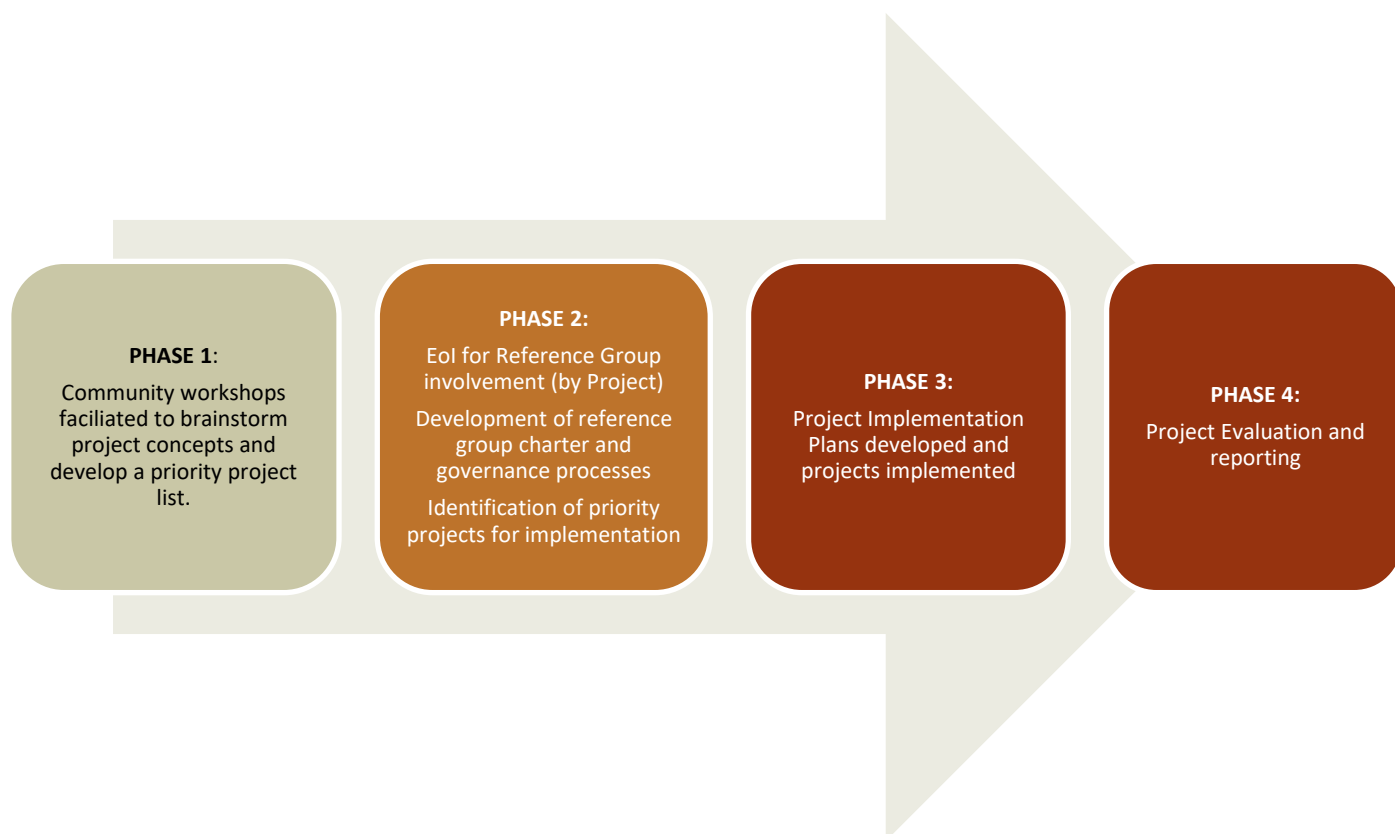
Consultation was also undertaken with local Indigenous groups and services providers in the Muswellbrook LGA. Themes identified largely related to the cumulative impacts of mining and centred on the sustainability of the mining sector, employment and local procurement opportunities for Indigenous community members, community investment and environmental impacts. In general, respondents expressed an overarching concern for the future sustainability of their communities, but also optimism for the potential of mining contributions and input to effect positive social change. Future opportunities for cooperation and engagement were also welcomed.

A range of strategies have been proposed to address the significant social impacts relating to the MCCO Project. These strategies have been developed through review of existing Mangoola management approaches included in the existing Project Approval framework (e.g. first flush filter system installation and water tank cleaning, cleaning of solar panels, landscaping and tree planting; along with existing noise mitigation measures); stakeholder strategies identified through the SIA engagement program (Rounds one and two); relevant projects and studies relating to social impact management; and the experience of the SIA team across other projects. Additional social criteria are also considered in the development of relevant strategies, including an assessment of the vulnerability of stakeholders, particularly local landholders in close proximity to the MCCO Additional Project Area.

Mitigation and enhancement strategies proposed to address significant social impacts relating to impacts on sense of community, personal and property rights and social amenity include:

- existing and proposed landholder mitigation strategies
- local employment and procurement
- post mining land use strategy (with a range of post mining land uses considered)
- continued administration of Glencore Coal Assets Australia (Glencore) and Mangoola's investment strategy
- continuation of a VPA with Muswellbrook Shire Council (MSC)
- property specific measures
- Community Enhancement Program (CEP) for proximal localities to the operations with the objectives of:
 - 1) working collaboratively with near neighbours/proximal landholders and key stakeholders to develop environmental and community benefits for the Wybong district that enhance local values of the area
 - 2) facilitating enhancement initiatives for those residents living in the management zone
 - 3) addressing perceived issues relating to property devaluation given close proximity to the mining operation
 - 4) contributing to the local community and better targeting community investment spend locally.

The CEP is proposed to be developed across four key phases as shown in the figure below and will involve proximal landholders and key stakeholders in the development of program projects for implementation within the locality.



These mitigation and enhancement measures have been specifically targeted to address the issues identified in this SIA and are based on stakeholder engagement and feedback. Furthermore, having regard for the SIA Guideline, Mangoola has also committed to the development of a Social Impact Management Plan that defines and guides social impact monitoring and evaluation activities, for the MCCO Project, should the MCCO Project be approved.

Given the limited life of the additional mining (approximately five years) and Mangoola's pre-emptive mine plan design to avoid and minimise impacts, the social impacts of the MCCO Project have been minimised where possible through project design and the proposed management and enhancement approaches.

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Abbreviations

Term	Definition
ACCSR	Australian Centre for Corporate Social Responsibility
AL	Assessment Lease
BSAL	Biophysical Strategic Agricultural Land
CCC	Community Consultative Committee
CHPP	Coal Handling and Preparation Plant
CIC	Critical Industry Cluster
DoEE	Commonwealth Department of the Environment and Energy
DPE	Department of Planning and Environment
DP&I	Department of Planning and Infrastructure
SIA Guidelines	Social Impact Assessment: NSW Guidelines for State significant mining, petroleum production and extractive industry development
DRG	Division of Resources and Geosciences
EIS	Environmental Impact Statement
EPA	Environmental Protection Authority
EP&A Act	Environmental Planning and Assessment Act 1979
ETL	Electricity Transmission Line
IAIA	International Association for Impact Assessment
IESC	Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development
km	Kilometres
LEP	Local Environmental Plan
LGA	Local Government Area
LHD	Local Health District
Mangoola	Mangoola Coal Operations Pty Limited
MCCO	Mangoola Coal Continued Operations
ML	Mining Lease
Mt	Million tonnes
MSC	Muswellbrook Shire Council
Mtpa	Million tonnes per annum
NSW	New South Wales
OEH	Office of Environment and Heritage
PA	Project Approval
PEA	Preliminary Environmental Assessment
PO	Performance Objective
RMS	Roads and Maritime Services
ROM	Run-of-Mine
SEARs	Secretary's Environmental Assessment Requirements
SED	State Electoral Division

Term	Definition
SEIFA	Socio-Economic Indexes for Areas
SES	State Emergency Service
SIA	Social Impact Assessment
SIOA	Social Impact and Opportunities Assessment
SLTO	Social License to Operate
SSC	State Suburb Code
SSD	State Significant Development
TRC	Township Resource Cluster Analysis
Umwelt	Umwelt (Australia) Pty Limited

1.0 Introduction

Mangoola Coal Operations Pty Limited (Mangoola) has engaged Umwelt (Australia) Pty Limited (Umwelt) to undertake an Environmental Impact Statement (EIS) for the Mangoola Continued Coal Operations (MCCO) Project. The MCCO Project will allow for the continuation of mining at Mangoola Coal Mine into a new mining area to the immediate north of the existing operations.

The MCCO Project is a State Significant Development (SSD), as defined under State Environmental Planning Policy (State and Regional Development) 2011 and will require development consent under Division 4.1 of Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The new development consent being sought will replace the existing Project Approval for the Mangoola mine and the MCCO Project will operate under the new SSD consent, which will cover the existing Approved Project Area and the MCCO Additional Project Area. Given the established presence of the operation in the community, Mangoola has a sound understanding of the key community issues of focus including noise, air quality, blasting, biodiversity and rehabilitation, visual amenity, traffic and transport, including the use of trains to transport coal from the site. This understanding of key issues of interest to the community comes from past SIA processes, the long history of community engagement and complaints processes.

Planning for the MCCO Project has included consideration of these previously identified key issues, with all of them considered in the project design and consideration of project options. The most recent SIA prior to the MCCO Project was completed as part of the Modification 6 Environmental Assessment (Coakes Consulting, 2013) which identified noise and dust as the two most commonly raised concerns. These issues have been key drivers of the design. Over the past nine years of operations and five years of planning for the MCCO Project, Mangoola has put in place a range of mitigation and enhancement strategies to address these key issues. In September 2017, the NSW Department of Planning and Environment (DPE) released the *Social Impact Assessment Guideline for State Significant mining, petroleum production and extractive industry development* (DPE, 2017) (SIA Guideline). The SIA Guideline is also consistent with the *International Guidelines for Social Impact Assessment* (International Association for Impact Assessment, 2015). This assessment has been prepared to meet the requirements of the SIA Guideline.

The SIA program has been designed to identify, assess, manage and mitigate perceived negative social impacts and enhance potential positive social impacts on local and neighbouring communities. Details of SIA methods, findings, evaluation and monitoring frameworks are outlined in detail in this report.

1.1 Secretary's Environmental Assessment Requirements

The DPE Secretary's Environmental Assessment Requirements (SEARs) for the MCCO Project (SSD 8642) were provided to Mangoola on 15 February 2019. The relevant general requirements from the SEARs, relating to the social component of the assessment, are addressed within this SIA, as outlined in **Table 1.1**.

Table 1.1 SEARs – Relevant General Requirements (DPE, 2019)

General Requirements		Section of SIA
Social	Detailed assessment of the likely social impacts of the development on the local and regional community in accordance with the Social impact assessment guideline for State significant mining, petroleum production and extractive industry development 2017	Sections 6 – 8
Economic	Detailed assessment of the likely economic impacts of the development, in accordance with the Guidelines for the economic assessment of mining and coal seam gas proposals 2015, paying particular attention to: <ul style="list-style-type: none"> the demand for the provision of local infrastructure and services 	Sections 4, 5 and 7.2

1.2 Report Structure

This SIA has been prepared by Umwelt as part of the EIS for the MCCO Project, in accordance with the SIA Guideline (DPE, 2017).

To address the SIA Guideline and SEARs, the assessment report has been structured according to a number of key sections as detailed below:

Section 1.0 provides an introduction to the Assessment, its objectives and the project requirements (SEARs).

Section 2.0 outlines the details of the MCCO Project being assessed.

Section 3.0 outlines the methodological approach adopted for the assessment for each of the SIA phases, including the data and information sourced to develop the social baseline profile.

Section 4.0 provides the operational context to the study with regard to Mangoola Coal Mine's operations and its socio-economic connections/associations with local and regional communities.

Section 5.0 provides the social profile for the relevant study communities, including governance, historical change and assessment of key community capitals. This section also identifies regional issues and aspirations as identified through review of local media, local and regional strategic plans and other relevant EIS/SIA studies.

Section 6.0 provides an overview of the perceived positive and negative social impacts associated with the Project, as identified through engagement activities with key stakeholders and the wider community.

Section 7.0 assesses and predicts the likely social impacts that may result due to the MCCO Project.

Section 8.0 defines strategies to manage negative impacts and enhance positive impacts.

Section 9.0 considers a framework for ongoing monitoring and evaluation of social impacts should the Project be approved and proceed.

2.0 Project Overview

Mangoola Coal Mine is an open cut coal mine located approximately 20 kilometres (km) west of Muswellbrook and 10 km north of Denman in the Upper Hunter Valley of NSW (refer **Figure 2.1**). Mangoola has operated the Mangoola Coal Mine under Project Approval (PA) 06_0014 since mining commenced at the site in September 2010.

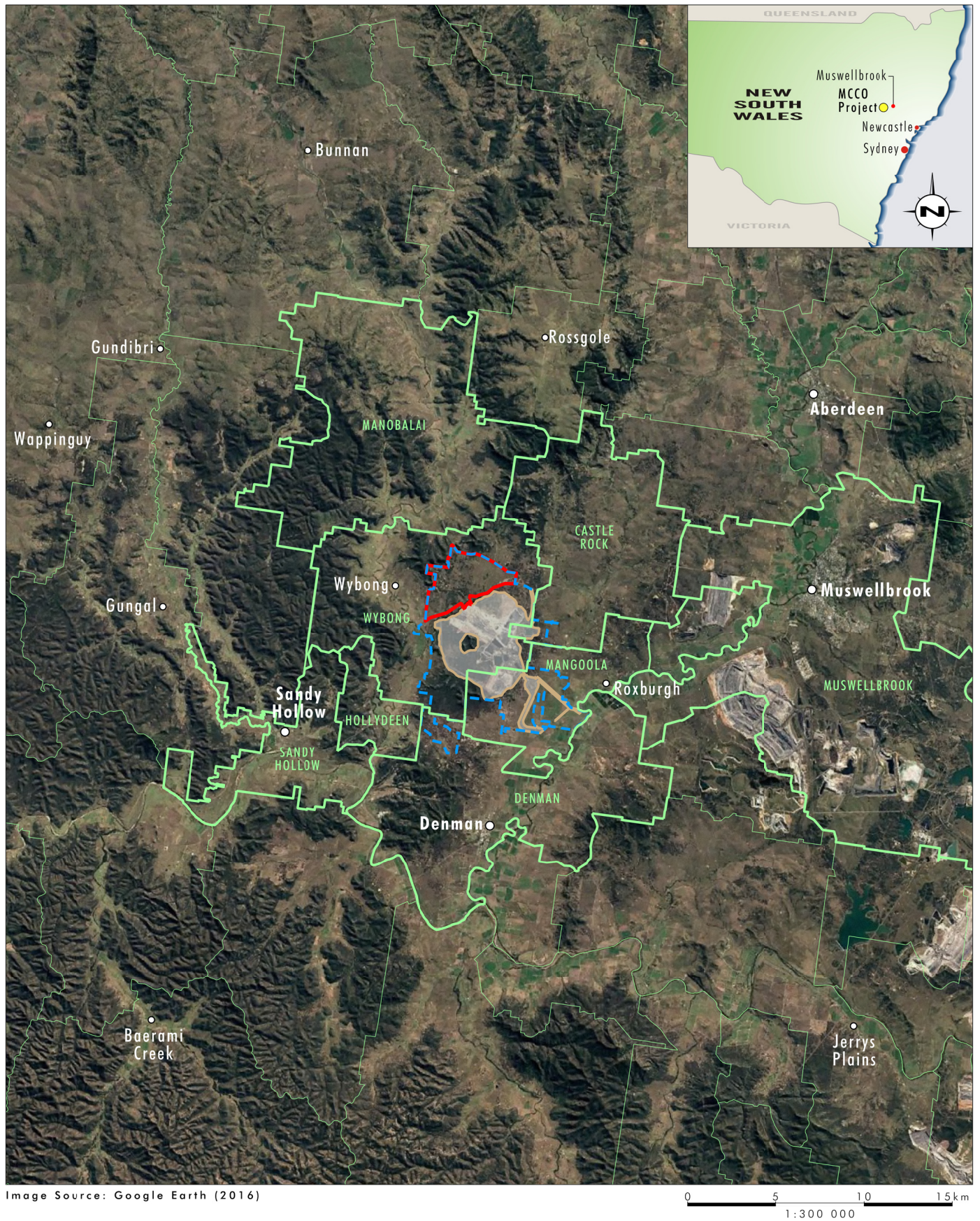
The MCCO Project will allow for the continuation of mining at Mangoola Coal Mine into a new mining area to the immediate north of the existing operations. The MCCO Project will extend the life of the existing operation providing for ongoing employment opportunities for the Mangoola workforce. The MCCO Project Area includes the existing approved Project Area for Mangoola Coal Mine and the MCCO Additional Project Area as shown on **Figure 2.1**.

The MCCO Project generally comprises:

- open cut mining peaking at the same rate as that currently approved (13.5 Million tonnes per annum (Mtpa) of run of mine (ROM) coal) using truck and excavator mining methods
- continued operations within the existing Mangoola Coal Mine
- mining operations in a new mining area located north of the existing Mangoola Coal Mine and Wybong Road, south of Ridglands Road and east of the 500 kilovolt (kV) Electricity Transmission Line (ETL)
- construction of a haul road overpass over Big Flat Creek and Wybong Road to provide access from the existing mine to the proposed Additional Mining Area
- establishment of an out-of-pit overburden emplacement area
- distribution of overburden between the proposed Additional Mining Area and the existing mine in order to optimise the final landform design of the integrated operation
- realignment of a portion of Wybong Post Office Road
- the use of all existing or approved infrastructure and equipment for the Mangoola Coal Mine with some minor additions to the existing mobile equipment fleet
- construction of a water management system to manage sediment laden water runoff, divert clean water catchment, provide flood protection from Big Flat Creek and provide for reticulation of mine water. The water management system will be connected to that of the existing mine
- continued ability to discharge excess water in accordance with the Hunter River Salinity Trading Scheme (HRSTS)
- establishment of a final landform in line with current design standards at Mangoola Coal Mine including use of natural landform design principles consistent with the existing site
- rehabilitation of the proposed Additional Mining Area using the same revegetation techniques as at the existing mine
- a likely construction workforce of approximately 145 persons. No change to the existing approved operational workforce

- continued use of the mine access for the existing operational mine and access to/from Wybong Road, Wybong Post Office Road and Ridglands Road to the MCCO Project Area for construction, emergency services, ongoing operational environmental monitoring and property maintenance.

Figure 2.2 illustrates the key features of the MCCO Project.

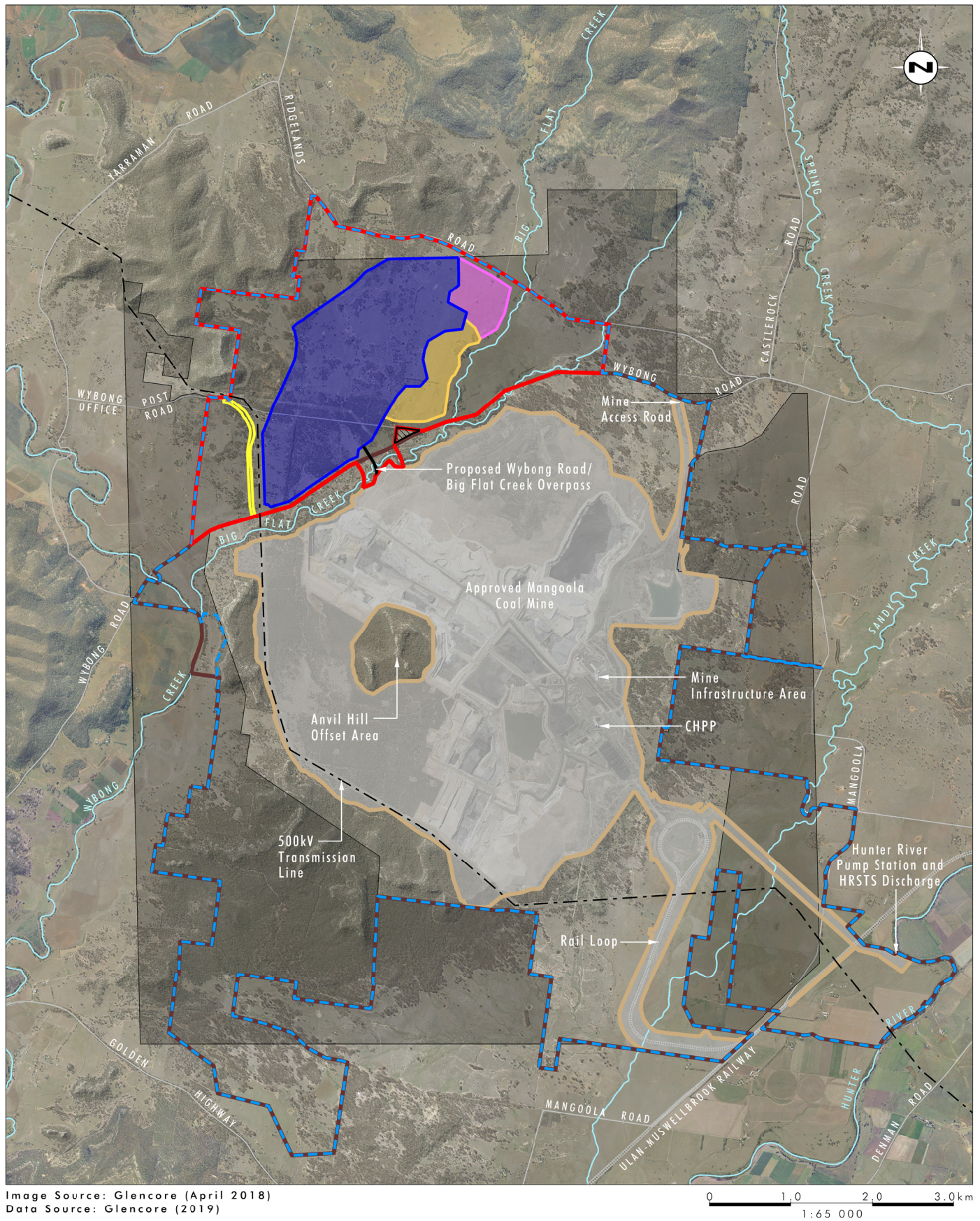


Legend

- MCO Project Area
- Approved Mangoola Coal Mine Disturbance Area
- MCO Additional Project Area
- NSW Suburb Boundary

FIGURE 2.1

Regional Locality Plan



Legend

- MCCO Project Area
- Approved Project Area
- Approved Mangoola Coal Mine Disturbance Area
- MCCO Additional Project Area
- Proposed Additional Mining Area
- Proposed Emplacement Area
- Proposed Topsoil Stockpile Area
- Wybong Post Office Road Realignment
- Crown Land (TSR) Excluded from MCCO Project Area
- Assessment Lease 9

FIGURE 2.2

Key Features of the Mangoola Coal Continued Operations Project

3.0 SIA Methodology

SIA is an approach to predicting and assessing the likely consequences of a proposed action in social terms and developing options and opportunities to improve social outcomes. Best practice SIA is participatory and involves understanding impacts from the perspectives of those involved in a personal, community, social or cultural sense, to provide a complete picture of potential impacts, their context and meaning.

The generally agreed international principles relating to SIA (Vanclay, 2003) identify social impacts as the matters affecting, directly or indirectly:

- people's **way of life**, that is: how they live, work, play and interact with one another on a day to day basis
- the **community**, that is: its cohesion, stability, character, services and facilities
- **access to and use of infrastructure, services and facilities**, whether provided by local, state, or federal governments, or by for-profit or not-for-profit organisations or volunteer groups
- their **culture**, that is: their shared beliefs, customs, values and language or dialect
- their **health and wellbeing**, health is a state of complete physical, mental, social and spiritual wellbeing and not merely the absence of disease or infirmity
- their **surroundings**, such as: the quality of the air and water people use, the availability and quality of the food they eat, the level of hazard or risk, dust and noise they are exposed to, the adequacy of sanitation, their physical safety, and their access to and control over resources
- their **personal and property rights**, particularly whether people are economically affected or experience personal disadvantage which may include a violation of their civil liberties
- their **political and decision-making system**, such as the extent to which people are able to participate in decisions that affect their lives, the level of democratisation that is taking place, and the resources provided for this purpose
- their **fears and aspirations**, that is: their perceptions about their safety, their fears about the future of their community, and their aspirations for their future and the future of their children.

As is the case with any type of change, some individuals or groups within the community may benefit, while others may experience negative impacts. If negative impacts are predicted, it is the role of the SIA to determine how such impacts may be addressed effectively to reduce the degree of social disruption to those affected. If positive impacts are predicted, the aim of the SIA is to maximise these opportunities and identify how they might be further enhanced.

Monitoring and evaluation is also a key component of an SIA process to identify any unanticipated impacts that may arise in the future as a result of a project.

3.1 SIA Guidelines – New South Wales

The SIA has been prepared in accordance with the SIA Guideline (DPE, 2017) by a suitably qualified and experienced lead author and social team. The lead author is Dr Sheridan Coakes, Practice Lead – Social Impact Assessment and Community Engagement at Umwelt. Dr Coakes' *Curriculum Vitae* is provided at **Appendix 1**.

A signed declaration certifying that the SIA does not contain false or misleading information is provided at **Appendix 2**.

Table 3.1 outlines *Appendix D Review Requirements*, from the SIA Guideline, with references to where such requirements are addressed within the SIA.

Table 3.1 SIA Guideline Review Questions

SIA Review Question	Response Addressed in Section
General	
1. Has the applicant applied the principles in Section 1.3? How?	Entire SIA
2. Does the lead author of the Scoping Report meet the qualification and skill requirements in Box 2?	Appendix 1
3. Does the lead author of the SIA component of the EIS meet the qualification and skill requirements in Box 4?	Appendix 1
4. Has the lead author of the SIA component of the EIS provided a signed declaration certifying that the assessment does not contain false or misleading information?	Appendix 2
Community engagement for social impact assessment	
5. Does the SIA include adequate explanations of how the engagement objectives have been applied? How?	Section 3.0
6. Does the SIA demonstrate that there has been a genuine attempt to identify and engage with a wide range of people, to inform them about the project, its implications and to invite their input? How?	Section 3.0
7. Does the SIA demonstrate that an appropriate range of engagement techniques have been used to ensure inclusivity and to ensure the participation of vulnerable or marginalised groups? How?	Section 3.0
Scoping – area of social influence	
8. Does the Scoping Report identify and describe all the different social groups that may be affected by the project?	Section 3.0
9. Does the Scoping Report identify and describe all the built or natural features located on or near the project site or in the surrounding region that have been identified as having social value or importance?	Section 5.0 Section 5.0
10. Does the Scoping Report identify and describe current and expected social trends or social change processes being experienced by communities near the project site and within the surrounding region?	Section 5.0
11. Does the Scoping Report impartially describe the history of the proposed project, and how communities near the project site and within the surrounding region have experienced the project to date and others like it?	Section 5.0

SIA Review Question	Response Addressed in Section
Scoping – identifying social impacts (Section 3.2, Appendix A and Appendix B)	
12. Does the Scoping Report adequately describe and categorise the social impacts (negative and positive), and explain the supporting rationale, assumptions and evidence for those categories?	Section 6.0
13. How has feedback from potentially affected people and other interested parties been considered in determining those categories? Does the Scoping Report outline how they will be engaged to inform the preparation of the SIA component of the EIS?	Section 6.0
14. Does the Scoping Report identify potential cumulative social impacts?	Section 6.0
Social baseline study (Appendix C – Section C1)	
15. Does the SIA component of the EIS discuss the local and regional context in sufficient detail to demonstrate a reasonable understanding of current social trends, concerns and aspirations?	Section 5.0
16. Does the SIA component of the EIS include appropriate justification for each element in the social baseline study, and provide evidence that the elements reflect the full diversity of views and potential experiences in the affected community?	Section 5.0
17. Does the social baseline study include an appropriate mix of quantitative and qualitative analysis, and explain data gaps and limitations?	Section 5.0
Prediction and analysis of impacts (Appendix C – Section C2)	
18. Does the SIA component of the EIS include an appropriate description of the potential impacts in terms of the nature and severity of the change and the location, number, sensitivity and vulnerability of the affected stakeholders?	Section 5.0 Section 6.0
19. Does the SIA component of the EIS identify potential impacts at all stages of the project life cycle?	Section 6.0
20. Does the SIA component of the EIS appropriately identify and justify any assumptions that have been made in relation to its predictions?	Section 7.0
21. Does the SIA component of the EIS include appropriate sensitivity analysis and multiple scenarios to allow for uncertainty and unforeseen consequences? If relevant, does it include comparisons with studies of similar projects elsewhere?	Section 5.0 Section 7.0
Evaluation of significance (Appendix C – Section C3)	
22. Does the SIA component of the EIS explain how impacts were evaluated and prioritised in terms of significance?	Section 7.0
23. Does the evaluation of significance consider cumulative aspects where relevant?	Section 7.0
24. Does the evaluation of significance consider the potentially uneven experience of impacts by different people and groups, especially vulnerable groups?	Section 7.0
Responses and monitoring and management framework (Appendix C – Sections C4 and C5)	
25. Does the SIA identify appropriate measures to avoid, reduce, or otherwise mitigate any significant negative impacts of the project, and justify these measures?	Section 8.0
26. Does the SIA explain and justify measures to secure and/or enhance positive social impacts?	Section 8.0
27. Does the SIA component of the EIS impartially assess the acceptability, likelihood and significance of residual social impacts?	Section 8.0

SIA Review Question	Response Addressed in Section
28. Does the SIA component of the EIS propose an effective monitoring and management framework?	Section 9.0

Source: Umwelt 2019

3.2 Social Impact Assessment Principles and Ethical Conduct

Consideration has been made of ethical considerations that apply to research involving humans, with particular focus on the Principles identified in the SIA Guidelines (refer to **Table 3.2** below).

Table 3.2 Principles Identified in SIA Guidelines

Principles	Description	How This SIA Has Considered Each Principle
Action-oriented	Delivers outcomes that are practical, achievable and effective	Potential mitigation and management measures identified for relevant social impacts
Adaptive	Establishes systems to actively respond to new or different circumstances and information and support continuous improvement	SIA methodology that is adaptive to changing circumstances. Engagement undertaken across two rounds to identify community perceptions of the MCCO Project at key phases. Mitigation and management measures identified to support continuous improvement
Distributive equity	Considers how social impacts are distributed within the current generation (particularly across vulnerable and under-represented groups) and between current and future generations	Social Baseline Profile that considers vulnerabilities and resilience of individuals and communities and their ability to respond to change Assessment of vulnerability of particular stakeholders
Impartial	Is undertaken in a fair, unbiased manner and follows relevant ethical standards	Independent assessment that respects the confidentiality of participants and which outlines the ways in which participants can be involved in the SIA/EIS process and the project assessment more broadly Community perceptions of impact documented and reported
Inclusive	Seeks to hear, understand and respect the perspectives of the full diversity of potentially affected groups of people. The assessment is also informed by respectful, meaningful and effective engagement that is tailored to suit the needs of those being engaged (for example, culturally sensitive, accessible and adaptive)	Multiple mechanisms and tools used to engage key stakeholders and afford meaningful engagement in the assessment process

Principles	Description	How This SIA Has Considered Each Principle
Integrated	Utilises and references relevant information and analysis from other assessments. Supports effective integration of social, economic and environmental considerations in decision-making	Full overview of research SIA methodology including information sources utilised and referenced throughout the document Commissioning of the SIA early in the MCCO Project and regular meetings with the project team throughout the assessment program has provided opportunities to effectively align assessment outcomes with the broader EIS process, undertaken by Umwelt, and proactively inform project planning and mine plan design
Life cycle focus	Seeks to understand potential impacts (including cumulative impacts) at all project stages, from pre-construction to post closure	Consideration of all social impact categories as defined in the guideline, including cumulative impacts
Material	Identifies which potential social impacts matter the most, and/or pose the greatest risk to those expected to be affected	Risking and ranking of impacts from the perspectives of those potentially affected and through relevant social analyses
Precautionary	If there is a threat of serious or irreversible damage to the environment, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental (including social) degradation	Potential impacts have been assessed and ranked utilising the approach recommended in the SIA Guideline, and potential mitigation and enhancement strategies have been identified
Proportionate	Scope and scale should correspond to the potential social impacts	Impacts have been assessed according to impact characteristics outlined in the DPE guideline
Rigorous	Uses appropriate, accepted social science methods and robust evidence from authoritative sources	The research methodology adopted for the assessment is detailed and information sources noted throughout the document
Transparent	Information, methods and assumptions are explained, process of assessment is justified and accessible; and people are able to see how their input has been considered	Process of recording outlined to interview participants, with copies of interview transcripts provided on request Summary of engagement findings provided (in information sheet format) to determine that issues have been appropriately identified and summarised Voluntary participation in the assessment and engagement program, with no coercion Outline of the project and the SIA process with a right to withdraw involvement at any stage of the process Confidentiality of personal matters with engagement outcomes expressed collectively, no individual identification Data coding and protection

3.3 SIA Approach and Methodology

A best practice approach to SIA has been adopted for the MCCO Project, that integrates international and NSW social guideline requirements.

In line with best practice, the SIA has involved a number of key phases of work that includes:

- preparatory planning - undertaking appropriate planning for the MCCO Project and the development of a Stakeholder Engagement Strategy
- profiling - defining the baseline social context in which the MCCO Project is based
- scoping - identifying key social impacts/issues relevant to the MCCO Project
- assessment and Prediction of impacts - evaluating and predicting positive and negative social impacts
- strategy development - identifying strategies to minimise negative impacts and enhance positive impacts associated with the MCCO Project
- monitoring and evaluation – development of a framework outlining how social impacts should be monitored and evaluated should the MCCO Project proceed.

The broader engagement program for the MCCO Project has involved a number of elements and builds upon the implementation of the existing Mangoola stakeholder engagement strategies, namely the Stakeholder Engagement Plan and Community Consultation Strategy AL9, which is currently in place at an operational level. Since the commencement of mining at Mangoola Coal Mine, Mangoola has been committed to developing strong and sustainable relationships with local and regional stakeholders; with this ethos to continue as part of the MCCO Project.

The engagement program commenced during the planning phases of the MCCO Project and has continued in an iterative manner throughout the MCCO Project design and assessment phases. The following sections provide further details on the types of engagement mechanisms/methods undertaken so that stakeholder views have been adequately identified and addressed.

Engagement with the community has been a key component of the SIA program at key phases of the assessment, to afford a participatory approach to assessment, and has involved proximal landowners and local and regional stakeholders in the scoping of Project issues and identification of strategies to address (negative) and enhance (positive) project impacts. This work builds on the engagement undertaken by the Mangoola since commencement of operations.

Commissioning of the SIA early in the project and regular meetings with the project team throughout the assessment program has also provided opportunities to effectively align assessment outcomes with the broader EIS process, undertaken by Umwelt, to inform project planning and mine plan design (refer to **Figure 3.1**).

Environmental Impact Assessment/Social Impact Assessment

Program Phases

PROJECT DEFINITION: *Definition of project parameters - Development of clear SIA program objectives*

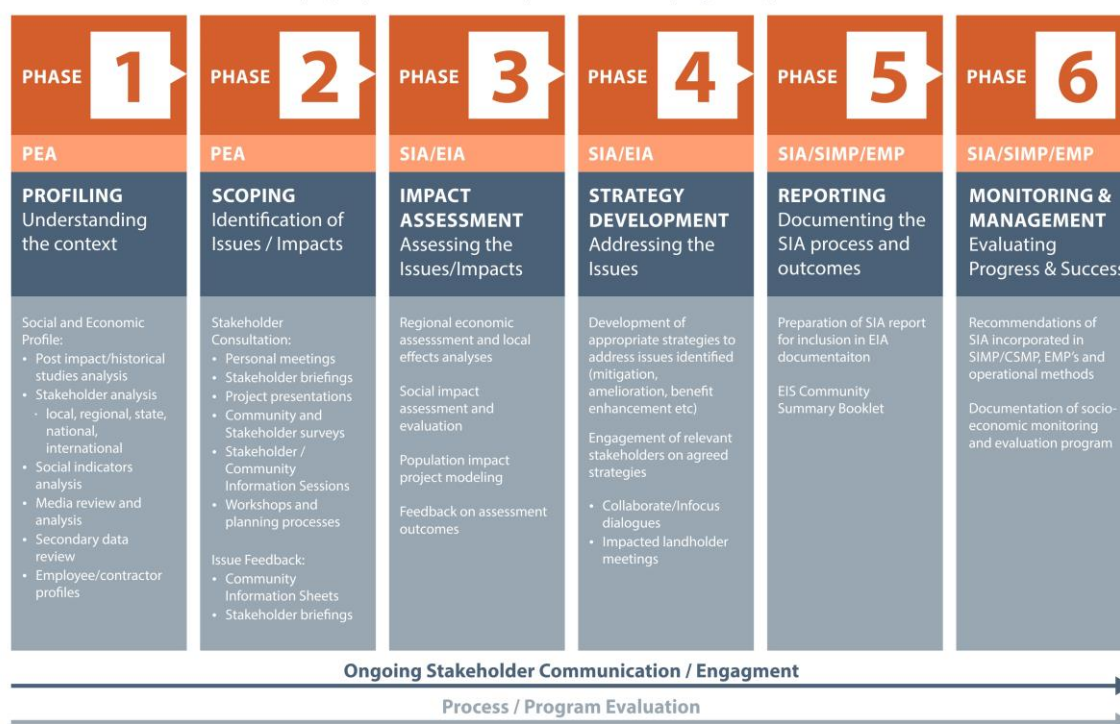


Figure 3.1 Phases of the SIA Program

Source: Umwelt 2017

3.4 Participants/Stakeholders in the SIA

Social impact assessment involves the cooperation and coordination of a number of 'social partners' or 'stakeholders'. A comprehensive stakeholder identification process was undertaken prior to commencement of the MCCO Project. As Burdge (2004) outlines, stakeholders may be affected groups or individuals that:

- live nearby the resource/project
- have an interest in the proposed action or change
- use or value a resource
- are interested in its use
- may be forced to relocate as a result of the project.

Key stakeholders identified to be engaged on the MCCO Project are outlined in **Figure 3.2**.



Figure 3.2 Stakeholder Groups Consulted

Engagement with key stakeholders has been undertaken to inform both the SIA and EIS programs for the MCCO Project. A comprehensive overview of the engagement undertaken as part of the EIS and SIA for the MCCO Project is summarised in Section 5.0 of the EIS main text. As part of the SIA project for the MCCO Project, a wide range of stakeholders have been identified and involved in targeted engagement for the SIA. These stakeholders have been grouped as follows:

- **proximal landholders** – landholders and residents residing in proximity to the current mining operations in the state suburbs (ABS, 2016) of Mangoola, Castle Rock, Wybong and Manobalai
- **locality residents** - including those residing in the broader suburbs of Wybong, Castle Rock, Manobalai and Mangoola
- **Indigenous stakeholders** - including Registered Aboriginal Parties (RAPs) and Indigenous Service Providers (note that this refers specifically to those Indigenous stakeholders consulted as part of the SIA regarding social issues, not to those consulted as part of the Aboriginal cultural heritage assessment program regarding cultural heritage issues which is discussed in the EIS)
- **community stakeholders and residents** - in the wider Muswellbrook LGA (local government, service providers, business', community groups and LGA residents).

To track community attitudes and perceptions in relation to its operations, Glencore also undertakes a community perceptions survey (hereafter referred to as the survey) every three years, which affords the tracking of a number of key indicators relating to Glencore's social and environmental performance; and provides an evaluation of the approach the operations have adopted in relation to stakeholder engagement

and consultation. This survey is undertaken across Glencore assets, including the Mangoola Coal Mine, and involves proximal landholders and key stakeholders (government (local and state), community, business, Indigenous, and not for profit organisations) relevant to each of Glencore's operations, as identified through Glencore's operational stakeholder databases. The most recent survey was undertaken in 2018 by Umwelt on behalf of Glencore. The 2018 survey builds upon previous surveys implemented for Glencore since 2010, with the previous survey undertaken in 2015.

The MCCO Project commenced in July 2017 and given the timing of the wider Glencore survey (August, 2018), relevant outcomes to the Mangoola Coal Mine have been included in the SIA for the MCCO Project, particularly the views of the wider Muswellbrook community sample. Survey outcomes are further discussed in **Section 4.2.1**.

Table 3.3 provides a summary of the number of key stakeholders consulted, including proximal landholders, Indigenous and community stakeholders and residents of the wider Muswellbrook LGA. Excluding government agency representatives, approximately 146 stakeholders have participated in the SIA engagement program. A total of 48 participants also attended the two advertised community information sessions for the MCCO Project held in Muswellbrook and Wybong. The majority of these participants had also participated in the SIA engagement program through personal interviews undertaken in round one and two and therefore are captured as proximal landowners within **Table 3.3** with the balance of participants identified as a community stakeholder.

Table 3.3 Stakeholder Participation in SIA Program

Stakeholder Category	Number of Participants
Proximal landholders	44*
Indigenous stakeholders (RAPs and service providers)	15
Community stakeholders	39
Wider community (as per the Glencore Community Perception Survey)	48
Subtotal	146

*Note: 44 landholders were contacted in Round 2 of the consultation program (October 2018-February 2019). Round 1 consultation involved 24 landholders (2017) 23 of whom were engaged in Round 2.

Source: Umwelt 2019

3.5 Social Assessment and Engagement Mechanisms

Table 3.4 provides a summary of the assessment and engagement mechanisms that have been utilised during each phase of the SIA program. This consultation has been further complimented by engagement undertaken by the broader team with Government agencies and other key stakeholders in the course of operational and assessment activities.

Further detail of the extent of consultation undertaken for the MCCO Project is summarised in Section 5.0 of the EIS main text.

Table 3.4 Summary of Social Assessment and Community Methods

Method	Description
Assessment Methods	
Phase 1	Program Planning
Development of stakeholder engagement strategy	Review of previous SIA studies and development of a tailored stakeholder engagement strategy for the MCCO Project. This strategy was informed by previous consultation activities, including the engagement and analysis undertaken for the previous SIAs completed for the Mangoola Coal Mine and the Preliminary Social Impact and Opportunities Assessment for the MCCO Project Preliminary Environmental Assessment (PEA) (Umwelt, 2017)
Phase 2	Community Profiling
Township Resource Cluster (TRC) analysis	Documentation of the social and economic linkages/associations between the Mangoola Coal Mine and communities within the region through employee, supply/vendor and community investment data analysis
Community capitals analysis	Assessment and analysis of ABS Census data and other relevant social and community indicators and data sets to develop a detailed social baseline profile of the communities of interest. Areas of existing community resilience and vulnerability have been identified through application of a community capitals analysis
Post impact studies analysis	Review and analysis of secondary data (including local histories, local government strategic plans and assessment studies, local media, previous EIS/SIA studies, operational complaints) and primary data collected through stakeholder interviews, to understand historical, existing and emerging issues and opportunities within the community
Indigenous profile and issues analysis	Socio-economic statistics relevant to the Indigenous community incorporated in the profile section (Section 4.0) Personal and telephone interviews undertaken with RAPs and Indigenous groups and service providers in the Muswellbrook LGA. This consultation is in addition to the consultation undertaken as part of the Aboriginal cultural heritage assessment discussed in the EIS
Phase 3	Scoping of Issues and Opportunities
Key stakeholder issues analysis	First round of personal and telephone interviews with near neighbours of the MCCO Project to identify perceived issues and opportunities relating to the MCCO Project Ranking of perceived issues and opportunities by relative frequency Review of community survey data undertaken in the Muswellbrook LGA relevant to the MCCO Project (Glencore Community Perception Survey 2018)
Review and analysis of existing company consultation mechanisms	Review and analysis of company engagement data including meetings, phone calls, newsletter and community complaints
Phase 4	Assessment of Impacts and Opportunities
Key stakeholder issues analysis - impacts and opportunities	Second round of personal and telephone interviews with near neighbours of the MCCO Project to further identify perceived issues and opportunities relating to the Project, in light of the outcomes of the technical assessments. Ranking of perceived issues and opportunities by relative frequency Two advertised community information sessions facilitated to allow input from proximal landholders and the wider community on the impacts and opportunities relating to the MCCO Project

Method	Description
Assessment and prediction of social impacts	Prediction of social impacts associated with the MCCO Project. Ranking of unmitigated and mitigated social impacts associated with the MCCO Project through review of relevant social and environmental consequence and likelihood ratings
Phase 5	Prediction of Impact and Strategy Development
Social risk matrix	Categorisation of impacts by social impact category and theme
Social impact management and residual risk ranking	Identification and development of appropriate strategies to address predicted Project impacts. Minimisation of high and moderate social impacts through commitment to relevant management and enhancement strategies
Consultation Methods Used as Part of the SIA	
Proximal landholder meetings	Personal meetings with proximal landholders to collect information and identify perceived social impacts of the MCCO Project
Telephone interviews with Indigenous Services Providers	Telephone interviews with 15 RAPs and service providers to identify issues in relation to the MCCO Project and mining more generally within the community; and to explore potential opportunities for impact management and enhancement (note that this refers specifically to those Indigenous stakeholders consulted as part of the SIA, not to those RAPs consulted separately as part of the Aboriginal cultural heritage assessment program which is discussed in the EIS)
Community information sessions	Project drop-in community information sessions to share information about the MCCO Project and the EIS/SIA process and to provide a forum for feedback
Glencore community perceptions survey	<p>Review and analysis of outcomes of a community perception survey undertaken by Umwelt on behalf of Glencore in July and August 2018, with the purpose of providing Glencore with a greater understanding of stakeholder issues and needs relating to company activities, past and present; and to assist in driving business improvement in the areas of environmental performance, stakeholder engagement and community development across neighbouring and regional communities associated with Glencore's operations in both NSW and QLD</p> <p>The 2018 survey builds upon previous surveys implemented for Glencore since 2010 across its NSW and QLD operations, with the most recent previous survey being undertaken in 2015</p> <p>For the purpose of the SIA, data from the perception survey involving landholders, local business, community groups, Indigenous groups, local and state government and NGOs, and residents residing in the broader Hunter Valley, has been reviewed and incorporated where relevant</p> <p>Glencore operations within the Hunter Valley include the Mangoola Coal Mine, Bulga, HVO Joint Venture, United, Ravensworth, Liddell, Mt Owen Complex and Integra</p>
Government briefings and consultation	Briefings and personal meetings with relevant government representatives (local, state and federal) to present the MCCO Project and obtain feedback on project aspects
Community Consultative Committee meetings	Project briefings to the local CCC to share information about the MCCO Project and obtain committee member feedback on the project. Monthly updates have also been provided to the CCC from July 2017 (ongoing)

Method	Description
Community information sheets	<p>Development and distribution of a series of three Project information sheets to near neighbours and key stakeholders at key stages:</p> <ul style="list-style-type: none"> - Project and Process Overview – to describe the MCCO Project and the EIS/SIA process - EIS Impacts and Assessment Summary – summary of the key outcomes of the environmental and social impact specialist studies undertaken as part of the assessment program and proposed management approaches - Consultation Frequently Asked Questions – responses to frequently asked questions raised during consultation <p>Each information sheet also provided project and consultant contact details for further information and/or to request a personal project interview or briefing</p> <p>Three MCCO Project updates were also provided in the regular Mangoola Coal Mine newsletter</p>
Email and phone correspondence	<p>Phone calls and emails relating to the MCCO Project and the SIA process to landholders, as required, to organise meetings, provide information and/or respond to questions</p>
Mangoola Coal Mine website	<p>Provision of information relating to the MCCO Project including information sheets, newsletters and posters used at community information sessions</p>

4.0 Mangoola Coal Mine: Operational Context and Analysis

This section provides an overview of existing operations at Mangoola Coal Mine as they relate to social impacts to provide an operational context for the MCCO Project SIA. Information has been sourced directly from Mangoola employee, supplier/vendor and investment datasets to identify the social and economic linkages and associations with communities within and outside the Muswellbrook LGA.

4.1 Socio-economic Contribution of Mangoola

The analysis for this section utilises a technique known as Township Resource Cluster Analysis (TRC Analysis) (Fenton, Coakes and Marshall, 2003). This technique assists in identifying the direct and indirect socio-economic linkages/associations that exist between Mangoola and communities both within and outside the Muswellbrook region. Secondary data relating to employee residential location and household expenditure has been assessed where available. Supplier expenditure has also been sourced that focuses on business location. Where relevant, comparisons have been made with previous TRC data obtained as part of the Mangoola Modification 6 (Mod-6) SIA (Coakes Consulting, 2013).

Specifically, the TRC Analysis includes:

- consideration of the residential location of the workforce for the operation
- analysis of workforce income and annual expenditure
- analysis of locations of suppliers and their associated expenditure
- comparison of the above analysis with the Mangoola Mod-6 TRC analysis and NSW Minerals Council report, for validation and triangulation purposes.

This section summarises the results of the TRC analysis relevant to Mangoola's existing operations and also considers the key findings of the NSW Mining Industry Expenditure Impact Survey 2017/18 (NSW Minerals Council).

4.1.1 Method

Calculations for employee expenditure are based on workforce income data provided by Mangoola and aligned with expenditure scales developed from the ABS *Household income and expenditure survey 2015-2016* (utilising income quantities and proportion spent on goods and services).

Estimated expenditure amounts, per employee, have been aggregated by assessment location and rounded to the nearest thousand (\$) in order to determine the approximate employee expenditure within each township annually. All values are reported in Australian Dollars (AUD).

The townships and locations reported by employees and businesses have been grouped according to the LGAs proximity to Mangoola operations, as well as other locations in NSW. Locations are presented in **Figure 4.1** and **Figure 4.2**.

The following assumptions should be noted in the review of TRC analysis outcomes, namely that:

- inputs relating to employees are based on data provided by Mangoola, which have not been externally validated, and are *exclusive* of subcontractors
- no data has been obtained that relates to the specific location of workforce expenditure, so it has been assumed that all expenditure occurs within the employee's town of residence. However, data from the previous TRC analysis undertaken for the Mod-6 SIA (Coakes Consulting, 2013) has been used for comparative purposes
- data in relation to supplier contract amounts by location is based on internal records provided by Mangoola and has not been externally verified. Expenditure/supplier expenses have also been assumed to occur within the location of each supplier's main business address, as provided; with (as noted above) previous data also used to validate the current assessment.

4.1.2 Mangoola Employees and Subcontractors

Mangoola utilises two different types of employment within its workforce. Direct employment is where a person is directly employed by Mangoola and for the purpose of this report such a person will be referred to as an 'employee'. The other type of employment is through a third-party company, with the individual fulfilling a role as if they were a direct employee, with such a person referred to as a 'contractor'.

Table 4.1 summarises the workforce demographics of the employees and contractors of Mangoola with **Table 4.2** providing an overview of income and expenditure locations. Demographics and expenditure outcomes have been extrapolated from the observed employee numbers provided by Mangoola to reflect a workforce of 400 workers proposed for the MCCO Project (inclusive of contractors). Key characteristics of the Mangoola workforce, suppliers and partners to the operations are described below:

Employees:

- existing workforce income data provided by Mangoola for the SIA has been used to determine the socio-economic benefits that are generated by direct employment at Mangoola Coal Mine. Based on average full time employee (FTE) numbers provided by Mangoola at the end of 2018, Mangoola currently employs a workforce of approximately 400 persons
- it is evident, from the 2018 data, that the vast majority of workers are employed full-time, with <1% reporting part time or casual employment. It should be noted that the operational workforce of 400 persons relates only to those employed on a FTE basis
- the gender balance in the Mangoola Coal Mine workforce is heavily skewed, with over 9 in every 10 workers being male. In contrast, gender is more evenly split in the Muswellbrook LGA workforce
- two percent (2%) of employees self-identified as being of Aboriginal or Torres Strait Islander descent at the time of this report. Note this proportion excludes contractors
- the median age of employees at 41 years is higher than that of the local population of the Muswellbrook LGA, where the median age is 35 years old
- average work hours per week were estimated to be around 42 hours
- the workforce has an average year of service of 5.3 years.

Table 4.1 Workforce Demographics – Mangoola Operation and Muswellbrook LGA

Indicator	Workforce	Local Population/ Labour Force
Total persons	400*	16,080
Proportion Male: Female	Males - 88% Females - 12%	Males - 51% Females - 49%
Proportion Aboriginal/Torres Strait Islander	2%	6%
Proportion FTE	100%	59%
Proportion permanent part-time	0%	27%
Proportion casual	0%	14%
Average years of service	5.3 Years**	-
Average hours worked	42.3	-
Median age	41 Years	35 Years

Source: Mangoola, 2018

*Demographics and expenditure outcomes have been extrapolated from the observed employee number data provided by Mangoola for employees in 2018, to the current estimated average workforce of 400 workers (inclusive of contractors). ** Only includes data from 2014

Note: Due to variability in numbers, contractors have been excluded from the 'workforce' column above – numbers and proportions relate only to full time, part time and casual employees of Mangoola.

The majority of Mangoola employees (excluding contractors) commute to work from within the Muswellbrook LGA (51.1%) followed by the Upper Hunter (22.2%) and approximately 35% of employees live within the township of Muswellbrook. The current residential locations of employees are also consistent with towns identified in the Mod-6 SIA (Coakes Consulting, 2013), with Muswellbrook, Singleton, Denman and Scone identified as key employee townships of residence (Coakes Consulting, 2013).

Other key findings from analysis of Mangoola employee locations and average salary in 2017/2018 are:

- the average annual salary of employees was almost double the average annual salary in NSW. When extrapolated to the current operational workforce of 400 employees, this translates to an estimate of \$63 Million (M) spent on employee salaries over the year, with approximately \$60.5M (96%) of this amount being paid directly to employees within the Hunter Region
- based on workforce income data provided by Mangoola and aligned with expenditure scales developed from the ABS Household income and expenditure survey 2015-2016 (described further in **Section 4.1.1**), it is predicted that Mangoola employees spent an estimated \$32.2M over the year, excluding spend on housing, utilities and telecommunications (**Table 4.2**)
- of this annual employee expenditure, approximately \$23.5M was spent within the Muswellbrook and Upper Hunter LGA's (based on the assumption that employees expenditure occurs largely within their local communities – see **Section 4.1.1**). A further \$7.5M was spent elsewhere in the Hunter region (see **Table 4.2**). The remaining estimate of \$1.3M of expenditure was spent in Sydney (\$388k), the Central Coast (\$291k), Mid-Western Regional LGA, Tamworth Regional LGA, Wollongong LGA, and Brisbane LGA (\$97K respectively), based on existing data.

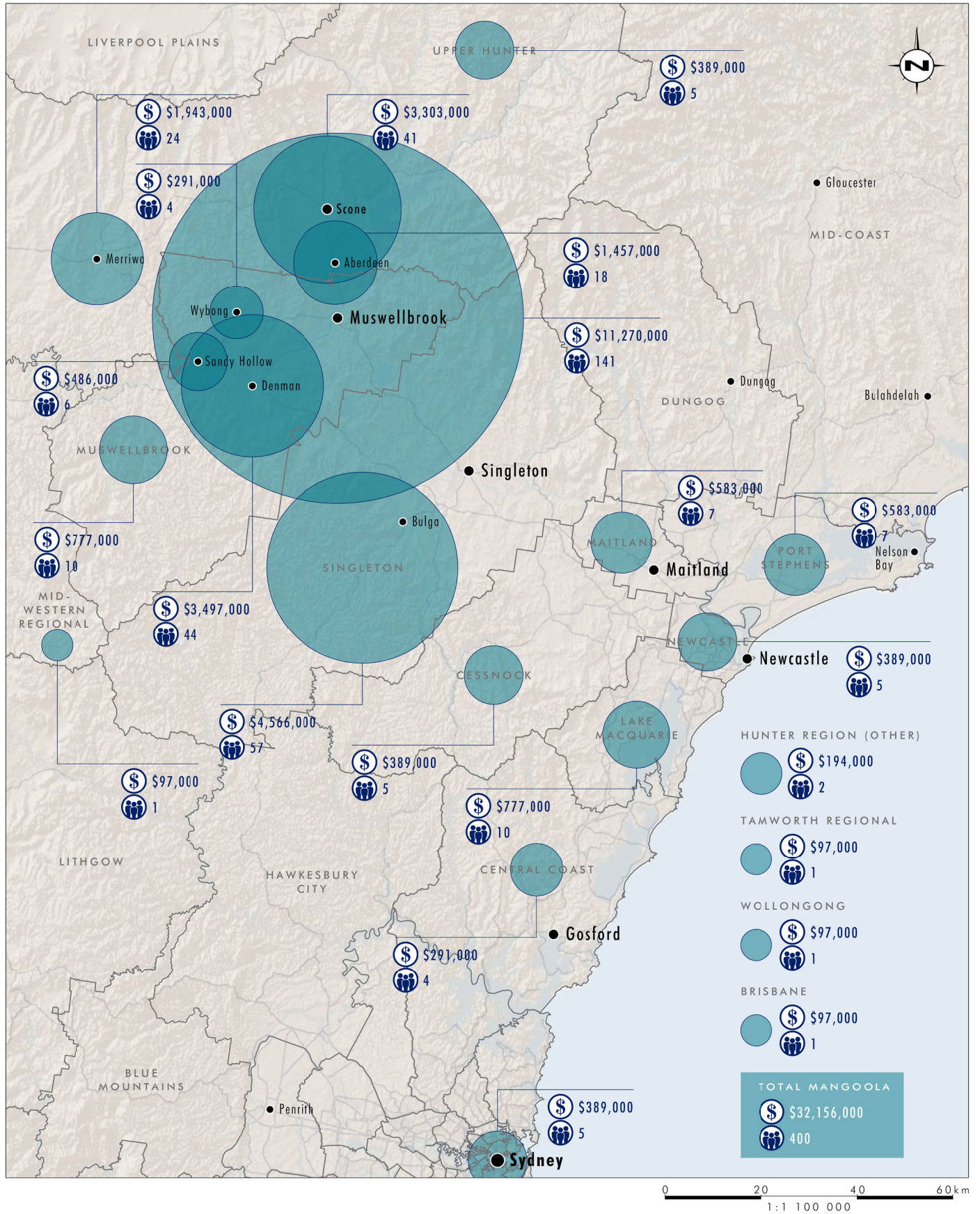


FIGURE 4.1

Estimated Expenditure by Mangoola Workforce Area of Residence (as at 2018)

Table 4.2 Mangoola Workforce – Employee Township of Residence and Annual Household Expenditure

Employee Location	Number of Employees (as at June 2018)	Proportion of Employees (%)	Estimated Operational Workforce (Including Contractors)	**Estimated Operational Workforce Expenditure
Muswellbrook LGA (sub total)	168	51%	204	\$16,321,000
Muswellbrook	116	35.3%	141	\$11,270,000
Denman	36	10.9%	44	\$3,497,000
Sandy Hollow	5	1.5%	6	\$486,000
Wybong	3	0.9%	4	\$291,000
Muswellbrook LGA (Other)	8	2.4%	10	\$777,000
Upper Hunter LGA (sub total)	73	22.2%	89	\$7,092,000
Scone	34	10.3%	41	\$3,303,000
Merriwa	20	6.1%	24	\$1,943,000
Aberdeen	15	4.6%	18	\$1,457,000
Upper Hunter (Other)	4	1.2%	5	\$389,000
Singleton	47	14.3%	57	\$4,566,000
Lake Macquarie	8	2.4%	10	\$777,000
Maitland	6	1.8%	7	\$583,000
Port Stephens	6	1.8%	7	\$583,000
Cessnock	4	1.2%	5	\$389,000
Newcastle	4	1.2%	5	\$389,000
Hunter Region (Other)	2	0.6%	2	\$194,000
Sydney	4	1.2%	5	\$389,000
Central Coast	3	0.9%	4	\$291,000
Mid-Western Regional	1	0.9%	1	\$97,000
Tamworth Regional	1	0.3%	1	\$97,000
Wollongong	1	0.3%	1	\$97,000
*Brisbane (QLD)	1	0.3%	1	\$97,000
Total	329	100	400	\$32,156,000

Source: Mangoola, 2018

*Brisbane expenditure amounts may differ due to difference in household expenditure across states.

**expenditure outcomes have been extrapolated from the observed residential locations of 329 FTE employees in 2018, to the current estimated average workforce of 400 workers (inclusive of contractors).

The SIA undertaken by Coakes Consulting (2013) also collected, via direct survey methods, employee and contractor demographic data and information relating to employee (and associated family member) participation and use of local services. Specifically, the Mangoola Mod-6 SIA TRC analysis noted that:

- approximately 5% of the sampled employees/contractors at that time identified themselves as being of Aboriginal or Torres Strait Islander descent
- the majority of employees/contractors were in a couple (79%) and reported having children (70%). Only 13% of surveyed employees were single males
- 66% said they had children attending schools, the majority of which were in Muswellbrook, Singleton, Aberdeen and Scone (72%)
- similarly, the majority of employees/contractors identified Muswellbrook, Singleton and Scone as their primary health care service destinations (75%), with 5% indicating they attended medical centres in Newcastle.

In the Mangoola Mod-6 SIA (2013), employees and contractors were also asked to identify if they or anyone in their household participated in community activities or groups, defined as either social, sporting, hobby, or other local community groups. The most commonly reported participation was at a sports and recreational level (particularly team sports), followed by arts and culture, youth/school groups and voluntary emergency services. As expected, key locations of employee social participation included Muswellbrook, Scone, Singleton and Denman, in line with employee locations of residence. Participation in these communities was high, with the number of persons engaged in community groups and activities exceeding the number of resident employees in each location.

Given the similarity in distribution of employees within the communities surrounding the mine, between the Mod-6 SIA and the current report, it is likely that these estimates are equivalent to current levels of employee and family use of local services and participation in respective communities.

4.1.3 Mangoola Suppliers

As noted in **Section 4.1.1**, the supplier data presented below has been provided by Mangoola. **Table 4.3** provides a summary of supplier locations and relative contract amounts.

In summary:

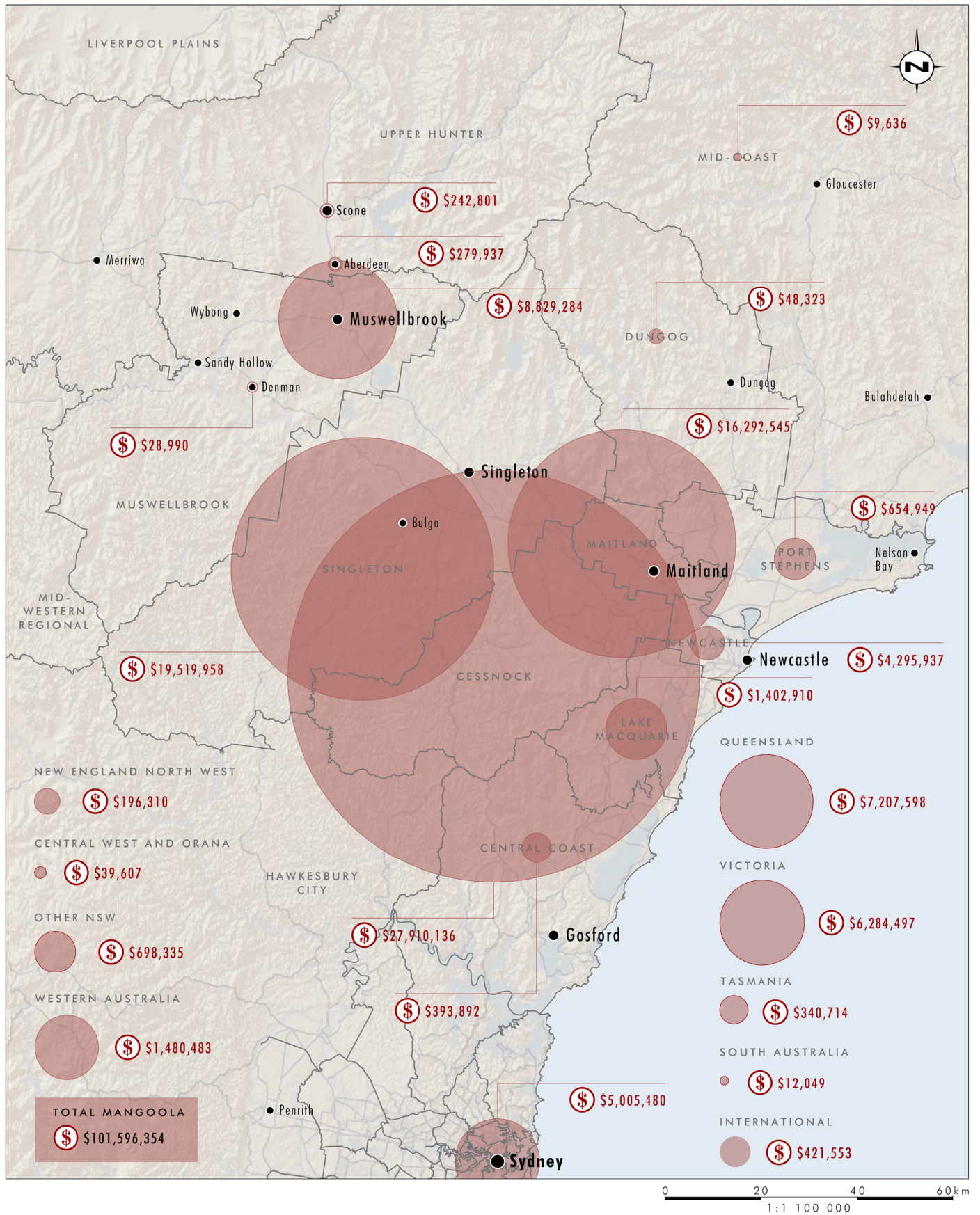
- Mangoola engaged with a total of 454 Suppliers in the 2017/18 financial year, a large proportion of whom were based locally in Muswellbrook and Singleton, the lower Hunter Valley, Sydney and Queensland
- around 57.3% of suppliers were local to the Hunter Region, including 13.7% in the Muswellbrook and Upper Hunter LGA's (including the state suburbs of Muswellbrook, Denman, Sandy Hollow and Wybong). A further 15.2% are drawn from the Singleton LGA and 0.9% from the Upper Hunter (Scone and Aberdeen); with others in the Lower Hunter - Maitland (11.5%), Cessnock (2.6%) and Newcastle (8.6%)
- the number of suppliers per location was not strongly linked to contract amount, with 27.5% of the total contract amount being awarded in Cessnock, where 12 (2.6%) of the suppliers' main offices are located
- a total of approximately \$102M was spent on suppliers during 2018 to support Mangoola's operations (**Table 4.4** and **Figure 4.2**)

- approximately \$9M was spent in the Muswellbrook and Upper Hunter LGAs. A further \$70M was spent in the surrounding Hunter region
- \$6M was spent in other parts of NSW, primarily Sydney. A further \$15M was spent in other states, with the remaining \$422K being spent overseas.

The NSW Mineral Councils (2019) latest release of its NSW Mining Industry Expenditure Impact Survey 2017/18 highlights the significant expenditure by mining in the Hunter Valley region. The survey has concluded that of the 28 mining companies surveyed, these companies injected approximately \$4.3 billion into the region's economy, equating to an estimated 18% of the Gross Regional Product. This included \$1.6 billion in wages of 14,045 full-time employees and \$2.6 billion in purchases from local businesses. In relation to proximal LGAs of interest in the current assessment:

- within the Maitland LGA, \$830M was spent in 2017-18, with \$265M in wages and \$565M in local business purchases
- Singleton LGA received over \$400M in wages and \$380M in local business expenditure, with total input at nearly \$780M
- in the Muswellbrook LGA, surveyed mining companies spent over \$437M, including nearly \$230M in wages, and purchases with local businesses totalling nearly \$208M.

The survey also found that direct mining expenditure in the Newcastle LGA totalled over \$1 billion in 2017-18, including \$155M in wages and \$968M in purchases with local businesses (NSW Minerals Council, 2019).



Legend

- Local Government Area
- Location
- Estimated Supplier Expenditure (AUD)

FIGURE 4.2

Mangoola Local Supplier Expenditure (as at 2018)

Table 4.3 Location of Suppliers' Main Offices

Supplier Location	Count of Suppliers	Proportion of Total Suppliers	Proportion of Total Contract Amount (%)
Total Suppliers	454	100%	100%
Local Suppliers	256	57.3%	9.2%
Muswellbrook LGA	58	12.8%	8.7%
Muswellbrook SSC	51	11.2%	8.7%
Denman SSC	5	1.1%	<0.5%
Sandy Hollow SSC	1	0.2%	<0.5%
Wybong SSC	1	0.2%	<0.5%
Upper Hunter LGA	4	0.9%	0.5%
Aberdeen SSC	2	0.4%	<0.5%
Scone SSC	2	0.4%	<0.5%
Hunter (Other) Expenditure	198	43.6%	69.0%
Cessnock LGA	12	2.6%	27.5%
Singleton LGA	69	15.2%	19.2%
Maitland LGA	52	11.5%	16.0%
Newcastle LGA	39	8.6%	4.2%
Lake Macquarie LGA	16	3.5%	1.4%
Port Stephens LGA	7	1.5%	0.6%
Dungog LGA	1	0.2%	<0.5%
Mid-Coast	2	0.4%	<0.5%
NSW Expenditure	90	19.8%	6.2%
Sydney	69	15.2%	4.9%
South East and Tablelands	1	0.2%	0.5%
Central Coast	7	1.5%	<0.5%
New England North West	3	0.7%	<0.5%
North Coast	2	0.4%	<0.5%
Wollongong LGA	3	0.7%	<0.5%
Central West and Orana	5	1.1%	<0.5%
Interstate Expenditure	103	22.7%	15.1%
QLD	64	14.1%	7.1%
VIC	28	6.2%	6.2%
WA	6	1.3%	1.5%
TAS	3	0.7%	<0.5%
SA	2	0.4%	<0.5%
International Expenditure	1	0.2%	<0.5%

Source: Mangoola, 2018

Table 4.4 Mangoola Total Supplier Contract Amounts by Area (2018)

Supplier Location	Estimated Total Contract Amount
Total Supplier Expenditure	\$101,596,354.60
Local Expenditure	\$9,381,432.41
Muswellbrook LGA	\$8,858,693.31
Muswellbrook SSC	\$8,829,284.25
Denman SSC	\$28,990.48
Sandy Hollow SSC	\$330.00
Wybong SSC	\$88.58
Upper Hunter LGA	\$522,739.10
Aberdeen SSC	\$279,937.22
Scone SSC	\$242,801.88
Hunter (Other) Expenditure	\$70,134,397.29
Cessnock LGA	\$27,910,136.52
Singleton LGA	\$19,519,958.33
Maitland LGA	\$16,292,545.56
Newcastle LGA	\$4,295,937.63
Lake Macquarie LGA	\$1,402,910.59
Port Stephens LGA	\$654,949.66
Dungog LGA	\$48,323.00
Mid-Coast	\$9,636.00
NSW Expenditure	\$6,333,627.34
Sydney	\$5,005,480.76
South East and Tablelands	\$521,037.05
Central Coast	\$393,892.78
New England North West	\$196,310.39
North Coast	\$110,615.32
Wollongong LGA	\$66,683.10
Central West and Orana	\$39,607.94

Supplier Location	Estimated Total Contract Amount
Interstate Expenditure	\$15,325,343.66
QLD	\$7,207,598.21
VIC	\$6,284,497.66
WA	\$1,480,483.58
TAS	\$340,714.91
SA	\$12,049.30
International Expenditure	\$421,553.89

Source: Mangoola, 2018

4.1.4 Mangoola – Community Investment

Table 4.5 summarises the social investments made by Mangoola in the 2017 and 2018 calendar years (outside of the dedicated VPA).

At a community level, Mangoola contributed \$164,823 in social investments for the years 2017 (\$85,656) and 2018 (\$79,167) that targeted various community groups, events and services across the Upper Hunter. In addition to these investments, Mangoola assisted in the purchase and fit-out of a new bus for the Merton Living Retirement Village in 2018.

Table 4.5 Mangoola Social Investment

Community Partner/Organisation	Focus Area	Financial Commitment (AUD)	Year
Wybong Hall insurance	Community Infrastructure	\$3,663	2018
Wybong Hall, Church and Cemetery maintenance/upgrades	Community Infrastructure	\$9,642	2018
Denman Aquatic Centre – Clock	Community Infrastructure	\$800	2018
Muswellbrook Rotary Club	Community Service	\$600	2018
Denman Fire Brigade – Lolly Run	Community Service	\$450	2018
Upper Hunter Show	Community Service - Event	\$10,000	2018
St Helliars Heavy Horse Field Days	Community Service - Event	\$833	2018
WLALC -frontyard working bee	Community Service - Event	\$545	2018
Westpac Rescue Helicopter - Black Coal Charity Cup	Community Service - Event	\$700	2018
Denman Public School	Education	\$500	2018
Muswellbrook High School	Education	\$5,000	2018
Muswellbrook Public School	Education	\$2,626	2018
St Joseph's Primary School Denman	Education	\$1,628	2018
Upper Hunter Education Fund	Education	\$10,000	2018
Clean up Australia Day - water donation	Environment	\$30	2018

Community Partner/Organisation	Focus Area	Financial Commitment (AUD)	Year
Muswellbrook Shire Council - National Tree Day	Environment	\$2,000	2018
Wybong Wild Dog Association	Environment	\$2,000	2018
Wildlife Aid Singleton (Denman School Seminar)	Environment - Education	\$2,500	2018
Hunter Life Education	Health – Education	\$2,000	2018
Muswellbrook Chamber of Commerce - Muswellbrook Business Awards	Local Business - Event	\$2,500	2018
Upper Hunter Food and Wine Affair	Local Business - Tourism	\$20,000	2018
G21 Rugby League Academy	Sport and Recreation	\$500	2018
Muswellbrook polo cross club	Sport and Recreation	\$650	2018
Total 2018		\$79,167	2018
Wybong Hall insurance	Community Infrastructure	\$3,220	2017
Wybong Hall, Church and Cemetery maintenance/repairs	Community Infrastructure	\$4,388	2017
Denman Fire Brigade – Lolly Run	Community Service	\$450	2017
Wybong Rural Fire Brigade	Community Service	\$4,250	2017
St Helliars Heavy Horse Field Days	Community Service - Event	\$833	2017
Upper Hunter Show	Community Service - Event	\$10,000	2017
Westpac Rescue Helicopter - Black Coal Charity Cup	Community Service - Event	\$500	2017
Where There's a Will	Health	\$6,500	2017
Ovarian Cancer Australia	Health	\$1,000	2017
Oxfam	Health	\$200	2017
Denman Public School - awards	Education	\$500	2017
Muswellbrook Public School - fete	Education	\$250	2017
Muswellbrook South Public School – fete	Education	\$250	2017
St Joseph's Primary School	Education	\$1,000	2017
Upper Hunter Education Fund	Education	\$10,000	2017
Upper Hunter Pastoral & Ag Assoc	Enterprise Development/ Environment	\$20,000	2017
Muswellbrook Shire Council - National Tree Day	Environment	\$3,000	2017
Wybong Wild Dog Association	Environment	\$2,000	2017

Community Partner/Organisation	Focus Area	Financial Commitment (AUD)	Year
Muswellbrook Chamber of Commerce - Muswellbrook Business Awards	Local Business - Event	\$2,000	2017
Upper Hunter Food and Wine Affair	Local Business - Tourism	\$15,000	2017
Denman and District Development Assoc - Denman News	Media	\$4,451	2017
G21 Rugby League Academy	Sport and Recreation	\$2,364	2017
Total 2017		\$85,656	2017
Total 2017-2018		\$164,823	2017-18

Source: Mangoola, 2019

Figure 4.3 shows the proportional allocation of funding for the combined calendar years of 2017 and 2018. Over the last two years, the majority of Mangoola's community investment contributions have focused on supporting local business initiatives (24%), education (19%), community service (18%), environmental programs (18%) and community infrastructure (13%).

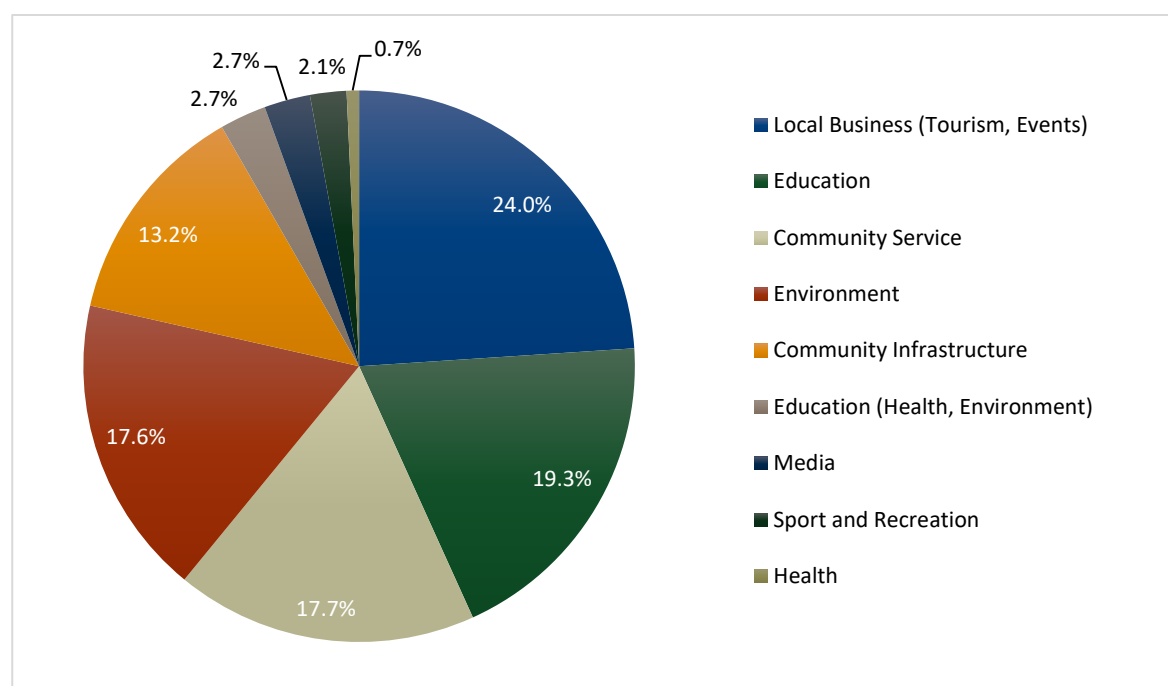


Figure 4.3 Focus Areas of Investment - Proportion of Funding For Years 2017-18

In 2018, the majority of spending was directed towards local business and education and community infrastructure (see **Figure 4.4**). The local business contributions included a \$20,000 contribution to the Upper Hunter Food and Wine Affair, held in Denman (see **Table 4.5**).

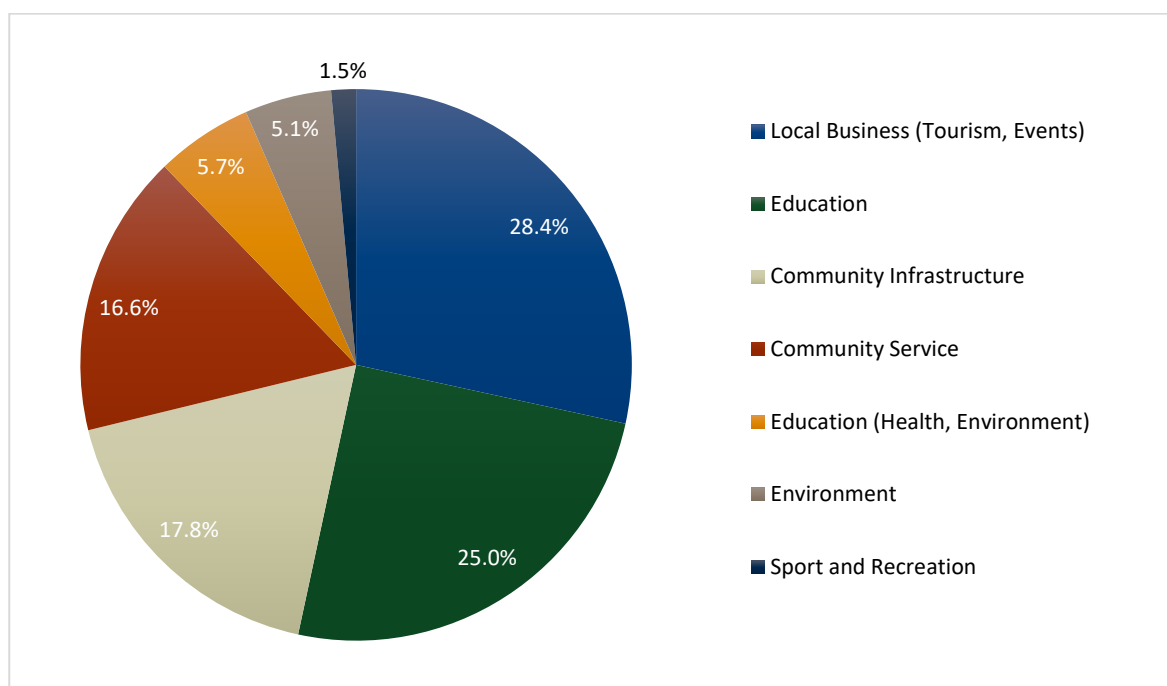


Figure 4.4 Focus Areas of Investment - Proportion of Funding (2018)

Contributions in 2017 placed more emphasis on environmental programs (29%), with local business (20%) and community services and infrastructure (19% and 9% respectively) receiving greater proportions of the \$85,656 that was provided over the year.

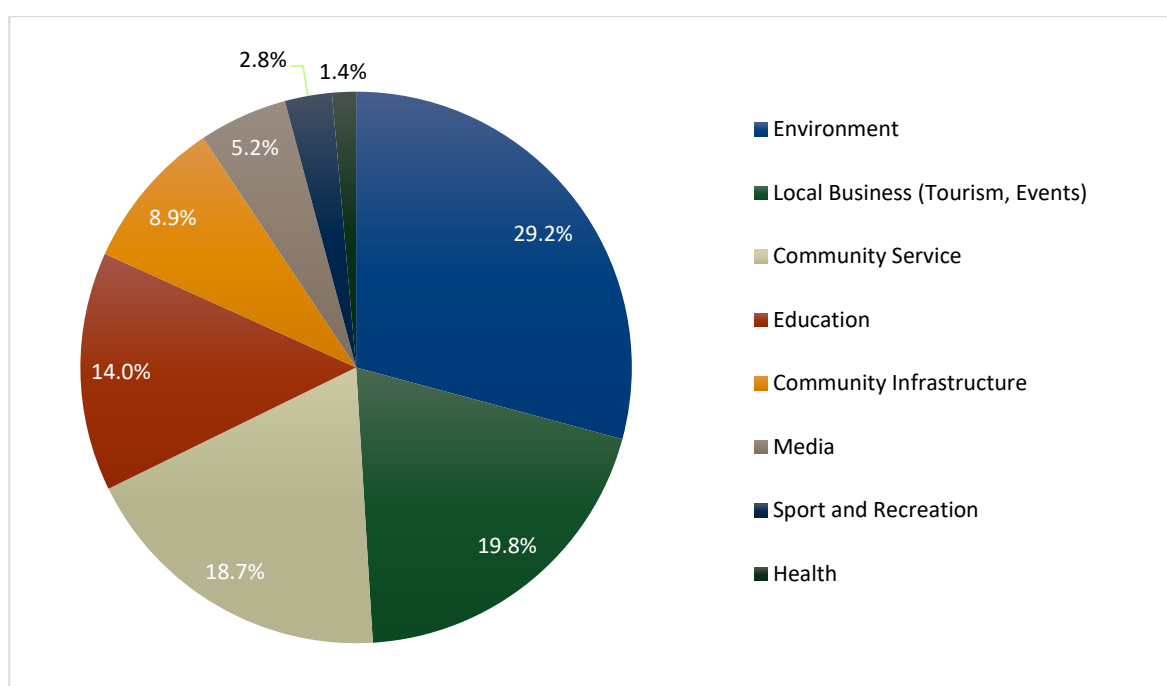


Figure 4.5 Focus Areas of Investment - Proportion of Funding (2017)

In addition to the community contributions outlined above, Mangoola contributed a total of almost \$1.4M in VPA payments to Muswellbrook Shire Council over the course of 2017 and 2018 – as shown in **Table 4.6** below.

As part of the NSW planning process, DPE utilises the VPA mechanism so that the benefits of industry activity are shared and impacts of development are identified and appropriately managed at local and more regional levels. Through targeted social investment, administered through such agreements, impact management and further community enhancement can be undertaken to facilitate development across a community's key capital areas/assets, whether at a localised level, or a broader LGA level.

Table 4.6 Mangoola Voluntary Planning Agreement Payments

VPA Payments (Project)	Financial Commitment (AUD)	Year
Wybong Road maintenance	\$58,13	2018
Environmental management	\$22,653	2018
E&C Projects Mod 4	\$266,164	2018
General mine affected road maintenance	\$250,214	2018
E&C Projects Mod 6	\$108,127	2018
General roads maintenance	\$244,549	2017
Muswellbrook Shire Council payments	\$446,591	2017
2018 Total VPA	\$705,291	2018
2017 Total VPA	\$691,140	2017
2017-18 Total VPA	\$1,396,431	2017-18

Source: Mangoola, 2019

4.1.5 Summary of Findings

Major resource projects can make significant social and economic contributions to communities that extend far beyond the location in which a particular operation is based. For instance, the presence of an operation can provide economic contributions to communities through indirect impacts such as employee household expenditure. Furthermore, employees (and their families) may contribute to communities through their participation in community groups and activities, or through their use of health, education and other community services. Likewise, indirect benefits may be experienced in communities where suppliers' head offices are located or where suppliers' business expenditure is undertaken.

This section has provided an indication of the direct and indirect economic contributions of the Mangoola Coal Mine, through analysis of Mangoola employees' location of residence, wages, and an estimate of employee annual household expenditure. Further analysis of the expenditure on suppliers, and estimation of the suppliers spend in their local area, describes the direct and indirect contributions of the Mangoola Coal Mine to the region more generally.

Overall, it is estimated that approximately \$164M was spent by Mangoola on employee salaries and supplies during the 2017-18 financial year, with \$55M going to employees and suppliers in the communities of Muswellbrook LGA and the Upper Hunter LGA, and a total of \$140M in the Hunter Region broadly.

Additionally, from January to December 2018, Mangoola spent \$79,000 on local community contributions, and approximately \$700,000 on VPA payments to the MSC.

Given that the MCCO Project would prolong the life of the mine for a further five years, it can be inferred that the social and economic linkages discussed would be sustained for this additional period should the project proceed. The economic benefits of the MCCO Project have been assessed and are further discussed in the EIS.

It should be noted that whilst it has been assumed that employees and suppliers spend their income in the local area, this is not always the case – factors such as the availability of services in small communities will impact on whether a person will purchase locally or commute elsewhere. However, outcomes of the analysis of secondary data undertaken for the MCCO Project and similarities identified between the current analysis and from review of the Mangoola Mod-6 TRC outcomes (Coakes Consulting, 2013), it appears that the majority of employees reside in the Muswellbrook and Upper Hunter LGAs, and contribute a significant proportion of their income to the local economy. Similarly, at the time of reporting, around 9% of supplier expenditure was paid to companies with offices in the immediate local area, with the overall majority located within the Hunter region broadly.

4.2 Perceptions of Mangoola

This section analyses existing data to provide an overview of community perceptions of Mangoola. The data sources utilised include:

- 2018 Glencore Community Perception Survey
- engagement undertaken with proximal landholders in 2017, as part of the Scoping Phase of the SIA for the MCCO Project
- Mangoola complaints register (2014 – 2018).

4.2.1 Glencore Community Perception Survey

As previously noted every three years, Glencore conducts a community perception survey of stakeholders and community residents relevant to their NSW and QLD operations. This survey is designed to obtain a greater understanding of stakeholder issues and needs relating to company activities, past and present; and to assist in driving business improvement in the areas of environmental performance, stakeholder engagement and community development across neighbouring and regional communities.

To inform this section, data from the 2018 perception survey relating to Glencore, involving landholders, local businesses, community groups, Indigenous groups, local and state government and NGOs and residents residing in the wider Hunter Valley, has been reviewed and incorporated as relevant. Glencore operations within the Hunter Valley include the Mangoola Coal Mine, Bulga, HVO Joint Venture, United, Ravensworth, Liddell, Mt Owen Complex and Integra.

In relation to stakeholder perceptions of Glencore's operations in the Hunter Valley the survey results indicated the following:

Care for the Community

When asked if: *Glencore cares about local communities in the region* with a sample size of landholders (n=126), opinion leaders (n=43), broader community (n=199). 65% of broader community respondents, 62% of opinion leaders and 77% of landholders either agreed or strongly agreed with this statement.

Opportunity to present stakeholder views

When asked if: *I feel that I have ample opportunity to present my views about Glencore's activities in the area* with a sample size of landholders (n=120), opinion leaders (n=41), broader community (n=190). 63% of broader community, 71% of opinion leaders and 65% of landholders either agreed or strongly agreed with this statement. **Contribution to the Community**

When asked if: *Glencore makes an important contribution to the local economy in the region* with a sample size of landholders (n=121), opinion leaders (n=42), broader community (n=199) 82% community, 86% of opinion leaders and 81% of landholders either agreed or strongly agreed with this statement.

Environmental Performance

When asked: *In my opinion Glencore's environmental performance is an example of good practice* with a sample size of landholders (n=118), opinion leaders (n=40), broader community (n=189). 53% of community, 66% of opinion leaders and 60% of landholders either agreed or strongly this statement.

When asked: *I think Glencore is taking measures to address environmental issues* with a sample size of landholders (n=122), opinion leaders (n=41), broader community (n=193). 64% of community, 80% of opinion leaders and 66% of landholders either agreed or strongly agreed to this statement.

4.2.2 Proximal Landholder Engagement

4.2.2.1 Perceptions of Existing Mangoola Coal Mine

As part of the Scoping Phase of the SIA for the MCCO Project, proximal landholders were consulted and asked if they had any issues or concerns in relation to the existing Mangoola Coal Mine operations.

Figure 4.6 summarises the issues obtained.

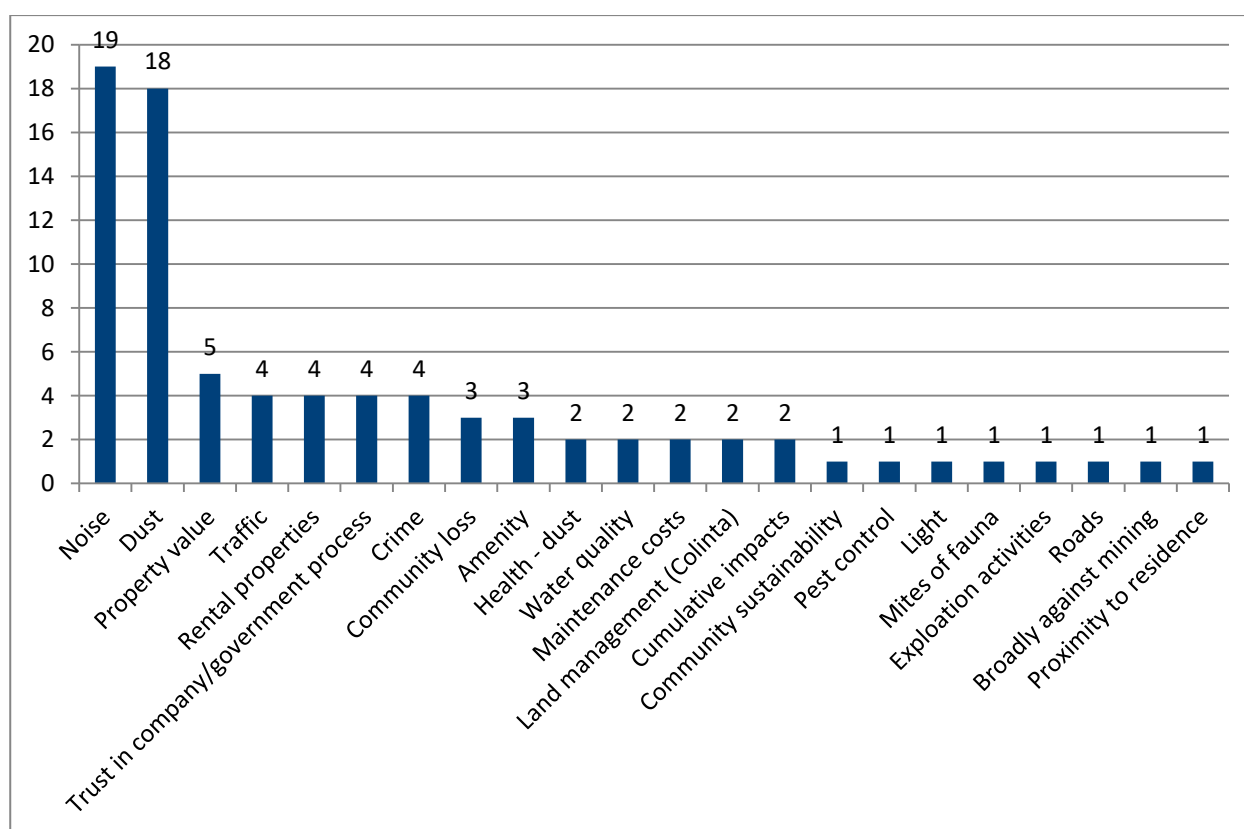


Figure 4.6 Existing Operational Concerns (Phase 1 Consultation)

Note: multiple responses allowed.

© Umwelt, 2017

As illustrated in **Figure 4.6**, at the onset of the MCCO Project (prior to PEA submission), the most common operational concerns related to noise (76%) followed closely by dust (72%) and property value (20%).

A number of landholders noted their experience with the mine, when it was previously owned by Centennial Coal and called 'Anvil Hill'. Residents noted that Mangoola were approachable when they raised

their concerns and did what they could to address their concerns. However, other landholders felt that Mangoola could still do more to manage their impacts.

4.2.3 Complaints Analysis

Mangoola maintains an ongoing complaints register to record all community complaints, investigations and outcomes. The complaints register is available to the public via the Mangoola website (<http://www.mangoolamine.com.au>). A review of the complaints register from January 2013 to November 2018 has been undertaken to provide some operational context to issues identified by landholders during the SIA consultation.

It is important to note that Mangoola records all relevant contact with the community even if an investigation concludes that the mine's activities remain in compliance with project approval conditions (and other regulatory) limits; or the reported instance is not able to be attributed to the mine (e.g. a contact regarding a blast is recorded as a complaint even if the investigations finds that no blast from the mine occurred at the time reported).

4.2.3.1 Number and nature of complaints – Approved Operations

Mangoola received, investigated and recorded a total of 814 complaints from January 2013 to November 2018, with the highest number of complaints in 2014, with 404 complaints received (as shown in **Figure 4.7**). A high proportion of these complaints were lodged by the same complainants as discussed below.

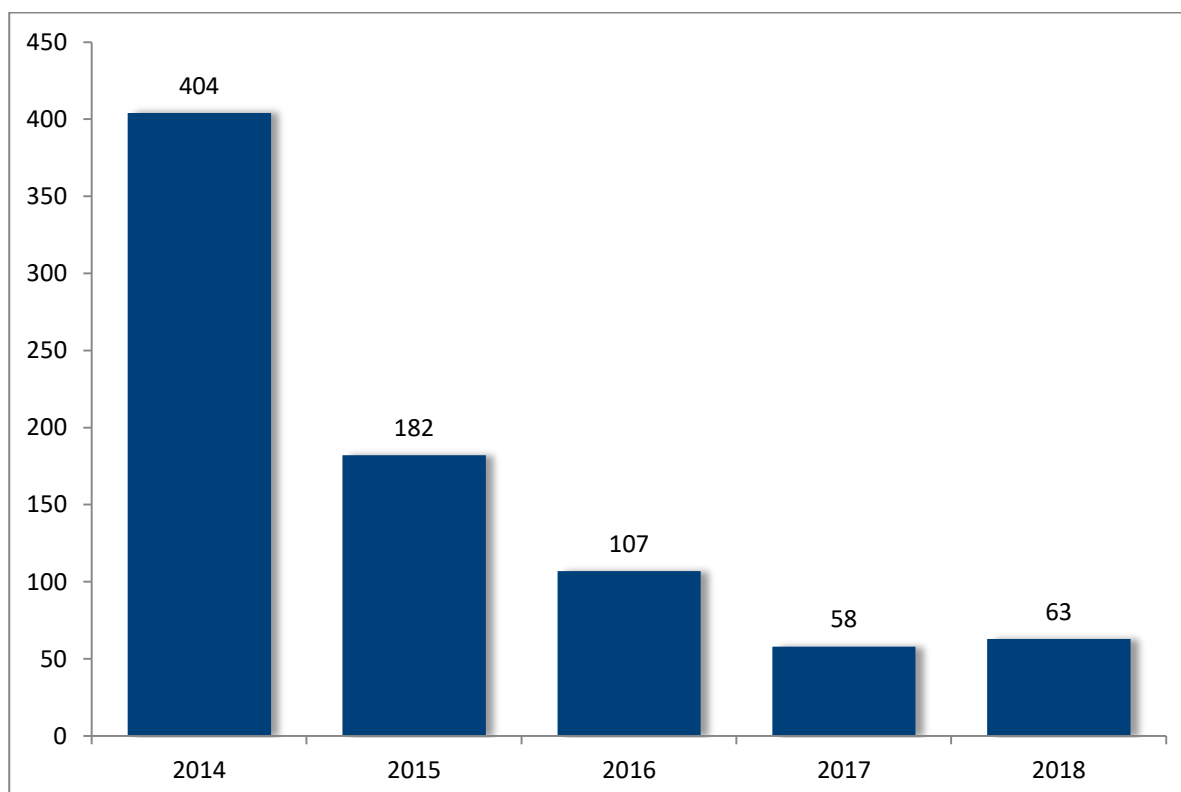


Figure 4.7 Complaints Received by Mangoola January 2014 – November 2018 (N=814)

Source: Mangoola Complaints database (2018)

As shown in **Figure 4.8** noise complaints were the most common, accounting for over 90% of all complaints received during this period. Following noise, blasting accounted for 3.3% of complaints.

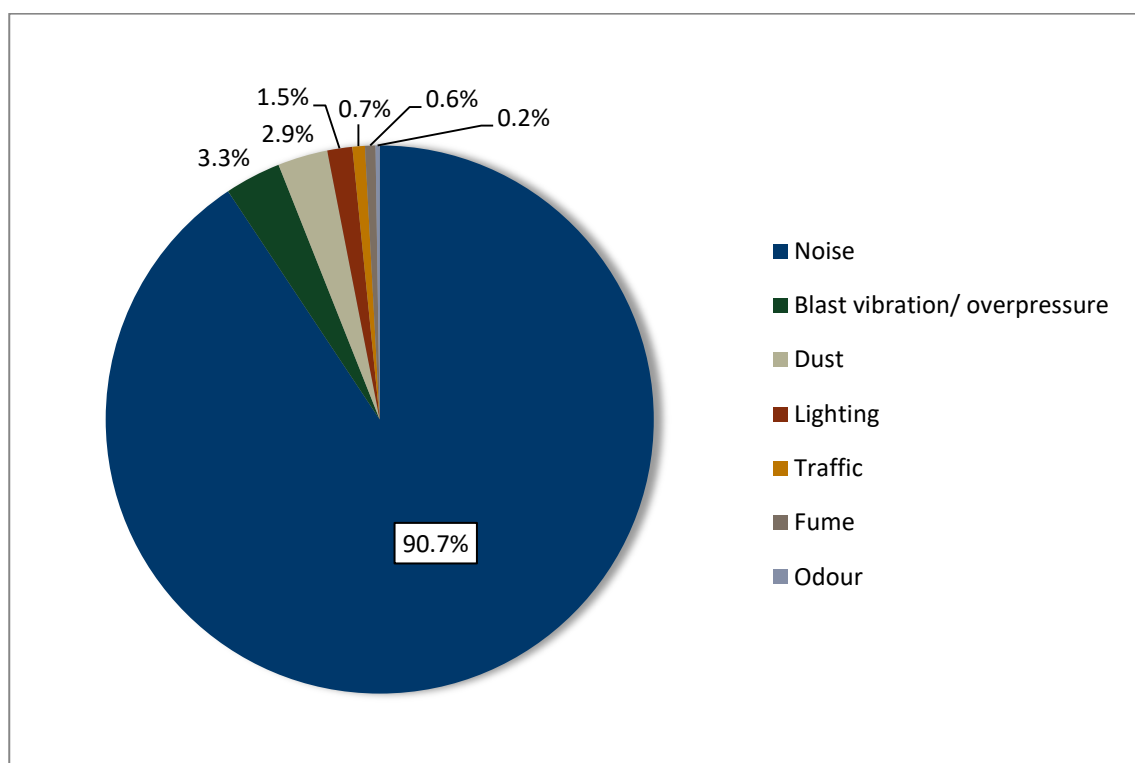


Figure 4.8 Nature of Complaints Mangoolo January 2014 – November 2018 (N=814)

Source: Mangoolo Complaints database (2018)

As can be seen in **Figure 4.9**, approximately 68 respondents lodged 814 complaints between January 2014 and November 2018. This equates to an average of 12 complaints per complainant. However, in 2014 two complainants accounted for over half of all complaints received, and the high standard deviation for the overall time period ($SD = 35.3$), suggesting that some complainants were making significantly more submissions than others.

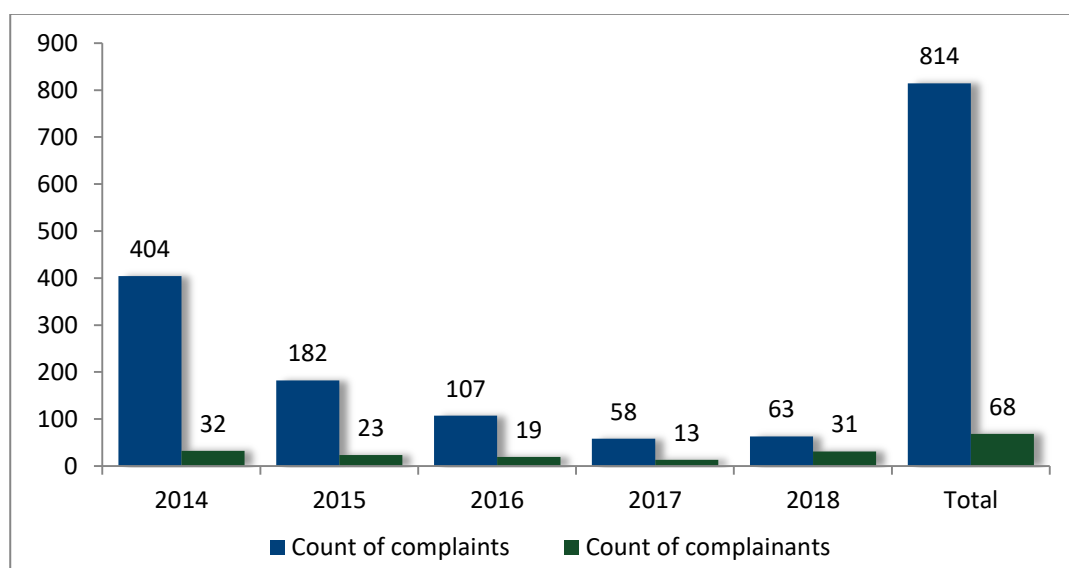


Figure 4.9 Number of Complaints (n = 814) and Complainants (n ≈ 68) between January 2014 and November 2018

Source: Mangoolo Complaints database (2018)

5.0 Social Profile

A baseline social profile gathers knowledge from both primary and secondary data sources to increase understanding of the existing social environment in which a project is proposed. According to the International Association for Impact Assessment (IAIA) *SIA Guidelines* (2015), a baseline social profile should provide: documentation and analysis of the local historical setting; relevant data to enable the evaluation and audit of social impacts and associated management strategies; and afford a complete picture of the local cultural context; as well as a greater understanding of local values.

The SIA Guideline (DPE, 2017) also outlines what a social baseline study should include, namely:

- a description of the project's area of social influence
- quantitative indicators and qualitative descriptions relevant to each potential social impact, building on any relevant indicators identified during scoping, and sourced through a combination of desktop research and primary data collection (including from other specialist studies undertaken for the EIS).

The SIA Guideline emphasises that the social baseline should be tailored to the specific project context and include meaningful data to inform the SIA. The baseline should also include analysis of any relevant data trends and provide a benchmark from which potential impacts can be assessed, and any change monitored.

Profiling provides a comprehensive summary of the key characteristics of the people of a community or Project area and is concerned with developing a detailed understanding of the social and economic context of potentially affected communities. For the purpose of this assessment, the following components have been considered in the development of the social baseline profile for the project, namely:

- geographic scope – identification of the communities of interest relevant to the current assessment
- governance – outline of relevant structures of governance at local, state and federal levels
- historical context – review of the history of local communities, including their culture and values
- development context and response to change – assessment of development issues within the communities of interest and the response of local landholders and community residents to this change
- community capitals/assets – assessment of areas of vulnerability and resilience across the communities of interest
- key community values, issues and concerns – documentation of current community issues in the Muswellbrook LGA and Upper Hunter Region, as identified in key planning documents, regional studies and the local media.

Data sources utilised in the preparation of this profile section, relevant to the project area, include:

- ABS Census (ABS, 2011, 2016); Social Health Atlas (PHIDU, 2018) and other social indicator datasets
- local and state government reports
- existing Environmental Assessments/Social Impact Assessments (relevant to the area)
- research reports and publications (e.g. Mining Dialogue 2018; Coakes Consulting 2013)

- review of local and regional media
- consultation with key stakeholders and service providers in the Upper Hunter Region.

The social profile is a necessary component of the SIA and provides a foundation from which social impacts associated with the proposed Project development may be assessed and predicted.

5.1 Geographic Context

Mangoola Coal Mine is located in the Muswellbrook LGA, within the Upper Hunter Region (or State Electoral District). The Upper Hunter Region includes the LGAs of Singleton, Muswellbrook and the Upper Hunter. The existing Mangoola Coal Mine operation is located approximately 20 km west of Muswellbrook and 10 km north of Denman. Newcastle is the main coastal metropolitan centre in the adjacent Lower Hunter Region; south-east of Mangoola Coal Mine.

Mangoola Coal Mine is one of approximately 35 separate mines operated by 11 different coal producers across the Hunter region (HVCCC, 2019). In 2017, these mines, which represent the Hunter Valley Coal Chain, contributed collectively over 159 million tonnes of coal exports from the Newcastle Port (Port of Newcastle, 2017). The closest operating mines to Mangoola Coal Mine include Bengalla, Mt Arthur, and Mount Pleasant as displayed in **Figure 5.1**.

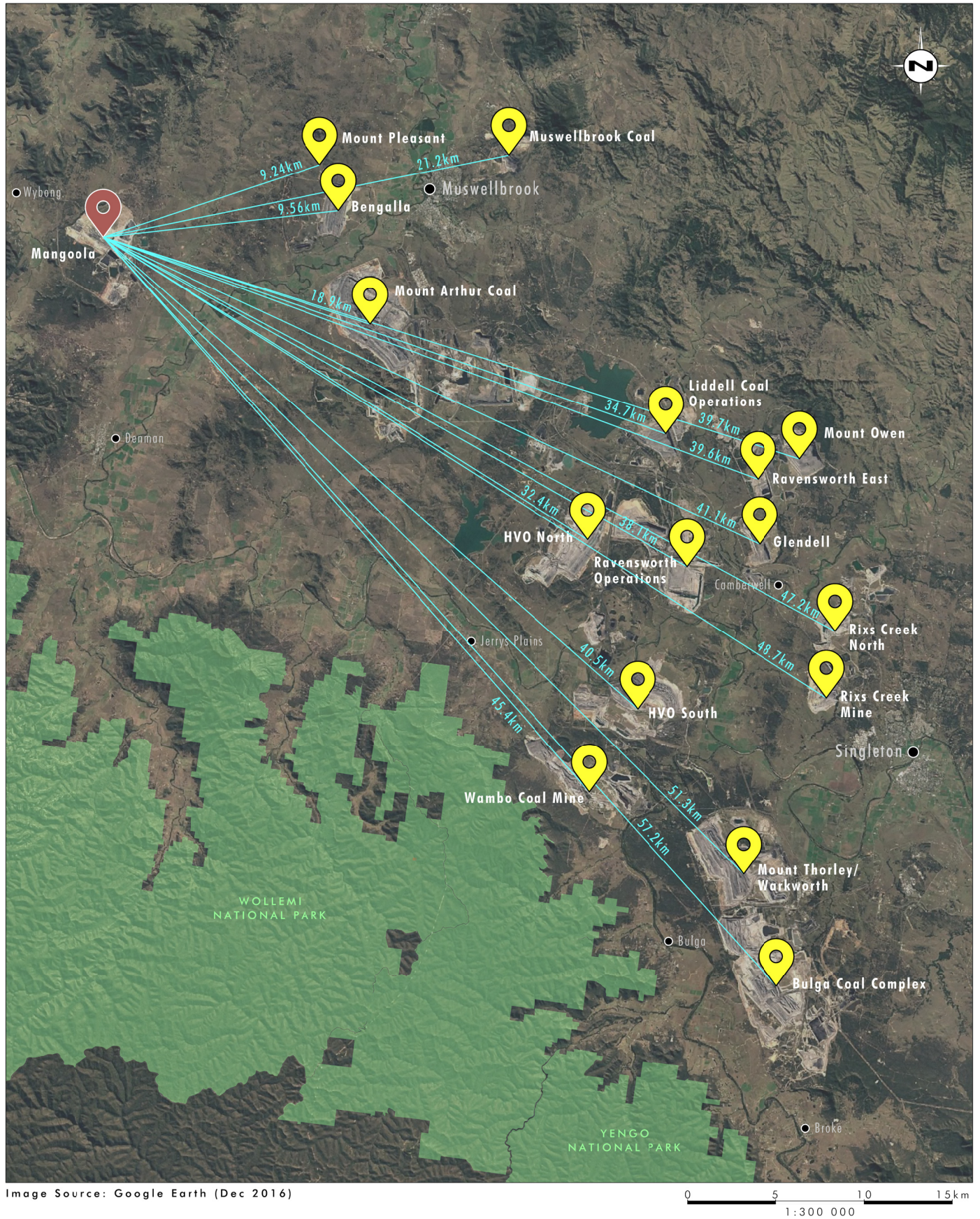


FIGURE 5.1
Proximity of Mines to
Mangoola Coal Continued Operations

It is important as part of the social profile of an SIA to define the geographic scope relevant to the SIA. As noted in **Section 4.0**, the contributions of the Mangoola Coal Mine operations extend throughout the Upper Hunter Region, with employees residing in key townships including Muswellbrook, Singleton, Denman, Merriwa and Scone (refer to **Section 4.1.2**).

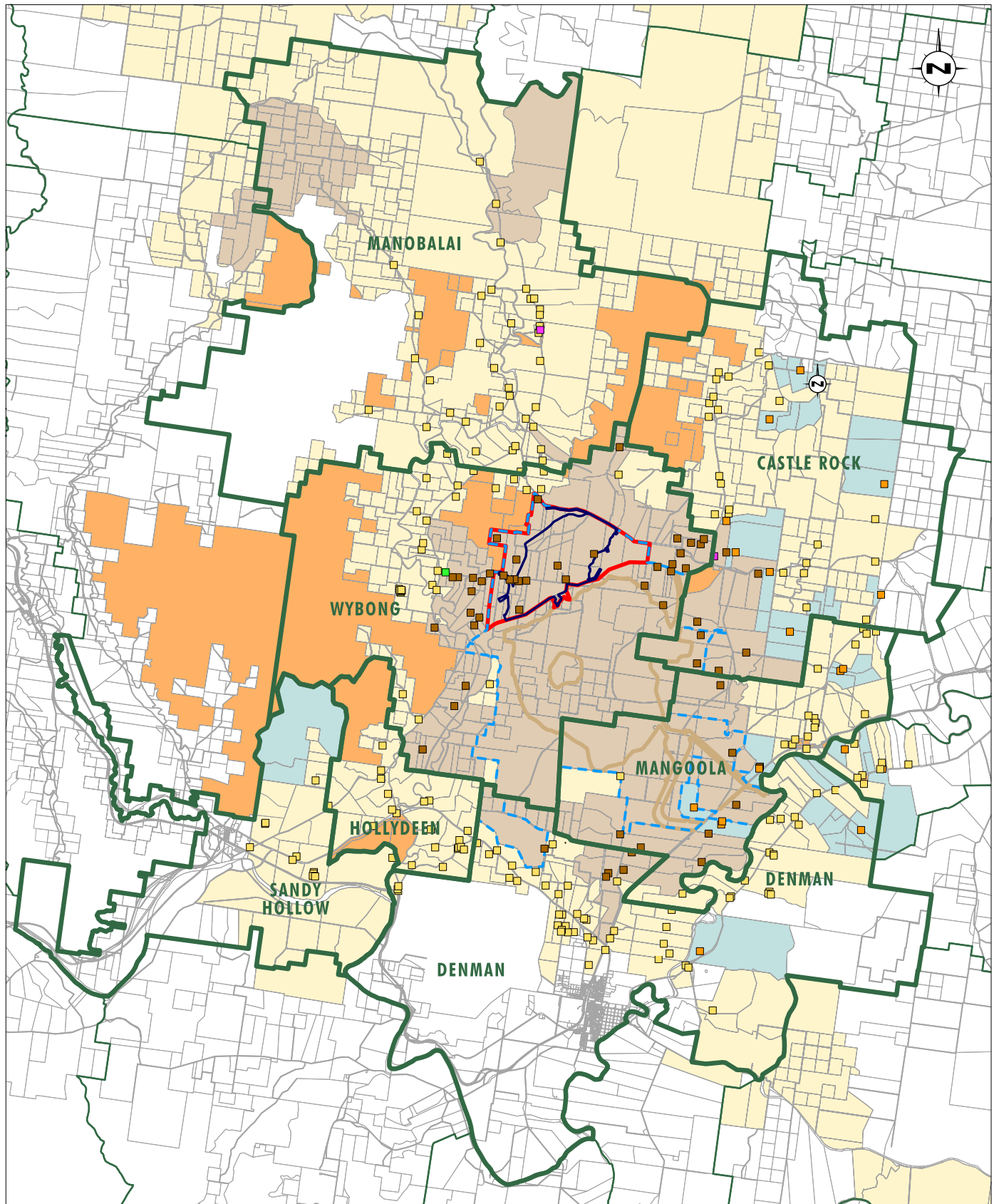
A large number of suppliers to the Mangoola Coal Mine operations are also located in the Upper Hunter region, with other suppliers located further afield in the Lower Hunter, the State of NSW and internationally (refer to **Figure 4.2**).

In this SIA, the primary social area of influence for the MCCO Project has been defined as the localities and communities proximal to the existing Mangoola Coal Mine operations and the stakeholders that reside within these areas. The primary state suburbs of interest (or proximal communities) as defined by the ABS (2016) include Mangoola, Castle Rock, Manobalai and Wybong. The townships of Sandy Hollow, Denman and Muswellbrook are also considered as the townships in closest proximity to the MCCO Project, with data for the Muswellbrook LGA, the Upper Hunter region and the State of NSW also utilised for comparative purposes.

The primary state suburbs of interest (or communities) as defined by the ABS (2016) are listed below and include:

- Castle Rock
- Denman
- Mangoola
- Manobalai
- Muswellbrook
- Sandy Hollow
- Wybong
- Muswellbrook LGA
- Upper Hunter Region
- NSW State.

Data for the Muswellbrook LGA, the Upper Hunter region and the state of NSW have also been used for comparative purposes.



Data Source: Glencore (2018), ABS (2018)
Note: *Subject to Negotiated Agreement

0 3 6 9 km
1:170 000

Legend

- MCCO Project Area
- Approved Mangoola Coal Mine Disturbance Area
- MCCO Additional Project Area
- MCCO Additional Disturbance Area
- Crown Land
- Mangoola Owned Land
- Other Mined Owned Land
- Private Land
- Private Residence
- Mangoola Owned Residence
- Other Mine Owned Residence
- Church
- Wyong Hall
- State Suburb Boundary

FIGURE 5.2
Study Locations

5.2 Governance

5.2.1 Local Government

Muswellbrook LGA is represented by the MSC. Muswellbrook LGA elects its Councillors (10 in total) from a single ward on a proportional basis, with the Mayor elected by the Councillors. The most recent election in September 2016 resulted in the reappointment of Martin Rush as Mayor for a fourth term. The MSC upholds six values as core requirements of their organisation that include: safety, pride, integrity, respect, innovation and teamwork.

Table 5.1 Muswellbrook Shire Council

Role	Councillors
Mayor	Martin Rush
Deputy Mayor	Rod Scholes
Councillors	Scott Bailey Mark Bowditch Jason Foy Michelle Green Jacinta Ledlin Graeme McNeill Steve Reynolds Janelle Eades Stephen Ward Brett Woodruff

Source: MSC (2019)

The MSC Community Strategic Plan and the Hunter Regional Plan 2036 (DEP 2016), both contain strategies to maintain Muswellbrook as a regional centre. Muswellbrook is positioned as the administrative and governance centre of the Upper Hunter.

Muswellbrook is the only town of its size in NSW to be almost completely surrounded by mining activity and is positioned in a key location in the Hunter Valley where the road and rail intersections of the Gunnedah, Western and Hunter coalfields meet. Technological advances, coupled with a growing demand for coal, particularly for thermal coal, have resulted in an increase in open cut mines being established within the LGA, with coal extraction from the Muswellbrook LGA increasing significantly over the 10 years, from 4 Million tonnes in 2001 to 43 Million tonnes in 2011 (MSC, 2019). A more recent news article suggested that by 2014 this figure had increased to as high as 50 million tonnes (ABC Rural News, 2014).

In response to the demand for coal within the region, the MSC has developed, in consultation with the local community, a *Land Use Development Strategy (Coal mine land use component): A Guide for Strategic Land Use in the Muswellbrook LGA* (MSC, 2015). The purpose of the strategy is to promote intensification of existing mining projects rather than an expansion of mining footprints throughout the area.

The MSC is sensitive to the impacts of mining on the community and is of the view that any intensification of existing projects needs to be closely managed to reduce cumulative impacts, such as those on accommodation, health and health services, dust and noise as well as labour supply.

The Land Use Development Strategy outlines that:

- intensification of existing and approved mining activities be favoured over an increase in the footprint of mining activities
- impacts of mining activities on the health and well-being of residents in settlements and townships require investigation and monitoring throughout the lifetime of the mine
- there is a need for a whole of life consideration for mining activities, including quality rehabilitation and restoration of mined land
- provision needs to be made for the diversification of land uses within the LGA, particularly ensuring that once mining has ceased, compatible land use activities can re-establish and add to the LGAs diversity and economic base.

A further critical issue for the LGA is the management of competing land uses between coal mining, agriculture, equine, viticulture and tourism. The Strategy outlines that MSC generally supports alternative land uses to mining if the alternative has less impact on residents' amenity of the land and is considered more sustainable (MSC, 2015).

5.2.2 State Government

Mangoola Coal Mine is located within the boundaries of the Upper Hunter State Electorate, which extends from Spring Ridge in the north to Yengo National Park in the south; and from the Talbragar River in the west to Bundook in the east.

The Upper Hunter State Electorate is represented by National Party Member Michael Johnsen. Mr Johnsen, as the Member for the Upper Hunter, is also a Member of the NSW Legislative Assembly, Chair of the Committee on Investment, Industry and Regional Development, Deputy Chair of the Standing Committee on Parliamentary Privilege and Ethics, Member of the Legislative Review Committee and Member of the Committee for Children and Young People, within a Liberal-National Party Coalition Government.

Key NSW State Government policies of relevance to the region and this SIA include:

- Strategic Regional Land Use Plan: Upper Hunter (2012)
- Upper Hunter Economic Diversification Project (2017)
- Lower Hunter Regional Strategy (2006-2031)
- Hunter Regional Plan 2036 (2016) (refer to **Section 5.7**).

5.2.3 Federal Government

The Muswellbrook LGA is represented by the Hon. Joel Fitzgibbon (Australian Labor Party) who holds the Federal seat of Hunter. The Australian Labor Party is the opposition party in the Federal Parliament.

5.3 Native Title, Local Aboriginal Land Councils and Traditional Owners

In NSW there are two key mechanisms by which Aboriginal people can have their rights in land formally recognised – Land Rights and Native Title. The two systems operate under different laws and differ in the rights they can provide.

Land rights for Aboriginal and Torres Strait Islander peoples refers to the ongoing struggle to gain legal and moral recognition of ownership of lands and waters they called home, prior to colonisation of Australia in 1788.

Native title rights and interests are those rights in relation to land or waters that are held by Aboriginal or Torres Strait Islander peoples under their traditional laws and customs and recognised by the common law.

The NSW Aboriginal Land Council (NSWALC) is the state's peak representative body in Aboriginal Affairs and is constituted by Part 7 of the *Aboriginal Land Rights Act 1983 No 42*. NSWALC is empowered to administer the Mining Royalties Account and to approve or reject the terms and conditions of agreements proposed by Local Aboriginal Land Councils to allow mining or mineral exploration on Aboriginal land.

Every four years, voting members of Local Aboriginal Land Councils vote for a Councillor to represent their region. Currently the Chairperson of the NSWALC is held by Cr Roy Ah-See, a Wiradjuri man, born and raised on Nanima Reserve, near Wellington. Cr Ah-See is also a member of the Darkinjung Local Aboriginal Land Council, elected to Council in 2007 and was previously the Deputy Chairperson of NSWALC.

Cr Ah-See oversees the Sydney/Newcastle Region, which includes the following Local Aboriginal Land Councils: Awabakal, Bahtabah, Biraban, Darkinjung, Deerubin, Gandangara, La Perouse, Metropolitan, Mindaribba, Tharawal and Worimi.

Table 5.2 NSW Aboriginal Land Council

Role	Councillors
Chairperson	Roy Ah-See – Sydney/Newcastle Region
Deputy Chair Person	Anne Dennis – North West Region
Councillors	Craig Cromelin – Wiradjuri Region Stephen Ryan – Central Region Charles Lynch – Northern Region Danny Chapman – South Coast Region Peter Smith – Mid North Coast Region William Murray – Western Region Tina Williams – North Coast Region

Source NSWALC (2019)

The MCCO Project Area is located within the traditional homelands of the Wonnarua (sometimes spelt Wanaruah) and Gomeroi people, whose history extends from the present day back many thousands of years. The MCCO Project Area is also within the modern day Wanaruah Local Aboriginal Land Council (WLALC) boundary and within the boundaries of Native Title claims by the Plains Clans of the Wonnarua People (PCWP) and the Gomeroi People.

5.4 Historical Context

5.4.1 Aboriginal History

The Hunter Region has a great wealth of Aboriginal history which precedes the arrival and settlement of the area by European immigrants.

The Traditional Owners of the land in the Upper Hunter Region are the Wonnarua (also known as Wanaruah) who have lived in the Upper Hunter region for at least 30,000 years. James Miller (1985) provides an account of pre-European Wonnarua life in his paper 'About the Wonnarua', an extract from his book *Koori: A Will to Win*. Miller describes a hunter gatherer lifestyle guided by spirituality and defined gender roles. Miller also describes the Wonnarua as heavily connected to spirits born of the dreaming that heavily influenced all facets of Wonnarua life including birth, death, marriage and everyday understandings of the world around them (refer to Coakes Consulting, 2013).

The Native Title Claimant Group the Plains Clans of the Wonnarua People lodged a Native Title claim under the National Native Title Act covering a large part of the upper Hunter Valley in August 2013. This claim, Native Title Tribunal Claim Number NC2013/006, was accepted on 16 January 2015 and extends from Maitland in the lower Hunter Valley to its western extent approximately half way between the towns of Denman and Merriwa, and includes the MCCO Project Area. The claim is classified as "Active" at the time of this report.

The Gomeroi (also known as Kamilaroi or Gamilaroi) people also have history in the area. These groups regard their territory as "Corbon Comleroy" and "Gammon Comleroy", which translates to the Greater and Smaller Liverpool Plains. The Gomeroi people had extensive boundaries as far south as Singleton NSW but tended to locate themselves along the Barwon, Bundarra, Balonne, Upper Hunter rivers and across the Liverpool plains. The Gomeroi people also lodged a claim that was filed in June 1996; however, a review indicates that this claim has been discontinued. The Gomeroi People Native Title Claimant Group, however, lodged a further application for a Native Title Claim in late 2011 that was registered on 20 January 2012. The northernmost extent of the boundary of the claim area extends to the Queensland border.

There is an additional Native Title claim that was made by the Warrabinga-Wiradjuri people in 2017. This claim expands across 13,681 km², from Dunedoo through Kandos and Wollemi National Park, down to Lithgow. A portion of this land claim crosses into the south-western border of the Muswellbrook LGA and primarily encompasses National Park lands.

5.4.2 Regional and Local European History

The Upper Hunter Region also has an extensive European history; with the first free European immigrants leaving Newcastle to explore the Upper Hunter Region in 1793, with the aim of creating further settlements.

The Muswellbrook area was formally settled in 1819 by John Howe, the Chief Constable at Windsor. In 1824, major parcels of land were surveyed by Henry Dangar for allocation to early settlers in the region. By 1840, the population of Muswellbrook was 215 people with a township of 41 houses (MSC, 2015).

Once the first railway arrived in 1869, the township of Muswellbrook experienced a significant growth, reaching approximately 1,500 people. Muswellbrook was declared a municipality in 1870, while the boundaries of the LGA were officially defined in 1907 when the Muswellbrook LGA was created from within the Wybong Shire area. In 1979, the Municipality of Muswellbrook and Shire of Denman amalgamated to form the present day Muswellbrook Shire Council.

The township has had a strong agricultural focus over the years with farming including wheat, sheep and wool, beef cattle and dairying as the main industries. Amalgamation of the dairy industry in the 1960s saw the number of dairy farms halve between 1970 and 1976 (Hunter History Consultants, 2012).

The Upper Hunter Region is also widely acknowledged as one of the oldest wine regions in Australia and vines were first planted in 1860 by a German settler named Carl Brecht. From his vineyard, planted at the junction of Wybong Creek and the Goulburn River, Brecht's wines were awarded numerous gold medals at international wine competitions in the 1870s. Brecht's success spurred further interest in viticulture in the area, but the 20th century saw a decline throughout the Hunter Valley that would compound to virtually extinguish all viticulture activities (Halliday, 2007). It wasn't until the 1960s when Penfolds purchased land near Brecht's old Wybong Estate that significant viticulture interest in the Upper Hunter re-emerged. Most of the early vineyards were in the northeast section of the valley in the fertile alluvial plains along the Hunter River, which provided easy transport of the wine down to the Port of Newcastle and onto Sydney. By the 1860s, plantings began to move further south and west towards the foothills of the Brokenback Range near Pokolbin and Rothbury, where many of the most highly esteemed vineyards of the Hunter can now be found (Halliday 2007). The 1970s witnessed a boom in the Hunter Valley wine industry, particularly in the Pokolbin area, and due to the popularity of wines from this region, tourism has also developed in the region.

Horse breeding is also prevalent in the Upper Hunter. In the 1860s, a number of prominent pastoralists decided to improve the thoroughbred breeding industry in Australia, beginning what is now one of the most significant horse breeding areas in the world. Scone, which is located north of Muswellbrook and approximately 30 km from the Project Area, is considered the 'Horse Capital of Australia' and is home to over 70 horse studs that are largely responsible for providing quality horses for the racing and stock industries in Australia. Scone is also home to the Australian Stock Horse Society and several equine educational facilities, with the community holding a Horse Festival every year in May (Howey, 2017).

Mining has also played a very important role in the local and regional economy. Mining in the Hunter Region began as early as the 1840s. In 1854, the Hunter Region Coal Miners' Protective Association formed as one of the first organised unions in Australia. The first mine to open in Muswellbrook was in 1907 and the area became known for coal mining, particularly with the expansion of the industry in the latter part of the twentieth century. Post-World War II saw the demand for coal increase, as did demand for energy and electrical power (Cartoscope, 2019). The Muswellbrook township is located just north of two coal-fired power stations, Liddell and Bayswater. The opening of Liddell in 1969 and Bayswater in 1985 helped contribute to population growth and expansion of mining activity in the region.

Today, the Upper Hunter Region is comprised of a mosaic of different industries that include coal mining, agriculture (particularly dairy and beef cattle and pasture production) and associated service industries, horse breeding, electricity production, tourism, viticulture and wine making.

5.5 Regional Development Context and Community Response to Change

This section utilises a number of data sources to build a picture of the development context of the assessment area and develop an understanding of the process of social change and communities' response to this change. Specifically, this section considers:

- community events and/or developments that have had a significant impact on the region including drought and infrastructure development
- the ongoing presence and development of mining

- case studies on the response of communities to change.

Data utilised in this section has been sourced from:

- local, regional and state media (refer to **Appendix 3**)
- SIAs and EIAs undertaken for surrounding projects including Dolwende Quarry, Bengalla Mine, Mount Pleasant, Drayton South Coal Project, Mt Arthur Coal and the Wilpinjong Extension Project
- Upper Hunter Economic Diversification Project Action Plan for Significant Community Events and Developments.

5.5.1 Significant Events and Developments in the Region

There have been a number of significant community events in the locality in the five to eight year period between 2012 and January 2019 as shown in **Figure 5.3**.

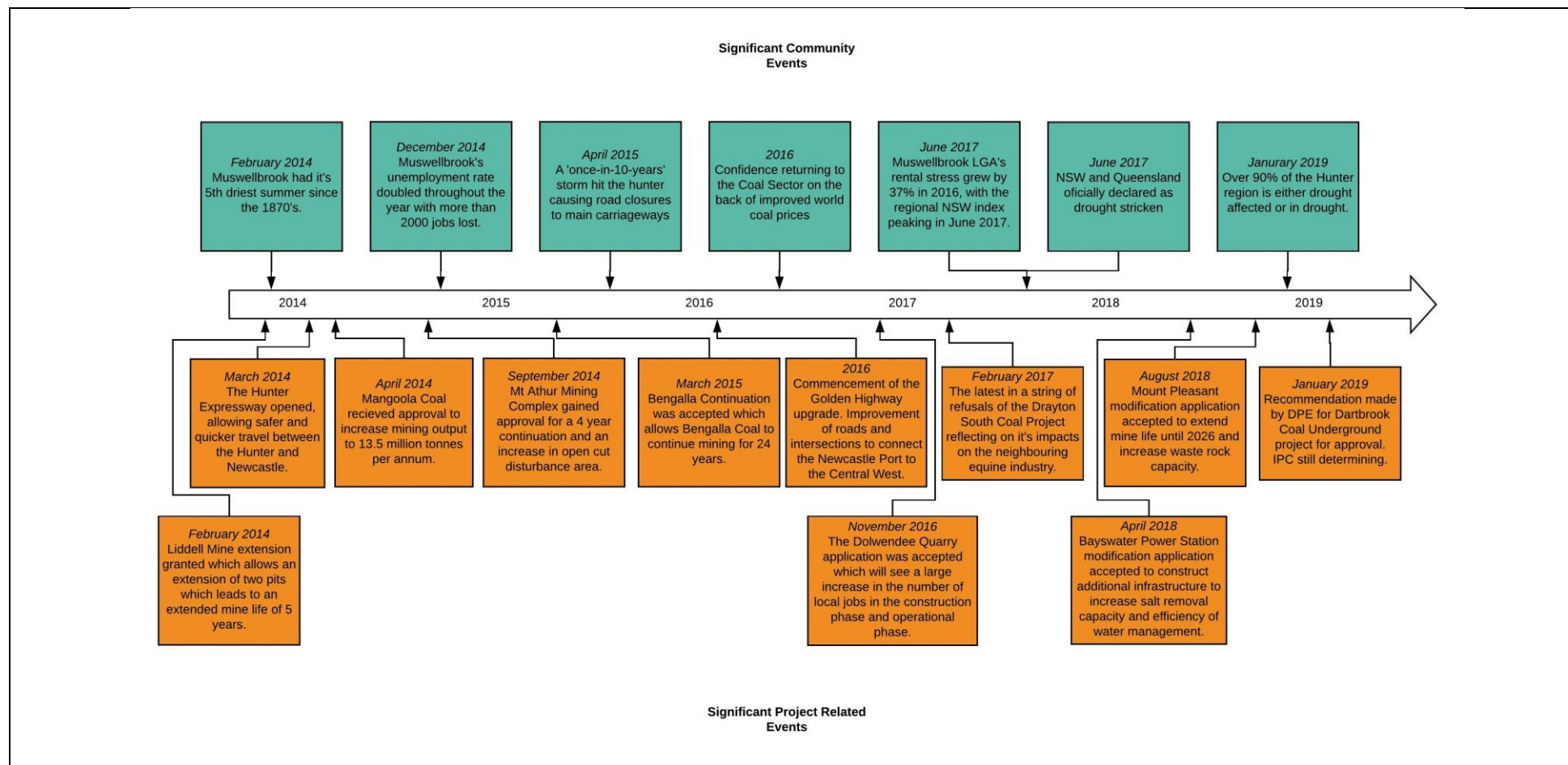


Figure 5.3 Significant Events between 2014 and January 2019

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A significant event in the Hunter Valley over the past five to ten years was the collapse in the world coal price in late 2012, and the subsequent downturn in the coal industry. During this period contractors and subsequently employees were laid off from a number of coal mining operations throughout the Hunter Valley. As noted in the Property report (Tew, 2018), there was a negative impact on the resident and rural/residential property market and increasing unemployment in the region. Associated sectors were also seen to feel the impacts, with local real estate agents reporting a 25% drop in rental accommodation prices and an estimated 240 rental properties vacant. Hotel/motel and club owners also reported 30-40% reductions in occupancy and patronage of their establishments (ABC Rural, 2014). The downturn lasted for a number of years, with cautious confidence returning to the coal sector in 2016 on the back of improved world coal prices.

Drought has been a constant and inevitable feature of the NSW landscape; however, the summer of 2014 was reported to be Muswellbrook's fifth driest summer since the 1800s. In 2017 NSW and QLD were both declared drought stricken once again and as at January 2019, over 93% of the Hunter region is still in drought or is considered drought affected. A one-in-20-year rainfall deficiency in the summer of 2018 has resulted in farmers being forced to offload thousands of head of livestock. In response to these critical conditions, Local Land Services and the Federal Government have responded by introducing drought relief initiatives to provide farmers with initial information on the assistance that is available to them, such as the 'Buy a Bale' campaign, which has already resulted in the distribution of hundreds of bales of hay to Hunter farmers (refer to **Appendix 3**). The current drought conditions prompted the Environment Protection Authority to launch *Operation Dust Patrol*, which targets the Hunter Valley Coal industry with the aim of creating a greater vigilance on dust control to reduce impacts on surrounding communities.

The Hunter Region also contended with a large flood in 2015, with townships such as Dungog in the Lower Hunter particularly impacted. In the Upper Hunter, flood waters forced road closures on the Hunter Expressway and the New England Highway - both important transit routes for the population in the area.

There have also been a number of significant infrastructure developments that have also changed the operating landscape of the Hunter Valley, including the opening of the Hunter Expressway in March of 2014. The Expressway is a 40 km dual carriageway linking Newcastle to the Upper Hunter, decreasing travel time between Branxton and the M1 Newcastle Interchange by 25 minutes. A 40% reduction in heavy vehicle traffic through towns such as Greta and Branxton was also seen to make a substantial difference to the safety and amenity of residents in villages and towns in the region.

The proposed Singleton Bypass, which is currently in a planning phase, is predicted to have the same effect – improving safety in the Singleton town centre through the removal of heavy vehicles, as well as improving travel times and traffic flow.

Funding has also been secured for the New England Highway upgrade from the 'Saving Lives on Country Roads Program' in August 2018, and which will also include a Bypass for Muswellbrook, which has been commended by locals in the media.

Aside from the two proposed bypasses, there are several other projects being considered in the area that are located in proximity to the existing Mangoola Coal Mine and have the potential to result in cumulative social impacts, depending upon their timing (refer to **Table 5.3**).

Table 5.3 Other Significant Proposed Projects in Proximity to Mangoola Coal Mine

Company and Operation	Proximity to Mangoola Coal Mine	Impact	Proposed Timing
Maxwell Underground Coal Project	Approx. 16 km south-east	400 local jobs for 2 years in construction phase, 300 in operational phase Population change Potential impact on service capacity of local services/ rental stress	SEARS issued December 2016 Referral lodged under the Commonwealth EPBC Act Timing uncertain
Ridgeland Exploration Project	Approx. 3.5 km north and adjacent to AL9	Ongoing exploratory drilling \$5.2M distributed to local community initiatives through the Ridgeland Community Fund	Exploration phase Timing uncertain
West Muswellbrook Exploration Project	Approx. 3 km east and adjacent to AL9	Loss of 49.4 ha of Viticulture Critical Industry Cluster (CIC) land, 577 ha of equine CIC land, loss of 68.4 ha of Biophysical Strategic Agricultural Land (BSAL) land & loss of agricultural productivity Diversion of Coal Creek, possible long term impact on stream salinity, impact on groundwater gradients & removal of alluvium. The Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC) concluded lack of information on water to evaluate	Gateway Certificate granted in December 2014 Timing uncertain
Yarraman Feedlot and Abattoir	Approx. 8 km south-west	Council sentiment that roads/ intersections were not sufficient, Wybong Road used between feedlot and abattoir – doesn't appear to be the same part used to get to Mangoola Approx. 600 people to be employed, likely to be in local Denman precinct. Increased need for housing Noise and social amenity impacts	SEARs issued June 2016 Timing uncertain
Dolwende Quarry	Approx. 8 km south-west	Increased traffic. Golden Highway will be used in haulage – 2-3 trucks per hour eastbound Increased direct employment of 3-5 full-time employees, contractors and construction phase workers	Approved but not yet operational
Epuron Windfarm Project	Approx. 35 km north-east	Relatively low levels of information available on this Project	Exploration phase

5.5.2 Mining Development

The main industry in the Upper Hunter is the coal mining industry. As discussed in **Section 5.1**, Mangoola Coal Mine is one of approximately 35 separate mines operated by 11 different coal producers across the region. The closest mines to Mangoola Coal Mine include Bengalla Coal, Mt Arthur Coal and the Mount Pleasant Coal Mine, with **Table 5.4** providing a summary of the mines closest to Mangoola Coal Mine and their current license expiry years (also refer to **Figure 5.1**).

Table 5.4 Proximal Mines to Mangoola Coal Mine

Mine	Approximate Distance from Mangoola	Current Approval Expiry (Year)
Bengalla	8.5 km east	Expires 2039
Mt Arthur Coal	9.5 km south-east	Expires 2026
Muswellbrook Coal	21 km north-east	Expires 2026
Mount Pleasant	9 km north-east	Expires 2026
Liddell	35 km south-east	Expires 2028
Mount Owen	39 km south-east	Expires 2031

Despite a downturn in the mining industry in the Hunter Valley as a result of the global financial crisis (GFC), as of December 2017, there were over 20,000 coal production jobs in NSW, an increase of approximately 2000 jobs since early 2016. The industry is only expected to grow further over the coming years, with the Mineral Council of Australia predicting a 400 Million tonne increase in worldwide demand by 2030. The NSW Minerals Council suggests that nine new mining projects will bring an additional \$1.5 billion in revenue to the region, including through the employment of an additional 3,500 people.

The response to mining industry fluctuations has resulted in the development of key strategies by local councils and businesses to reduce dependence on one sector and further diversify local economies, in line with the NSW Government's Upper Hunter Economic Diversification Project (NSW Government, 2017). Further discussion around strategic planning for the area can be found in **Section 5.6**.

In addition to the economic impacts experienced, there are also a number of social and environmental issues evident through a review of environmental impact assessments and SIA's undertaken for new mining projects and extension's and local and regional media articles. Most projects in the area come with similar associated impacts on the community, such as impacts on social amenity and social cohesion, with residents concerned about the cumulative impacts from the number of projects in close proximity to one another. There is concern surrounding noise, traffic, the implications of dust and blasting, water and land use in the Hunter Valley; with small local communities seen to feel such impacts most intensely (Muswellbrook Chronicle, 2017).

With several internationally renowned thoroughbred studs in the region, namely Coolmore, Darley, Newgate, Arrowfield, Vinery and Kia Ora, the proximity of mining operations to such horse establishments, has been a key issue raised in response to mining developments such as Mount Pleasant, Dartbrook and the Drayton South Project. Some of these projects e.g. Drayton South Project, did not receive government approval to proceed.

Proximity to major town centres such as Muswellbrook and Singleton also cause resident concerns in relation to operational noise, dust and traffic caused by mining activities. These issues have been identified through community consultation for mines such as Bengalla, recent modification approved March 2015

(Hansen Bailey, 2013), Mount Pleasant approved August 2018 (Resource Strategies , 2017) and Mount Thorley Warkworth, approved November 2015 (EMM, 2014).

Along with negative issues reported in the media, there are a number of positive aspects associated with the presence of the mining industry. As previously noted, there is a large economic benefit of mining, with local operations providing employment and flow-on benefits to local communities. For example, in their respective EIS/SIA's Mount Pleasant and Dartbrook predicted employment of an extra 100 employees following their expansions, with Mt Arthur predicting over 2700 jobs to be created from their latest modification, with large increases in household income, business turnover and regional value also added (Gillespie Economics, 2012). The Bengalla Mine predicted over 800 non-local workers (EIS, 2013) to be employed at the mine along with the 118 local jobs to be generated.

Therefore, in summary, a review of relevant assessment studies and local media highlight a number of predicted and perceived social impacts (both positive and negative) on local communities as a result of mining development. The following section focuses on four main case studies which have been particularly controversial, resulting in a high degree of community outrage and opposition; with, in a number of the cases, project development having been refused by the NSW government and the NSW Land and Environment Court.

5.5.3 Community Response to Change – Relevant Case Studies

In this regard, the SIA Guideline (DPE, 2017) outlines that the SIA should consider the history of the proposed project and how communities near the project site, and within the surrounding region, have experienced the project and others like it to date. Such data is to be sourced from other resource projects in the surrounding region (or similar regions in NSW); project extension proposals and modification applications; information gathered for the originally approved project and results from monitoring post-approval; and published research on social impacts that have been caused by comparable resource projects.

5.5.3.1 Mangoola Coal Mine related Developments

As has been noted in previous sections of the assessment, the Mangoola Coal Mine operation has been present in the community since mining operations first began on the mine in 2010, with ongoing engagement undertaken with proximal landholders and other key stakeholders during the current life of the operation. Predicted social impacts relating to the original approval of Mangoola Coal Mine include:

- dust and noise emissions – impacts on social amenity
- operational workforce impact on services and infrastructure (such as childcare and the Muswellbrook Sewage Treatment Plant)
- sense of community including operational workforce increase on population in the local area.

In response to these issues, a range of strategies have been put in place at the operational level to mitigate against noise, dust and sense of community (and more broadly in the case of certain measures such as tank cleaning) to further reduce impacts of the operations. Such strategies include:

- household sealing and noise mitigation (as directed by a qualified structural engineer)
- filters for water tanks - first flush systems
- cleaning of water tanks and solar panels

- landscaping/tree planting (on individual properties)
- air-conditioning - provision, maintenance and electricity subsidies
- VPA contributions to community groups – funding for local traineeships in health service sectors, participation in the ‘second doctor for Denman’ health care working group, providing assistance to Denman Multi-Purpose Centre, childcare and pre-school funding, support for the upgrade of Muswellbrook Sewerage Plant.

In addition, Mangoola has progressively updated and modified the existing operational design as a result of previous engagements with stakeholders, in order to minimise impacts on the local and regional community. An overview of Mangoola operations and specific engagement activities is provided in the figure below.

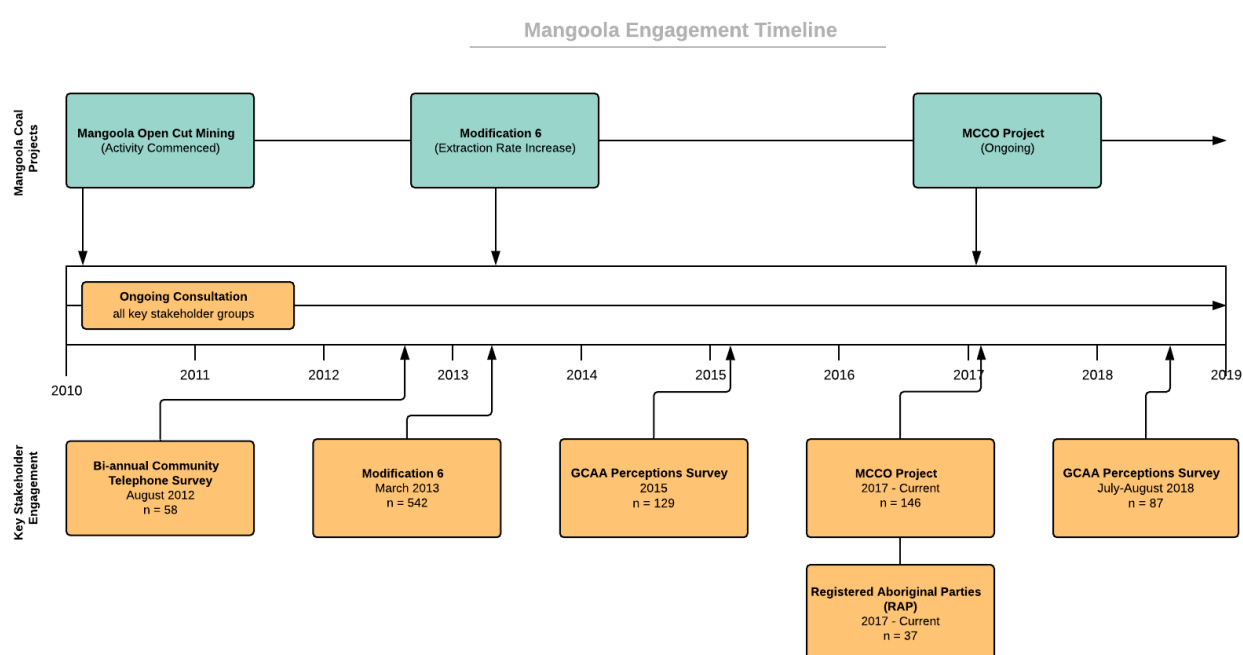


Figure 5.4 Mangoola Engagement 2010 - 2019

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5.5.3.2 Other Project Developments in the Region

In relation to other project developments within the regions, there have been a number of mining projects and modifications proposed more recently in the Upper Hunter (refer to **Table 5.5**), which, given their high profile nature, have been reviewed to identify key social impacts, and where relevant, to document how relevant stakeholders and communities have responded to the proposed developments.

Table 5.5 Mining Projects and Modifications Proposed in Upper Hunter or Nearby Localities

Project	Company	Date Proposed	Date Determined
Drayton South	Anglo American	4 March 2011 (first application)	22 February 2017 (final application refused)
Wilpinjong Coal Mine	Peabody Energy	1 August 2016	24 April 2017 (approved)
Bylong Coal	Kepco	22 July 2015	EIS lodged 2015 Seeking development consent
Rocky Hill	Gloucester Resources Limited	2013	8 February 2019 (refused)

In their determination of the Drayton South Project the NSW Planning Assessment Commission outlined that the refusal for development was a result of the impact on air quality and noise from blasting on neighbouring horse studs, and the impact on the international reputation of the Darley and Coolmore thoroughbred studs.

The Wilpinjong Coal Mine proposal by Peabody Energy has also been a controversial project in the Wollar area. The community raised perceived issues in relation to impacts on the social fabric and sense of community of Wollar through property acquisition. The Wilpinjong project was also the first project to be conditioned to develop a Social Impact Management Plan (SIMP) associated with its operations. A reduction in private dwellings in the community has been experienced within the community from 175 in 2011 to 25 in 2015. In the most recent SIA for the operations modification (Elliot Whiteing, 2015), community members consulted reported a significant strain on those left within the community to keep the village alive, due to the loss of population, community relationships and services. From a community perspective, residents of Wollar described the acquisition process as *'destabilising'* and *'divisive'*.

A further project is the application for the Bylong Coal Project by Kepco. Kepco has purchased a number of properties to enable development of the mine; and according to the Response to Submissions prepared following the EIS exhibition, 336 of 364 residents were opposed to the mine development, due to the concern about the cumulative impact of property acquisitions in the Bylong Valley by Kepco and other mining companies. The NSW Planning Assessment Commission in its report on the Project stated that "the Department of Planning appear to *'accept a degree of inevitability,'* when it comes to the loss of community around Hunter Valley mining projects." DPE have also been criticised in the media for taking the view that acquisitions occurred under open market conditions, instead of citing the apparent forced acceptance of offers on property (Newcastle Herald, 2018).

The SIA for the Bylong Coal Project (Hansen Bailey, 2015) reports that the main cause of negative socio-economic impacts stem from the change from agriculture to mining; and that associated property acquisition is causing stress and family tension due to uncertainty and the subsequent social divide and loss of community cohesion. However, some local residents have been supportive of the proposed development, outlining that it will increase population and provide greater support for local businesses. In this vein, Kepco has reported that there will be 645 jobs created in the construction phase and 450 jobs in the operational phase.

A further project which has attracted much attention at a community level, is the Rocky Hill Coal Mine Project proposed near Gloucester, NSW. DPE recommended the project not be approved, with the NSW Independent Planning Commission (IPC) making the decision to accept DPE's recommendation and not approve the project. This decision was challenged by the proponent and on 8 February 2019, Chief Judge Brian Preston of the New South Wales Land and Environment Court handed down a judgement that the proposed new open-cut coal mine should not proceed. The reasons cited for refusing the development

application included the predicted planning, visual and social impacts (NSW Land and Environment Court Judicial Newsletter, Volume 11, Issue 1, February 2019).

5.5.4 Summary of Mining and Community Response to Change

Through exploration of past and current mining proposals, it can be seen that the social impacts of mining are a key area of interest at a community level. While mining projects can result in significant positive economic benefits, they also have the potential to impact the social amenity of proximal landholders and communities as a result of environmental impacts such as dust, noise and blasting impacts. Additional impacts that may be experienced include a reduction in sense of community, community participation, social cohesion and service delivery due to property acquisition and population change over time. This may result in people feeling displaced and detached from their networks and community structures/associations.

Conversely, mining development has the potential to generate population change, attracting a new population to an area, and providing benefits for existing and new businesses in servicing local and regional populations. The significant economic benefits associated with such projects also provide broader benefits to the region surrounding the mine in terms of increased local employment and procurement, and associated flow-on economic benefits, experienced well outside of the area of negative impacts in proximity to the mine.

Therefore, one key factor in assessing the negative and positive impacts of mining development, from a social perspective, is the extent and degree of change that may be experienced by local communities in proximity to mining operations; and the resilience and capacity of local communities to respond and adapt to this change.

5.6 Community Capitals

The study has utilised the sustainable livelihoods approach (DfID, 1999) to provide a comprehensive understanding of the relevant communities proximate to Mangoola's operations and to evaluate their resilience and sensitivity to change.

Preparation of the study has involved collection, collation and analysis of secondary data, with relevant primary data, collected through personal stakeholder interviews, used to supplement secondary data where relevant.

5.6.1 Sustainable Livelihoods Approach

As highlighted above, the study has utilised aspects of the sustainable livelihoods approach (DfID, 1999) to provide a comprehensive understanding of the relevant communities proximal to Mangoola's operations and the MCCO Project.

The UK Department for International Development (DFID) approach draws on broad categories of community capitals as a fundamental basis to identifying and further enhancing community capacity and resilience. According to DFID, a livelihood includes the capabilities, assets (including both material and social resources) and activities required for people to meet their basic needs and support their well-being.

A livelihood is considered sustainable *"...when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base"*.

This study has involved profiling communities according to five ‘community capitals’ or capital assets – economic, physical, social, human and natural capital, and has involved the selection and collation of indicators for each capital.

For example, **human capital** refers to the health and welfare of human beings, their knowledge and skills, as well as their overall capacities to contribute to ongoing community sustainability. A community that is heavily dependent on a particular industry, but which exhibits low levels of human capital, is likely to face greater challenges in embracing socioeconomic change as a result of disruption.

Social capital relates to how individuals, groups, organisations and institutions within a community interact and cooperate; and can be broadly defined as a multifaceted concept that can broadly be defined as the dynamics and strength of relationships and/or interactions within a given community; this includes the degree of social cohesion and interconnectedness between community members.

Economic capital is defined as the extent of financial or economic resources within a town or community, including access to credit. For instance, a town lacking in economic capital, but predominantly reliant on a specific industry sector such as mining, is likely to be more vulnerable to change and consequently more likely to experience greater difficulties in adapting to change given this dependence, particularly once an industry declines or as a result of industry closure.

Physical capital is broadly defined as a town or community’s built infrastructure and services, including hospitals, schools as well as social service provision e.g. health care, aged care, child care. For example, a highly remote community that lacks access to basic facilities and social services may lack the capacity to enhance its local human skills base and is likely to be more disadvantaged in capitalising on opportunities for further industry development and economic capital growth.

Lastly, **natural capital** is defined as the stock of natural resources e.g. minerals, oil and gas, agricultural lands, oceans, forests etc. that provide natural beauty, generate sustainable economic and commercial activities and which provide ecosystem services.

Elements of each capital area are further outlined in **Figure 5.5**.

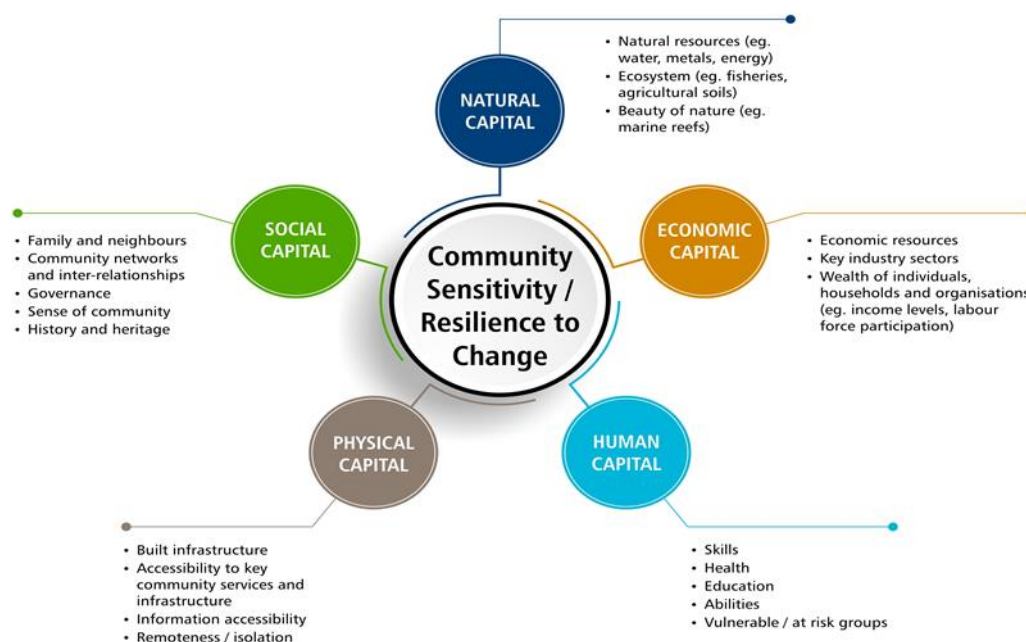


Figure 5.5 Capital Framework

Source: Adapted from Coakes and Sadler (2011)

For the purpose of this study an assessment of community resilience or adaptive capacity has been undertaken, based on review and analysis of relevant indicators and other secondary and primary data sources.

5.6.2 Data Collection and Analysis

A key component in the development of the social baseline profile for the assessment has been the collation and interpretation/analysis of demographic data.

Analyses undertaken relate to:

- **indicator** identification and selection to afford appropriate assessment of social impact relating to the MCCO Project
- **comparative analysis** across the different communities identified as being relevant to the Mangoola operations. Upper Hunter State Electoral District (SED) and NSW State data has also been utilised for comparative purposes
- **longitudinal/Time-series analysis** of population data.

As outlined in **Section 5.1** and shown in **Figure 5.2** socio-economic characteristics of the relevant communities are largely based on State Suburb and LGA levels of analysis and informed by data available from the latest 2016 Census and other data sources as relevant. The state suburbs of Mangoola, Wybong, Manobalai and Castle Rock are considered most reflective of the proximal community and local residents/landholders that immediately surround the Mangoola Coal Mine operation.

It should be noted that due to the Australian Bureau of Statistics (ABS) (2016) recent update of the Australian Statistical Geography Standard (ASGS), the statistical boundaries of a number of relevant communities have been changed. In this regard:

- Sandy Hollow (2011) has been separated into three separate localities – Sandy Hollow, Hollydeen, and Wybong
- Mangoola has been gazetted as a distinct location (2016)
- Castle Rock (2011) has been divided into the state suburbs of Castle Rock, Kayuga, Bengalla, Mangoola, and a portion of the area has become part of the locality of Aberdeen
- Denman was unaffected by the changes
- Manobalai, which sits on the border of the Muswellbrook and Upper Hunter Shires, has been separated from its previous allotment as part of Giants Creek and a portion of Bunnan (which sits within the Upper Hunter LGA).

As a result of these changes, changes in data between 2011 and 2016 are likely to be attributable to these geographical adjustments, rather than to actual changes within the respective communities. Where such changes have occurred, variances will be stated.

It should also be noted that the data may be skewed for small populations such as Sandy Hollow, Wybong, Mangoola and Manobalai. The ABS quotes that *‘small random adjustments have been made to all cell values to protect the confidentiality of data, which may cause the sum of rows or columns to differ by small amounts from the table totals’*. In small populations, each person greatly impacts the area's data making it more difficult to undertake comparisons.

Data sources utilised in the capitals analysis are outlined in **Table 5.6** below.

Table 5.6 Data Sources

Source	Content
Australian Bureau of Statistics (ABS)	<p>2016 General Community, Time Series and Indigenous Profile data for:</p> <ul style="list-style-type: none"> • State Suburbs (SSCs) of: <ul style="list-style-type: none"> ○ Mangoola ○ Castle Rock ○ Wybong ○ Manobalai ○ Sandy Hollow ○ Denman ○ Muswellbrook • Local Government Area (LGA) of Muswellbrook • State Electoral Division (SED) of Upper Hunter • State of New South Wales (STE) • 2016 Socioeconomic Indices for Areas (SEIFA) for socioeconomic disadvantage, education and occupation, and access to economic resources

Source	Content
The Public Health Information Development Unit (PHIDU), Torrens University Australia	2018 releases of public health data through the Social Health Atlas (New South Wales) and Aboriginal and Torres Strait Islander Social Health Atlas. Data within the Social Health Atlas is collated from a range of sources http://phidu.torrens.edu.au/social-health-atlases
NSW Government Department of Planning and Environment (DPE)	2016 release of population projections by NSW State and Local Government Area Population and Household Projections – based on data sourced from the 2016 Census https://www.planning.nsw.gov.au/Research-and-Demography/Demography/Population-projections

Source: Umwelt 2019

Indicators have been identified according to each capital area and data collated for analysis at the levels noted above. **Table 5.7** presents the indicators that have been and their respective source.

Table 5.7 Examples of Indicators Collated and Reported in Profile by Capital

Indicator	Data Source
Human Capital	
Indigenous population	PHIDU, 2016. Social Health Atlas of Australia: New South Wales Local Government Areas, 2018
Learning or earning	PHIDU, 2016. Social Health Atlas of Australia: New South Wales Local Government Areas, 2018
SEIFA Education occupation	ABS, 2016. Extended Community Profile, Catalogue 2001.0. Accessed using ABS.Stat beta
Highest level of school attained	ABS, 2016. Community Profile, Catalogue 2001.0. Accessed using ABS TableBuilder Pro
Non-school qualifications	ABS, 2016. Community Profile, Catalogue 2001.0. Accessed using ABS TableBuilder Pro
People aged 18 years and over with one of four risk factors (rate per 100)	PHIDU, 2015. Social Health Atlas of Australia: New South Wales Local Government Areas, 2018
Children developmentally vulnerable in one or more domains (2015)	PHIDU, 2014/2015. Social Health Atlas of Australia: New South Wales Local Government Areas, 2018
Educational facilities – enrolments, attendance, FTE staff, number of students	https://www.myschool.edu.au/
Population projections	https://www.planning.nsw.gov.au/Research-and-Demography/Demography/Population-projections
Social Capital	
Population mobility	ABS, 2016. General Community Profile, Catalogue 2001.0. Accessed using ABS Community Profiles
Aged pensioners	PHIDU, 2018. Social Health Atlas of Australia: New South Wales Local Government Areas, 2018
Poor proficiency in English	ABS, 2016. General Community Profile, Catalogue 2001.0. Accessed using ABS Community Profiles

Indicator	Data Source
SEIFA Relative Socio-economic Disadvantage	ABS, 2016. Extended Community Profile, Catalogue 2001.0. Accessed using ABS.Stat beta
Household composition	ABS, 2016. Extended Community Profile, Catalogue 2001.0. Accessed using ABS TableBuilder Pro
Family composition	ABS, 2016. Extended Community Profile, Catalogue 2001.0. Accessed using ABS TableBuilder Pro
Married	ABS, 2016. General Community Profile, Catalogue 2001.0. Accessed using ABS Community Profiles
Proportion who volunteer for an organisation or group	ABS, 2016. Extended Community Profile, Catalogue 2001.0. Accessed using PHIDU, 2018. Social Health Atlas of Australia: New South Wales Local Government Areas, 2018
Economic Capital	
Personal and household income	ABS, 2016. Community Profile, Catalogue 2001.0. Accessed using ABS TableBuilder Pro
Household expenditure	ABS, 2016. Community Profile, Catalogue 2001.0. Accessed using ABS TableBuilder Pro
% employment in mining	ABS, 2016. Community Profile, Catalogue 2001.0. Accessed using ABS Community Profiles
Unemployment rate	ABS, 2016. General Community Profile, Catalogue 2001.0. Accessed using ABS Community Profiles
Labour force participation	ABS, 2016. General Community Profile, Catalogue 2001.0. Accessed using ABS Community Profiles
Top three industries of employment	ABS, 2016. General Community Profile, Catalogue 2001.0. Accessed using ABS Community Profiles
SEIFA economic resources	ABS, 2016. Extended Community Profile, Catalogue 2001.0. Accessed using ABS.Stat beta
Financial stress from mortgage or rent	PHIDU, 2016. Social Health Atlas of Australia: New South Wales Local Government Areas, 2018
Herfindahl Index of Industrial Diversity	Calculated based on ABS, 2016. Extended Community Profile, Catalogue 2001.0. Accessed using ABS TableBuilder Pro
Physical Capital	
Dwelling structure/type	ABS, 2016. General Community Profile, Catalogue 2001.0. Accessed using ABS Community Profiles
Home ownership	ABS, 2016. General Community Profile, Catalogue 2001.0. Accessed using ABS Community Profiles
Rent assistance from the government	PHIDU, 2016. Social Health Atlas of Australia: New South Wales Local Government Areas, 2018
Residential Aged Care places	PHIDU, 2016. Social Health Atlas of Australia: New South Wales Local Government Areas, 2018
Household size	ABS, 2016. General Community Profile, Catalogue 2001.0. Accessed using ABS Community Profiles
Overcrowding (no. of people per bedroom)	ABS, 2016. Extended Community Profile, Catalogue 2001.0. Accessed using TableBuilder Pro

Indicator	Data Source
Occupied dwellings without internet access	ABS, 2016. General Community Profile, Catalogue 2001.0. Accessed using ABS Community Profiles
Travel to work	ABS, 2016. General Community Profile, Catalogue 2001.0. Accessed using ABS Community Profiles
Access to transport/average number of cars	ABS, 2016. Community Profile, Catalogue 2001.0. Accessed using TableBuilder Pro
Access to internet	ABS, 2016. General Community Profile, Catalogue 2001.0. Accessed using ABS Community Profiles

Source: Umwelt 2019

5.6.3 Natural Capital

Natural capital refers to the natural assets and resources that contribute to community strength and sustainability. Natural capital can include resources such as minerals, productive agricultural soil, presence of oil and gas and forests which provide commercial and practical benefit to the community. Natural capital can also include other environmental assets that generate tourism or provide other social, cultural, and recreational value, such as waterways or lakes. In the Upper Hunter Region, natural capital is abundant. The key natural features of the region are summarised below.

Muswellbrook LGA is centrally located in the scenic Upper Hunter Valley, bounded by Lake Liddell to the east, Wollemi National Park to the west, Coricudgy State Forest to the South, Manobalai Nature reserve to the north, and is dissected by the Hunter River (MSC 2017-2018 Annual Report). The area affords a strong mix of mining, industry, agriculture, viticulture, equine and tourism.

The Muswellbrook LGA covers 3,402 km², of which 1,455 km (43%) are made up of pristine National Parks, including the World Heritage listed Wollemi National Park. The Muswellbrook LGA connects the Blue Mountains and the Liverpool plains, and is characterised by rich green river flats, wine growing areas, a long history of abundant coal reserves, and prime agricultural land that supports cattle grazing and some of Australia's biggest thoroughbred horse studs (Muswellbrook Business Directory and Tourist Guide, 2016).

There are currently five operating mines in the Muswellbrook LGA; these include Mt Arthur Coal, Bengalla, Mangoola, Mount Pleasant, which was scheduled to begin coal extraction in 2018 (MSC Long Term Financial Plan, 2018) and Muswellbrook Coal, one of the oldest operations in the locality. Two Power Stations (Liddell and Bayswater), owned by AGL, are located approximately 18 km south of Muswellbrook and generate almost 30% of the electricity used in NSW. Consequently, coal mining plays a major part in the local economy with coal being used both locally for power generation and for export (Muswellbrook Business Directory and Tourist Guide, 2016).

Three of Australia's biggest thoroughbred studs – Darley, Coolmore and the historic Widden Stud – are located within Muswellbrook LGA, as well as a number of other internationally renowned studs.

The Upper Hunter Wine Trail includes wineries located within Muswellbrook LGA – the mine owned Cruickshank Callatoota Estate along with James Estate and Two Rivers Wines – which produce fine red and white wines that are enjoyed in homes and restaurants in the Hunter Region, across Australia and throughout the world (Muswellbrook Business Directory and Tourist Guide, 2016).

Lake Liddell is a popular site for camping and recreational activities. Lake Glenbawn is just a short drive north of the LGA boundaries and is a large dam fed by the Hunter River, built to supply water to agriculture, industry and townships, and a popular destination for bushwalking, camping, caravanning and fishing (Muswellbrook Business Directory and Tourist Guide, 2016; WaterNSW, 2018). Glenbawn Dam supplies

water to the Liddell and Bayswater Power Stations. Other popular recreation areas include camping sites at the junction of the Hunter and Goulburn River valleys, which offer easy access to trails and scenic walks in the nearby National Parks of Goulburn River, and Wollemi.

Wollemi National Park is NSW's largest wilderness area covering 492,220 ha (MSC 2016-2017 Annual report) and features a spectacular maze of deep canyons, rocky cliffs and undisturbed forest, including temperate rainforests. Wildlife abounds in this national park with a rich variety of diverse species including eastern grey kangaroos, brush tailed wallabies, wombats, echidnas, gliders, geckos, wedge tailed eagles and a variety of snakes including the rare broad headed snake (Upper Hunter Country, 2018). Other significant natural areas include the Mount Royal and Barrington Tops National Parks to the east of the LGA, and the Manobalai Nature reserve, which was created in 1967 and covers an area of 3758 ha west of Manobalai, sitting within the northernmost border of the Muswellbrook LGA.

As a part of the Hunter Valley, and a critical point in the connection between the Northern and Southern stretches of the Great Eastern Ranges of Australia, the Muswellbrook LGA is an important part of the Great Eastern Ranges Stepping Stone Project. This program aims to re-establish wildlife corridors across the valley that have been lost through 200 years of land clearing and habitat loss, due to the high levels of agriculture and industry that are supported by the valleys rich natural resources.

During Round 1 of the SIA engagement program, participants engaged in the SIA, attested to the rich natural capital of the area. In particular, people noted the importance of the mountains, creeks, rock formations, 'quality farmland' and 'landscape (without buildings)'. However, participants also noted that, in their view, the natural capital is being threatened by mining activities and infrastructure developments.

"Love the natural waterway which is being put at risk. Noticed difference in landscape due to mining operations. Attracted to the beautiful valley and natural waterway."

"Things that took us there in the first place - unspoilt rural area, scenic outlook."

"There is valuable agricultural production (e.g. vineyards) and community that have been decimated by the mining company."

"Used to be lots of vineyards. Now too dusty."

"It's a lovely, quiet, tranquil area. Rarely see a car go past on road. Wake up and hear birds which will disappear if they mine in 3 km of us. Smoke and noise will pour through. It will totally devalue the place."

Strategic plans at the local and state government level similarly highlight the challenges of competing land uses within the Upper Hunter. These plans state that a key challenge for the region is to balance the protection and enhancement of agricultural land and the protection of the natural environment whilst continuing to develop the mining industry and provide adequate infrastructure and services for the population (refer to **Section 5.7**).

5.6.4 Human Capital

Table 5.8 provides a summary of the key human capital indicators for the study communities relevant to the Mangoola operations. This data is compared to NSW, where relevant, with further discussion regarding these indicators and key issues of significance provided in the subsequent sections.

Table 5.8 Summary of Key Human Capital Indicators for Surrounding State Suburbs, Muswellbrook LGA, Upper Hunter SED and NSW

Human Capital	Mangoola	Castle Rock	Wybong	Manobalai	Sandy Hollow	Denman	Muswellbrook	Muswellbrook LGA	Upper Hunter SED	NSW
Population	49	177	127	69	170	1,788	12,072	16,080	75,531	7,480,231
% Indigenous	0	4	6	13	13	7	9	8	7	3
% Males	51	52	47	49	49	50	51	51	50	49
Median age (years)	45	43	30	51	36	41	34	35	40	38
Proportion born overseas (%)	9	3	7	14	10	5	9	9	8	30
Year 12 or equivalent (%)	18	29	35	32	32	29	35	34	37	59
Equivalent Post-Secondary education (%)	35	43	49	27	25	37	38	38	41	49
Bachelor degree level (%)	18	5	8	19	6	8	12	11	14	26
People aged 18 years and over with one of four risk factors (rate per 100)	-	-	-	-	-	-	-	85.9	-	78.2
Learning or earning (%)	-	-	-	-	-	-	-	74.6	-	85
Children developmentally vulnerable in one or more domains (2015) (%)	-	-	-	-	-	-	-	23.8	-	20.2

Source: ABS 2016 Community Profiles, PHIDU 2018

5.6.4.1 Key Population Characteristics and Trends

Population numbers in Denman have reduced by 1% from 2011 to 2016, compared to increases of 2% in Muswellbrook and 4% in the Upper Hunter SED. When the population is broken down by age groups, it is clear there is an aging population across all the study areas. The proportion of the population that falls within each age bracket from 0 to 54 years has either remained stable or declined. However, proportions of the population in the 55+ year age bracket have increased across all study areas.

Of the study communities, the proportion of Indigenous population is largest within the suburbs of Manobalai, Sandy Hollow and Muswellbrook, when compared with the Upper Hunter and NSW (see **Figure 5.6**). The main Indigenous nation in the area is the Wonnarua people, who traditionally occupied much of the Hunter Valley around Muswellbrook. Other historically local groups in the area include the Awabakal people to the south-east in Newcastle, the Gomeroi to the north on the Hunter River, and the Worimi people to the east in the Port Stephens area.

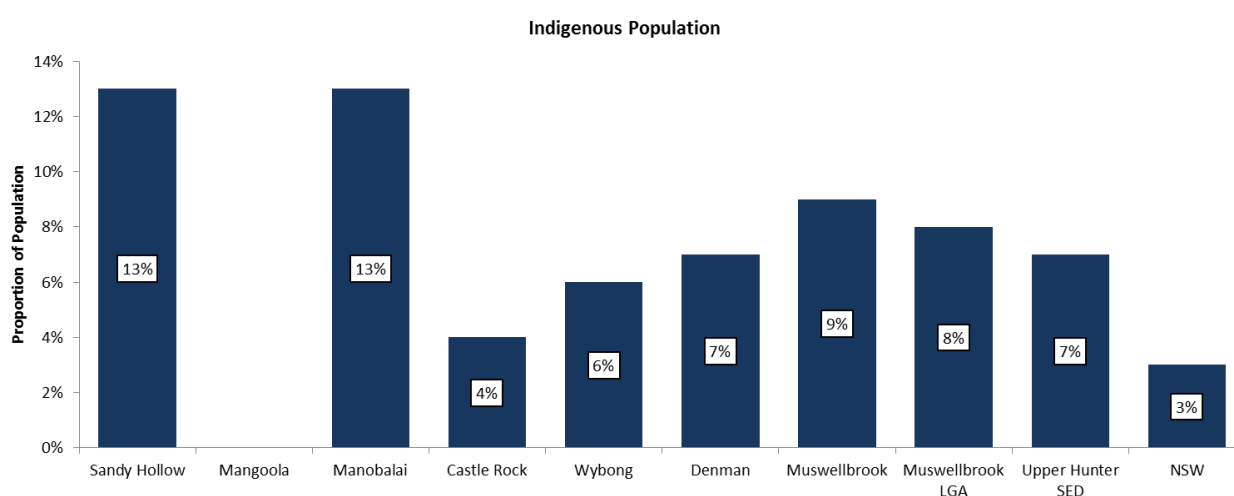


Figure 5.6 Indigenous Population Proportion 2016

Source: ABS Census (2016) – Community Profiles

Overall, the Upper Hunter SED and Muswellbrook LGA have a proportionally high Indigenous population which appears to have increased steadily over the last decade (refer to **Figure 5.7**). This increase can also be seen in the Muswellbrook LGA suburbs of Denman and Sandy Hollow. Whilst increases in the Upper Hunter SED, Muswellbrook and Denman appear to be a genuine rise in population, the apparent increase in Sandy Hollow likely reflects a stable Indigenous population compared to a decrease in general population, due to the aforementioned changes to the ABS boundaries from 2011 to 2016 (refer to **Section 5.6.2**).

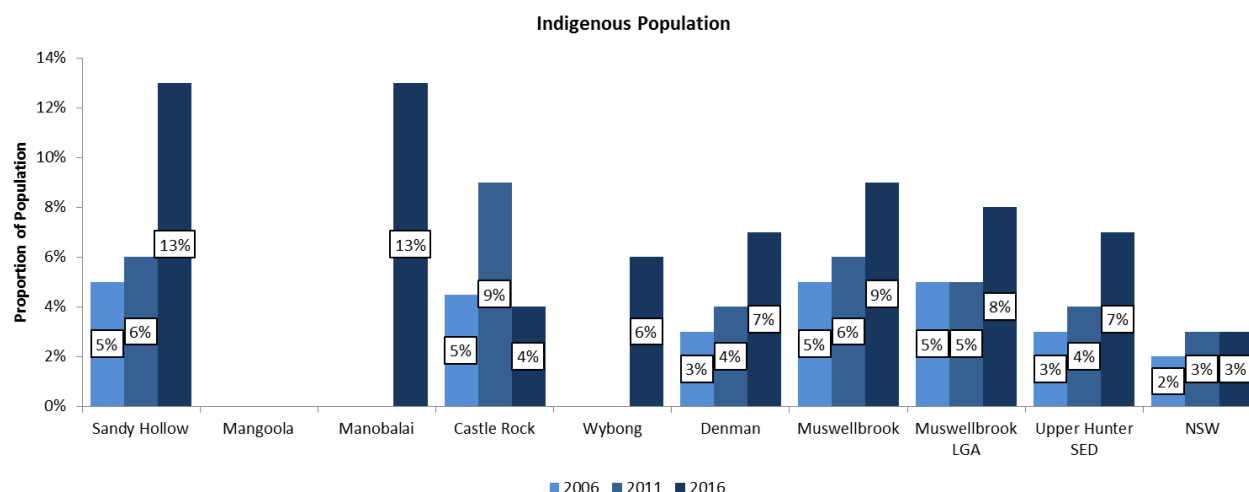


Figure 5.7 Indigenous Population Proportion 2006 - 2016

Source: ABS Census (2016) – Community Profiles

5.6.4.2 Age Structure

Compared to the NSW average, the populations across the localities of Mangoola, Manobalai, Castle Rock, Denman and the Upper Hunter are older, with median ages ranging from 40-51 years compared to 38 years across NSW.

The Shire of Muswellbrook (LGA) and the townships of Wybong and Sandy Hollow are younger with median ages of 35, 30 and 36 years respectively (refer to **Figure 5.8**).

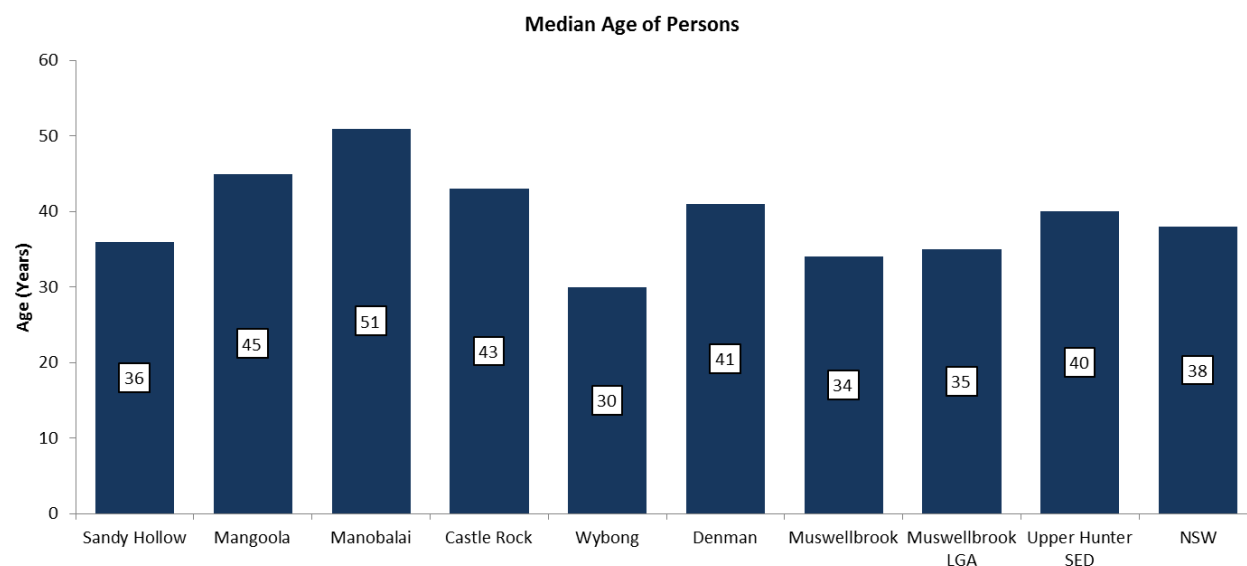


Figure 5.8 Median Age – Years

Source: ABS Census (2016) – Community Profiles

Figure 5.9 to Figure 5.18 outlines the age structure in each community of interest. These figures indicate that:

- the majority of the population within all of the study communities have had increases in the proportion of population aged 55 years and over
- a large proportion of the population in the study areas of Sandy Hollow, Denman and the Upper Hunter fall within the older working age categories of 55 years and above
- there are currently increasing numbers of those in the population entering retirement age brackets, this can also be seen in the population projections presented in **Section 5.6.4.3**.

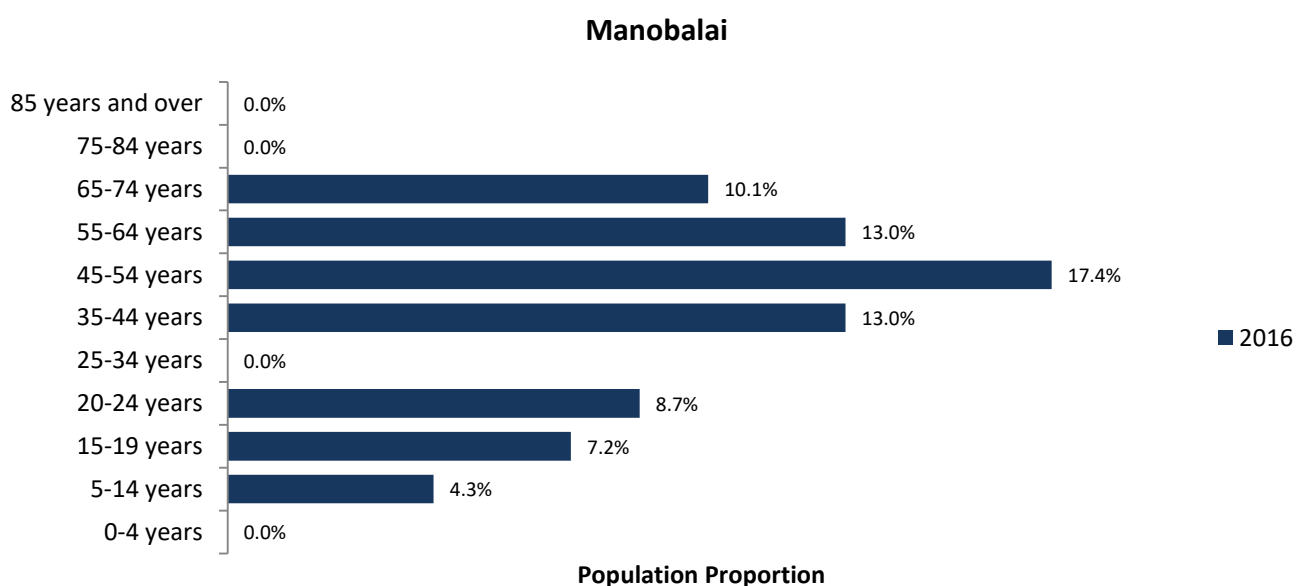


Figure 5.9 Manobalai (SSC) Population Age Structure

Note: Only 2016 data available due to changes in ABS Census boundaries

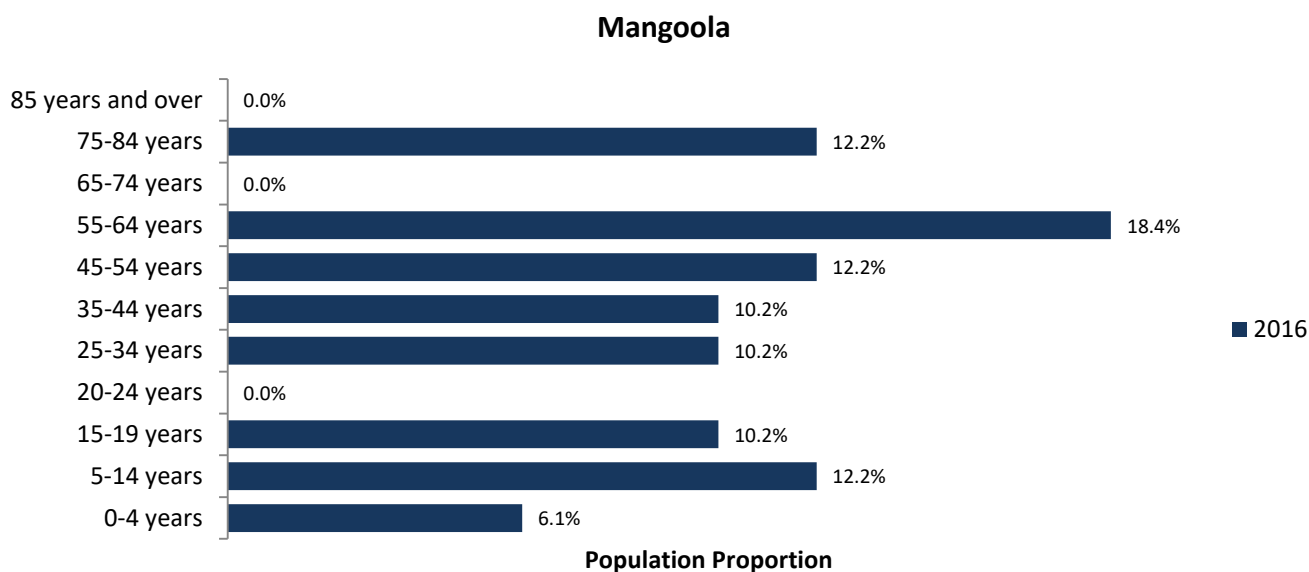


Figure 5.10 Mangoola (SSC) Population Age Structure

Note: Only 2016 data available due to changes in ABS Census boundaries

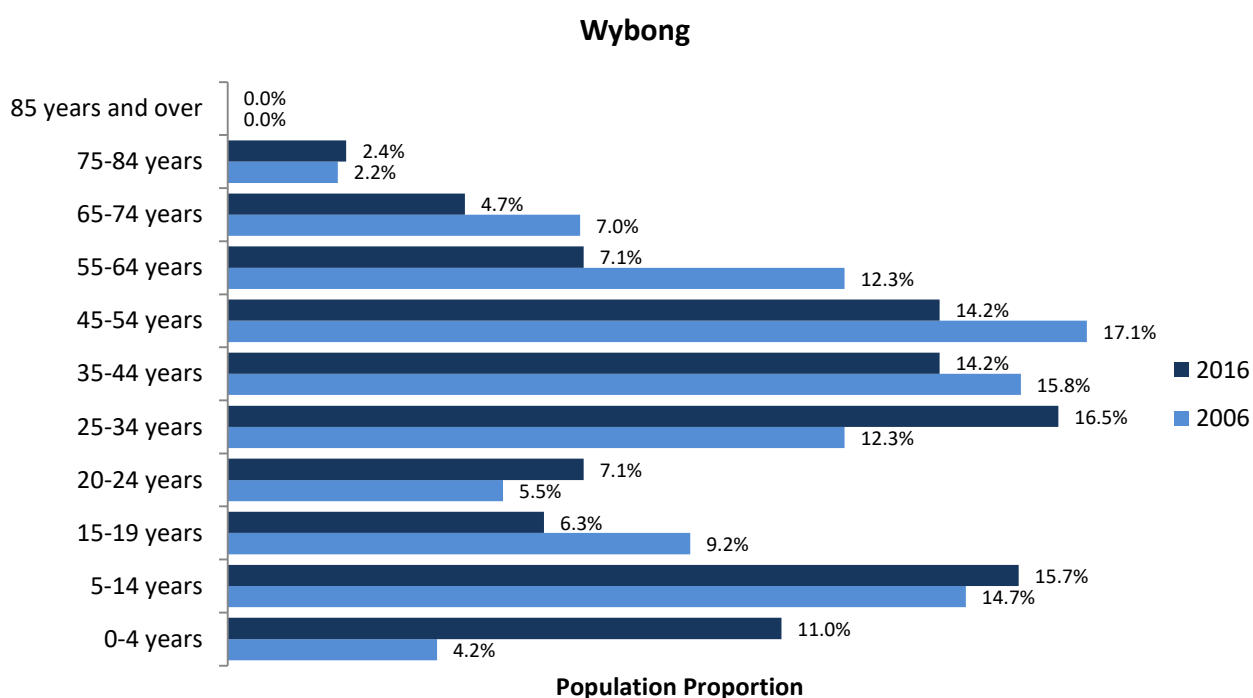


Figure 5.11 Wybong (SSC) Population Age Structure

Note: Only 2006 and 2016 data available due to changes in ABS Census boundaries

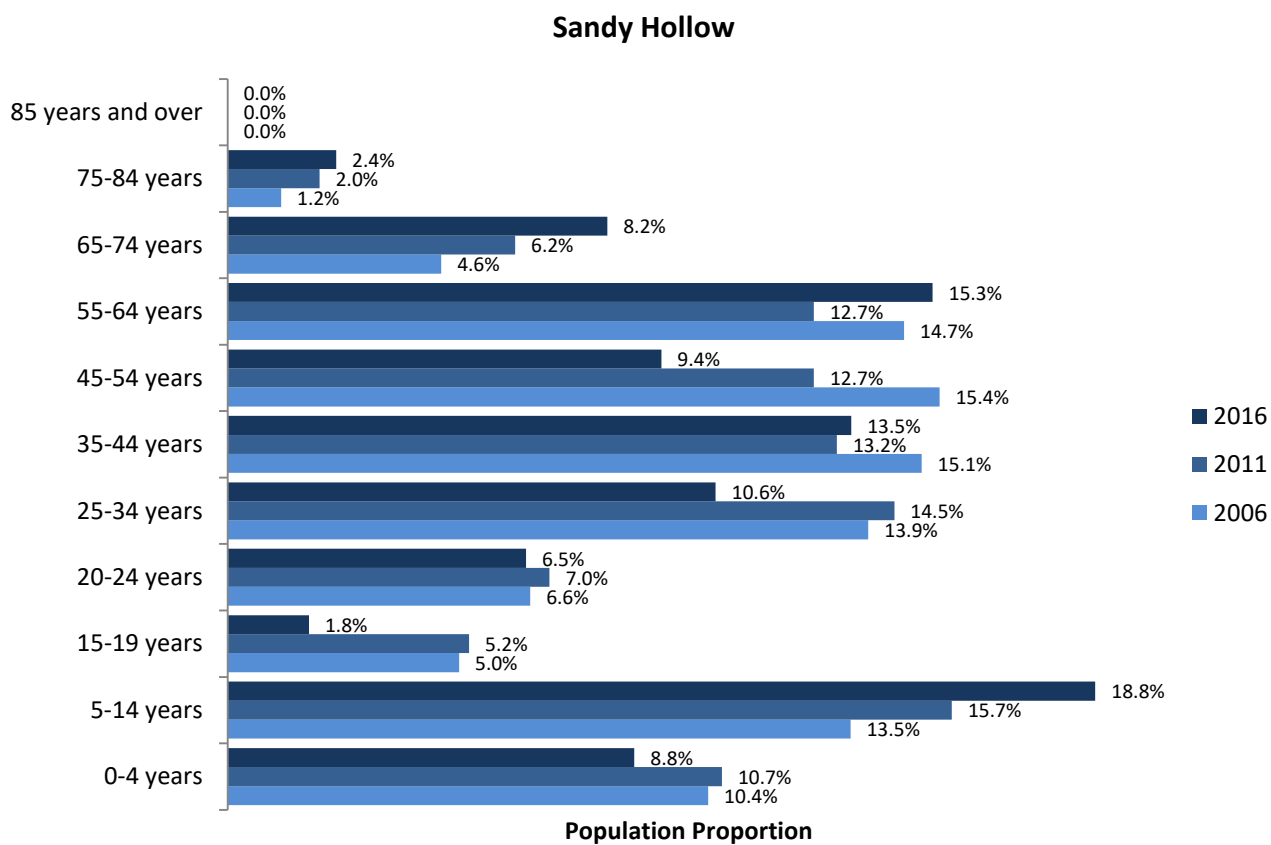


Figure 5.12 Sandy Hollow (SSC) Population Age Structure

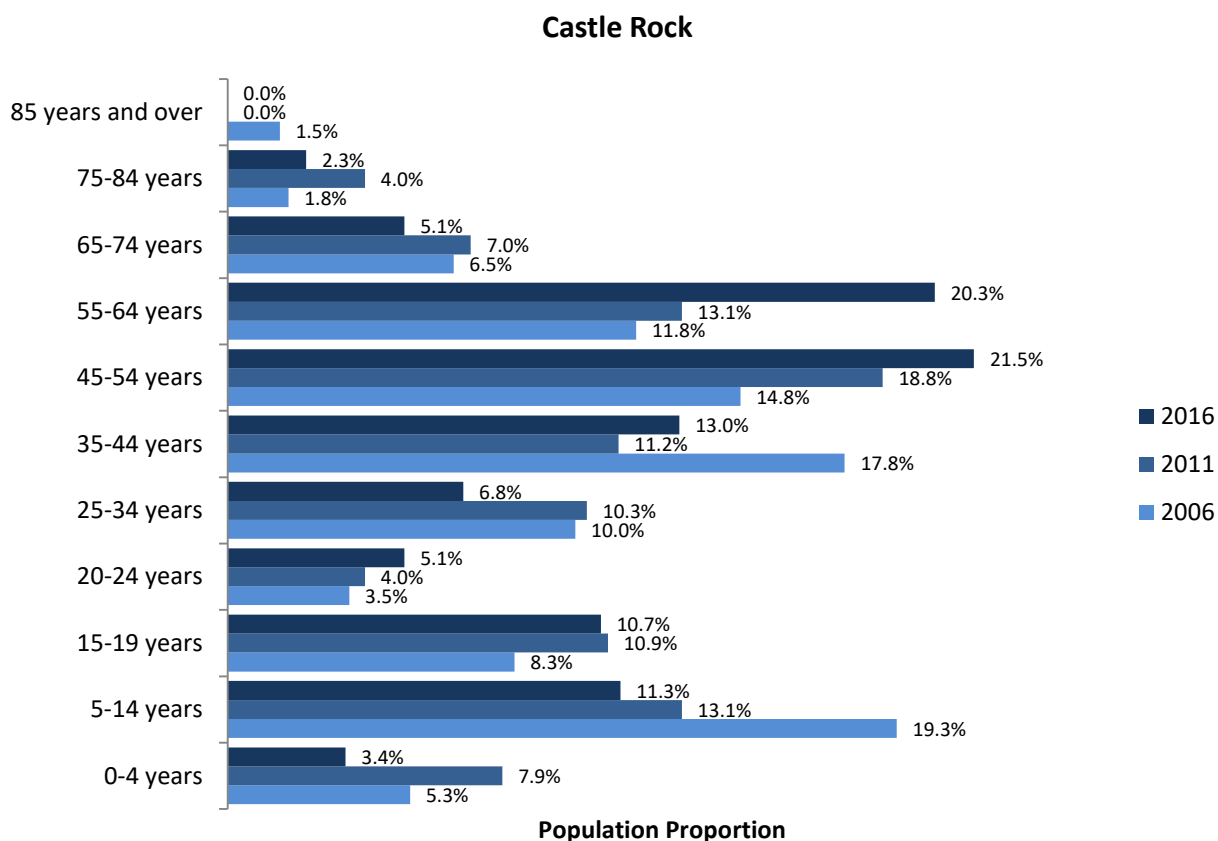


Figure 5.13 Castle Rock (SSC) Population Age Structure

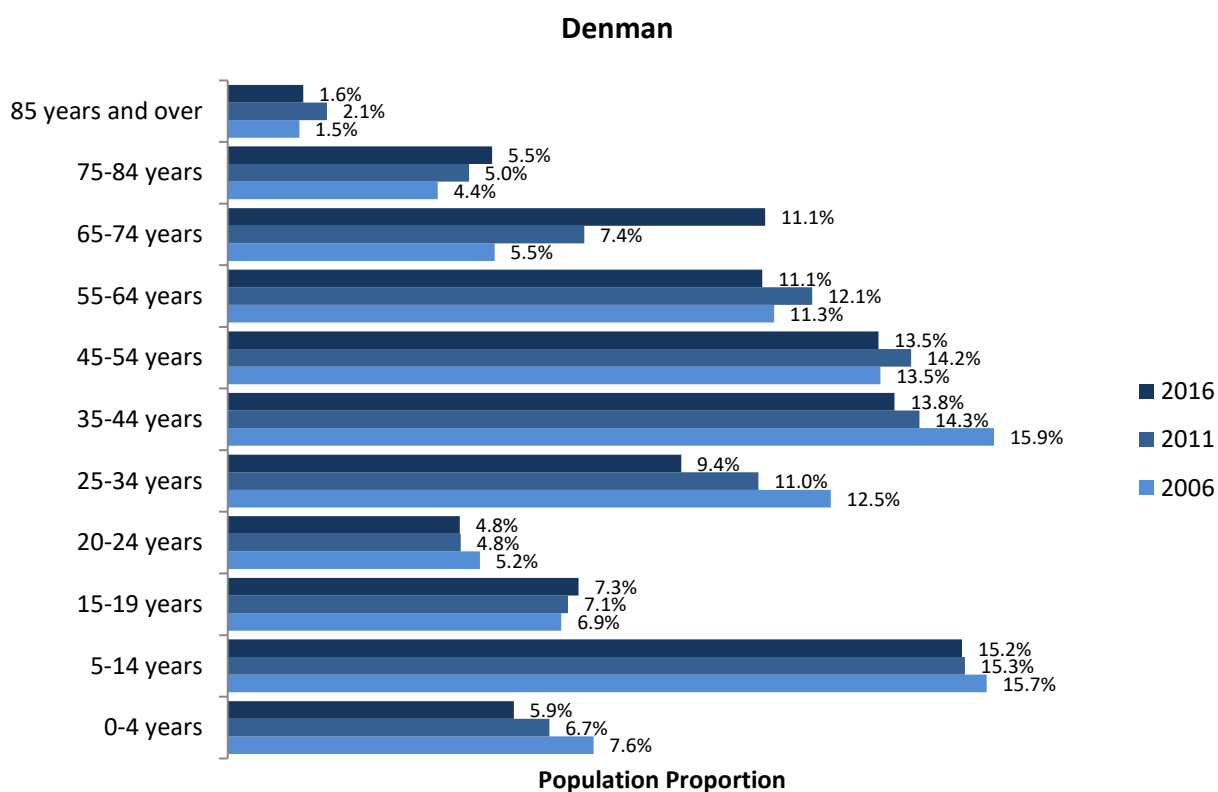


Figure 5.14 Denman (SSC) Population Age Structure

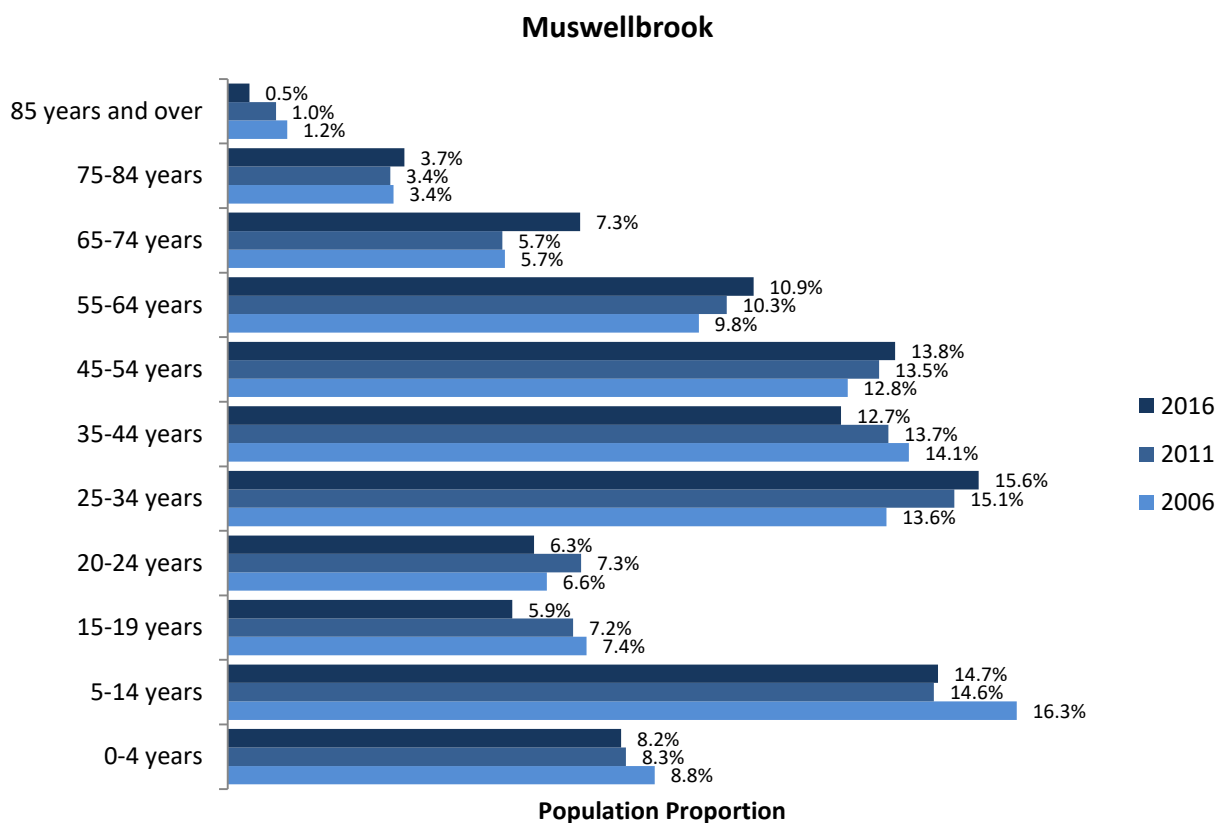


Figure 5.15 Muswellbrook (SSC) Population Age Structure

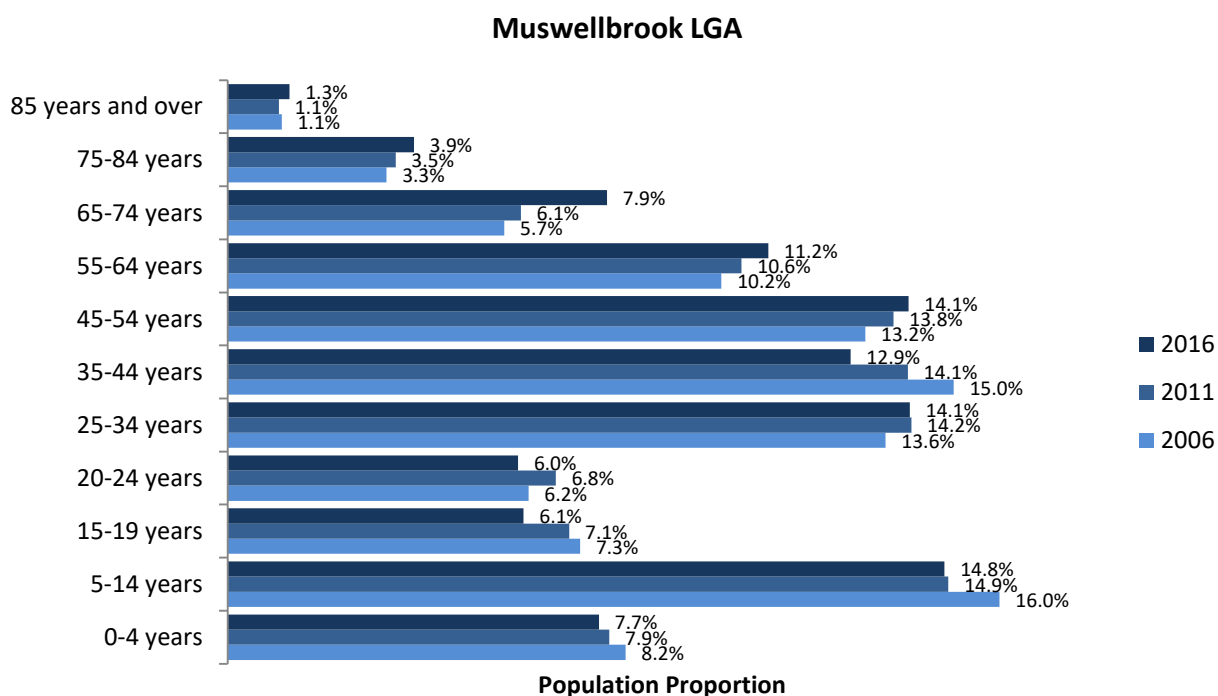


Figure 5.16 Muswellbrook (LGA) Population Age Structure

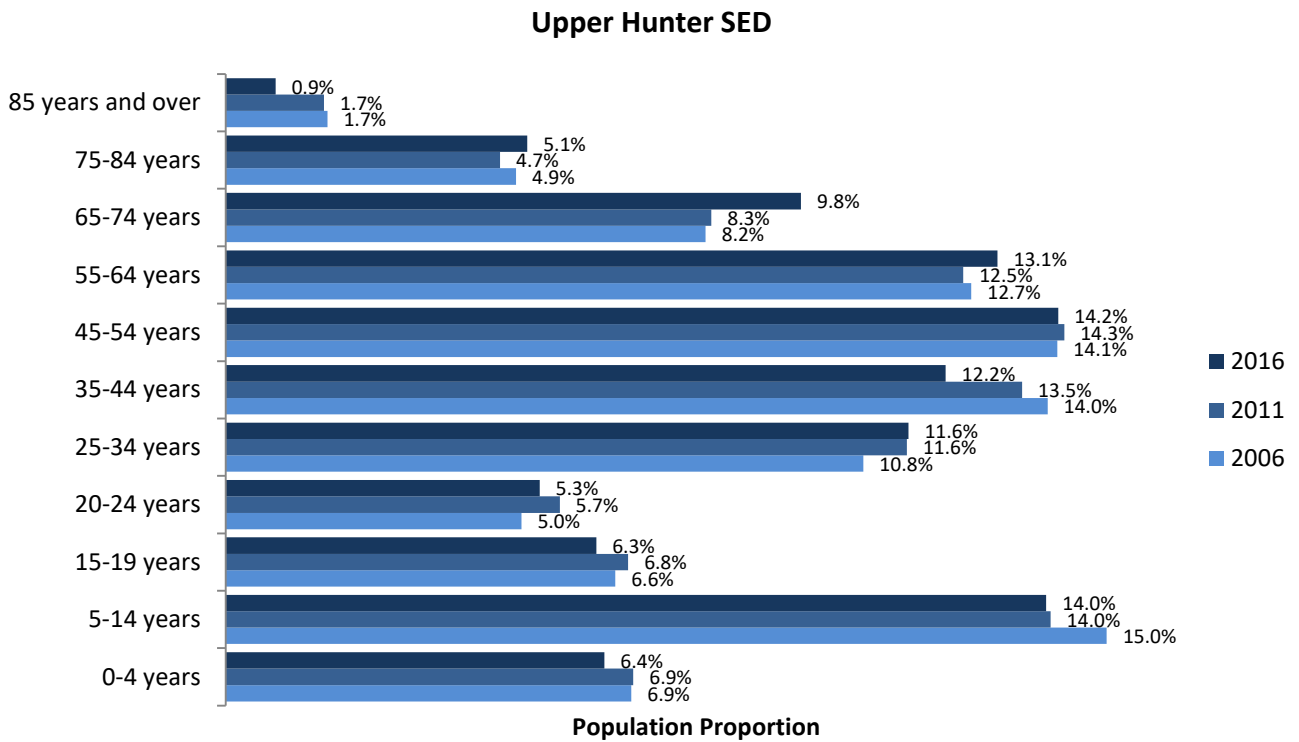


Figure 5.17 Upper Hunter (SED) Population Age Structure

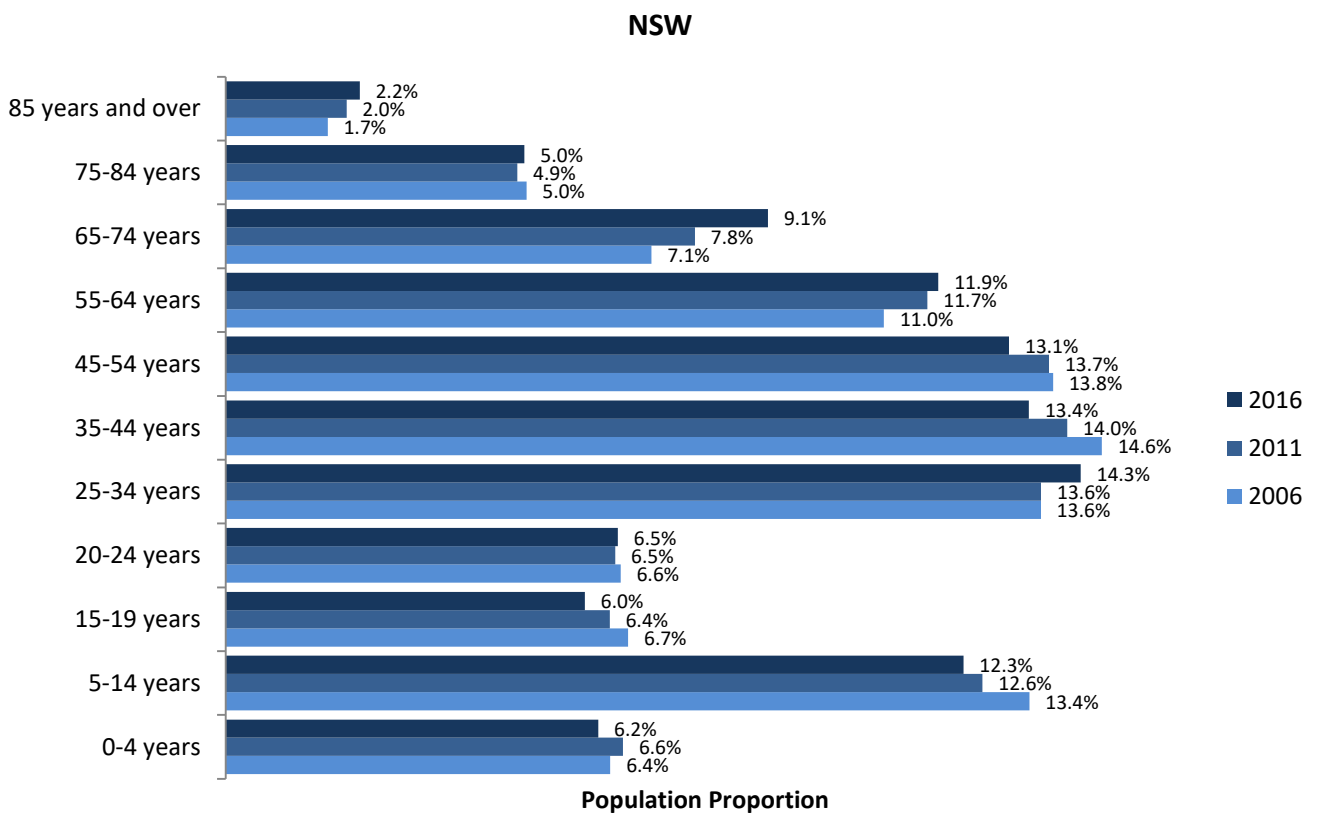


Figure 5.18 NSW Population Age Structure

5.6.4.3 Population Growth

As shown in **Table 5.9** below, population numbers for Sandy Hollow and Castle Rock have declined since the 2011 Census. However the township of Muswellbrook and the Muswellbrook LGA overall has seen a slight increase in its population numbers between 2011 and 2016. Comparisons of populations for all State Suburb areas were not undertaken between 2006 and 2011, given significant changes to the ABS boundaries for the localities of Sandy Hollow and Castle Rock. It is important to note, that the population of Sandy Hollow in 2006 was approximately 259, and for Castle Rock it was 401. Furthermore, engagement participants indicated that population numbers have somewhat decreased over the years in the areas surrounding the Mangoola Coal Mine operations, given residents relocating out of the area.

Table 5.9 Changes in Population over Time

Change in Population	2011	2016	Change (2011 - 2016)
Sandy Hollow	401	362	↓10%
Manobalai	-	69	-
Castle Rock	329	309	↓6%
Denman	1,801	1,788	↓1%
Muswellbrook	11,791	12,072	↑2%
Muswellbrook LGA	15,791	16,080	↑2%
Upper Hunter SED	72,463	75,531	↑4%
NSW	6,917,658	7,480,231	↑8%

Note: Sandy Hollow (2016) includes Wybong and Hollydeen to be consistent with the 2011 ABS boundaries. Castle Rock (2016) includes Mangoola, Bengalla and Kayuga to be consistent with the 2011 ABS boundaries.

Source: Umwelt 2019

The population projections for Muswellbrook LGA as provided by the 'NSW State and Local Government Area Population and Household Projections' 2016 reaffirms the notion of an aging population in the LGA.

Overall Muswellbrook LGA is expected to have an annual population growth rate of 1%, with the largest proportion of the population maintained in the 30-44 years and 0-9 year age brackets. Between 2016 and 2036 the Muswellbrook LGA is expected to increase by 19% to a total population of 20,350 by 2036.

These projections show that from 2016 to 2036 there will be decreases in proportions of the population that fall between the ages of 0 and 64 years. Proportions in the 65+ year age group will rise; with those in the 75-84 age brackets increasing by up to 3% (refer to **Figure 5.19** and **Figure 5.20**).

Although the aging population in the Muswellbrook LGA is smaller than that of surrounding LGAs, the Council has a number of policies and strategies in place to address this issue. In particular, they note the need to increase access to health services and the amount of supported and integrated seniors living facilities, with further discussion provided in **Section 5.7**.

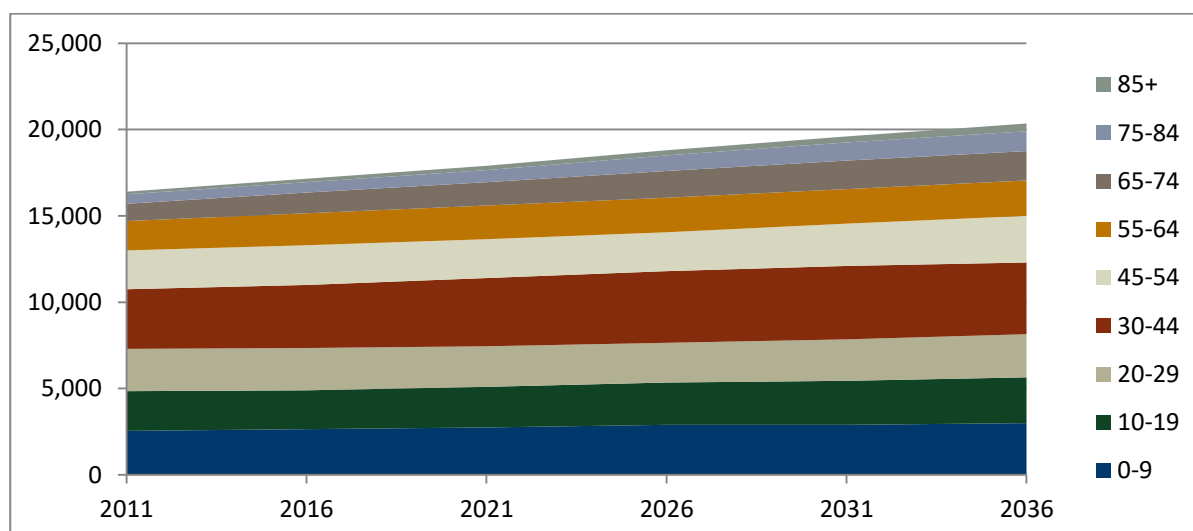


Figure 5.19 Population Projections – Muswellbrook LGA

Source: NSW State and Local Government Area Population and Household Projections

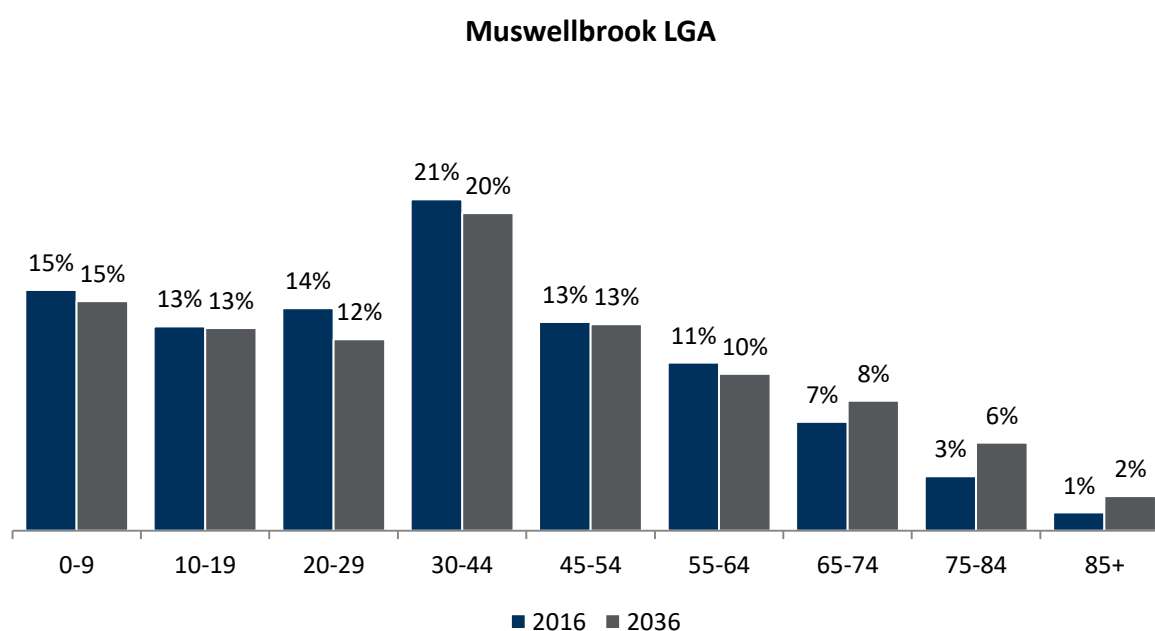


Figure 5.20 Population Projections by Age Category – Muswellbrook LGA

Source: NSW State and Local Government Area Population and Household Projections

5.6.4.4 Skills, Education and Training

5.6.4.4.1 Primary and Secondary

Due to the higher proportions of students leaving school before Year 12, there were significantly less students who completed Year 12 than the state average. Compared to NSW (59%), Muswellbrook LGA had a significantly lower proportion of people who had completed Year 12 (34%). This was also the case for indigenous populations in Muswellbrook LGA, where only 23% reached Year 12 as opposed to 33% in NSW. Mangoola had the smallest proportion of people who completed Year 12 (18%) followed by Denman (29%) (refer to **Table 5.10**).

In the Muswellbrook LGA a larger proportion of Indigenous students left school in Years 8 and 9 than non-Indigenous. The largest portion of students left school at the end of Year 10; Indigenous (38%) and non-Indigenous (39%). This was higher than the state average of 34% for Indigenous and 23% for non-Indigenous.

Table 5.10 Highest Level of Schooling Attained

Highest Year of School Completed:	Mangoola	Castle Rock	Wybong	Manobalai	Sandy Hollow	Denman	Muswellbrook	Muswellbrook LGA	Upper Hunter SED	NSW
Year 12 or equivalent (%)	18	29	35	32	32	29	35	34	37	59
Year 12 or equivalent (Indigenous) (%)	-	-	-	-	-	-	-	23	-	33
Year 11 or equivalent (%)	9	12	0	7	4	8	9	9	8	5
Year 11 or equivalent (Indigenous) (%)	-	-	-	-	-	-	-	10	-	10
Year 10 or equivalent (%)	55	47	39	34	41	42	38	39	38	23
Year 10 or equivalent (Indigenous) (%)	-	-	-	-	-	-	-	38	-	34
Year 9 or equivalent (%)	0	7	22	21	8	12	11	11	10	6
Year 9 or equivalent (Indigenous) (%)	-	-	-	-	-	-	-	18	-	14
Year 8 or below (%)	18	5	4	5	16	8	6	6	6	5
Year 8 or below (Indigenous) (%)	-	-	-	-	-	-	-	8	-	9
Did not go to school (%)	0	0	0	0	0	1	0	0	0	1
Did not go to school (Indigenous) (%)	-	-	-	-	-	-	-	1	-	1

Source: ABS Census – 2016

Educational primary and secondary facilities available in the study communities are summarised in **Table 5.11**. This includes available information from schools, via the MySchools website, that relate to:

- proportion of students that are either Indigenous and/or from non-English speaking backgrounds
- attendance rates
- school positioning on the Index of Community Socio-Education Advantage (ICSEA) scale. This scale represents levels of educational advantage.

It should be noted that the data only includes primary and secondary schools located within the study communities, however it is likely that the students within these communities would travel to other schools within the LGA – this was validated by community members in the engagement process.

Muswellbrook LGA has eight primary schools and one high school. There are two other high schools that are located just outside of the Muswellbrook LGA - Scone Grammar School located in Scone (approximately 30 minutes from Muswellbrook) and St Joseph's High School in Aberdeen (approximately 15 minutes from Muswellbrook).

In a survey conducted by Jetty Research, commissioned by MSC, 73% of respondents had primary or secondary school age children (Jetty Research, 2017). There were 42% reported to attend school within the Muswellbrook LGA, 18% in Denman and 27% travelled outside of the LGA to Aberdeen. This was reinforced during consultation with participants in both Round one and two with children stating that they accessed education services in Muswellbrook, Denman and Aberdeen, with a smaller number of participants also accessing schools in Scone and Newcastle.

According to the MySchools government website, a large proportion of students attending schools in the Muswellbrook LGA fall in the bottom quarter of the ICSEA Scale, indicating a low level of educational advantage.

A number of schools and educational centres in the region have planned improvements, including Singleton Heights Pre-school and the Singleton TAFE campus. A state government initiative has benefitted 12 schools in the Upper Hunter with over \$100,000 being invested in community pre-schools to improve the grounds and create way for specialised educational programs for children (refer to **Appendix 3**).

Table 5.11 Educational Facilities

Location	School/Facility	Level	Enrolments (2017)	Proportion Aboriginal Students (%)	Student Attendance Rates (2017)	FTE Teaching Staff	Other Relevant Information (2017)
Sandy Hollow	Sandy Hollow Public School	K-6	23	30	85% total (80% Indigenous) (86% non-Indigenous)	2.7	84% of students in bottom quarter of ICSEA 0% language background other than English
Denman	Denman Public School	K-6	167	20	93% total (93% Indigenous) (93% non-Indigenous)	9.9	51% of students in bottom quarter of ICSEA 0% language background other than English
	St Joseph's Primary School	K-6	93	3	94% total	6.7	Non-government 37% of students in the middle quarter of ICSEA 9% in the top quarter 5% language background other than English
Muswellbrook	Muswellbrook Christian School	K-6	33	21	92% total	3	Non-government 64% of students in bottom quarter of ICSEA 7% language background other than English
	Muswellbrook High School	U, 7-12	825	19	83% total (71% Indigenous) (86% non-Indigenous)	63.7	60% of students in bottom quarter of ICSEA 35% language background other than English
	Muswellbrook Public School	U, K-6	600	12	93% total (87% Indigenous) (94% non-Indigenous)	32.3	51% of students in bottom quarter of ICSEA 4% language background other than English
	Muswellbrook South Public School	U, K-6	549	32	88% total (85% Indigenous) (90% non-Indigenous)	34.6	74% of students in bottom quarter of ICSEA 6% language background other than English
	St James' Primary School	K-6	277	6	93% total (92% Indigenous) (93% non-Indigenous)	16.9	Non-government 36% of students in bottom quarter of ICSEA 9% in the top quarter 9% language background other than English

Source: MySchools (2018)

5.6.4.4.2 Non School Qualifications and fields of Study

In 2016, the Upper Hunter Tertiary Education Centre was opened in Muswellbrook, a \$6.1M learning hub that houses both the Hunter Institute of TAFE Campus and a regional campus of the University of Newcastle. The introduction of this facility to the region was accompanied by the construction of Sam Adams College, a 63 bed student accommodation facility. This venture was a joint TAFE, Muswellbrook Council and Federal Government initiative, with the aim of providing for the LGA and supporting increased demand for student accommodation across the Upper Hunter sub-region more broadly.

Muswellbrook LGA is also home to the Upper Hunter Conservatorium of Music. This organisation services the geographic area from Branxton in the south to Murrurundi in the north and Merriwa to the west. The Conservatorium currently supports the musical education of over 900 students (Local Strategic Planning Statement, 2018-2038).

Aside from Certificate level education, Muswellbrook LGA and the Upper Hunter SED had much lower proportions of the population who had completed post-secondary education than NSW overall. Muswellbrook LGA has a considerably larger proportion of 50% with certificate level qualifications, as opposed to 30% reported in NSW. Across all the study areas, Mangoola displayed the highest proportion (76%), followed by Wybong (56%), and Denman (53%).

When considering all of the study communities, Wybong had the highest proportion of people who had completed post-secondary education (49%); this was equivalent to the NSW average (49%). Wybong and Sandy Hollow displayed higher proportions of people who have completed a graduate diploma or graduate certificate level qualification than NSW. Furthermore, Manobalai also has a larger proportion of the population that has completed an advanced diploma or diploma level of education.

Lower proportions of people had completed a Bachelors degree than in NSW across all the study areas, with 11% of people completing their Bachelors degree from the Muswellbrook LGA, with the townships of Castle Rock and Sandy Hollow with only 5% and 8% respectively.

Compared to NSW, the proportion of Indigenous people in Muswellbrook that have completed each level of post-secondary education is much higher (ABS, 2016).

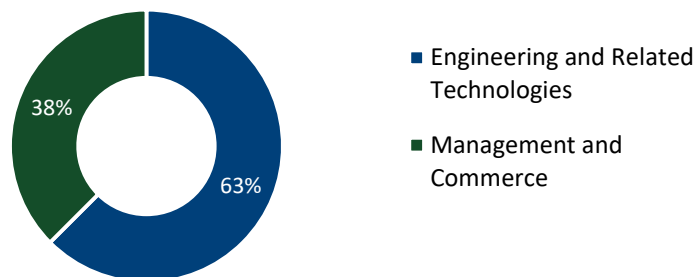
Table 5.12 Non School Qualifications

Level of Qualification	Mangoola	Castle Rock	Wybong	Manobalai	Sandy Hollow	Denman	Muswellbrook	Muswellbrook LGA	Upper Hunter SED	NSW
Equivalent post-secondary education (%)	35	43	49	27	25	37	38	38	41	49
Postgraduate degree level (%)	0	0	0	0	0	1	2	2	2	9
Graduate Diploma and Graduate Certificate level (%)	0	3	6	0	6	1	1	1	2	3
Bachelor degree level (%)	18	5	8	19	6	8	12	11	14	26
Advanced Diploma and Diploma level (%)	0	16	17	24	5	14	11	11	13	15
Certificates (%)	76	37	56	33	42	53	50	50	47	30

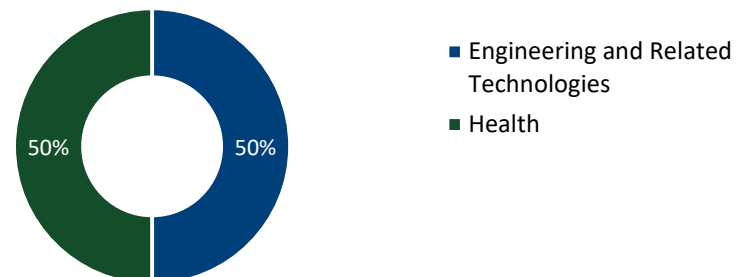
Source: ABS 2016

Across all of the study areas, Engineering is the most studied field of tertiary education, followed by Health in Wybong and Manobalai, and Management and Commerce in the remaining study areas.

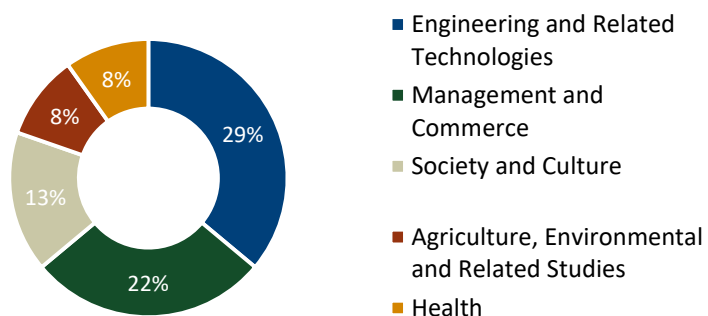
Mangoola



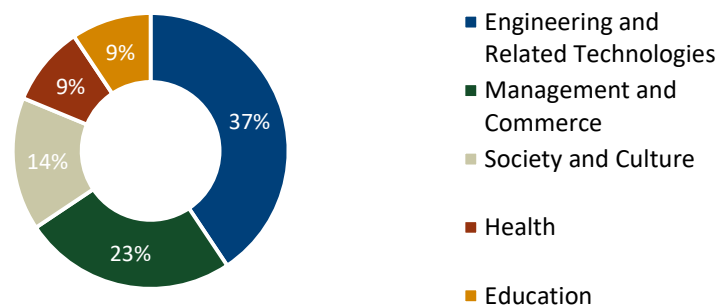
Manobalai



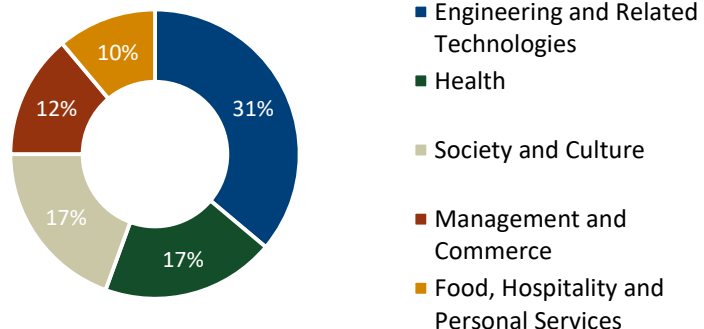
Castle Rock



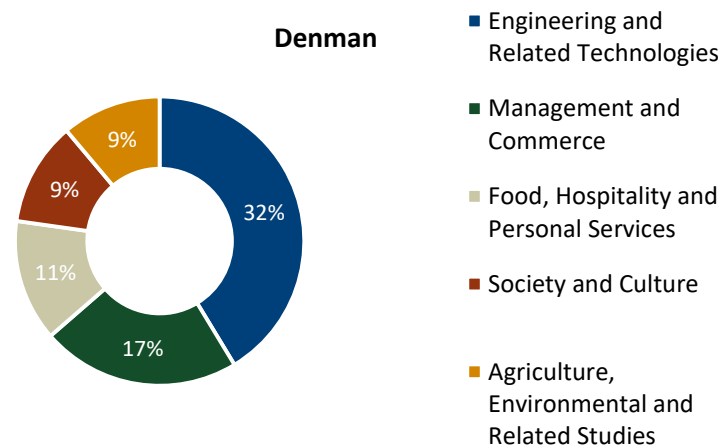
Sandy Hollow



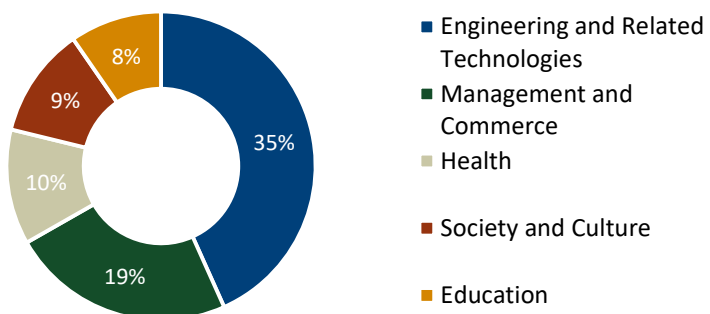
Wybong



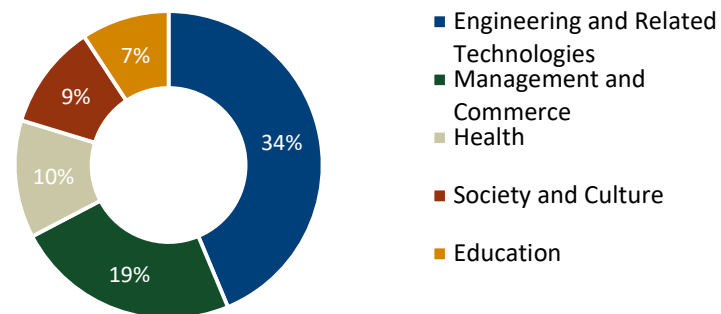
Denman



Muswellbrook



Muswellbrook LGA



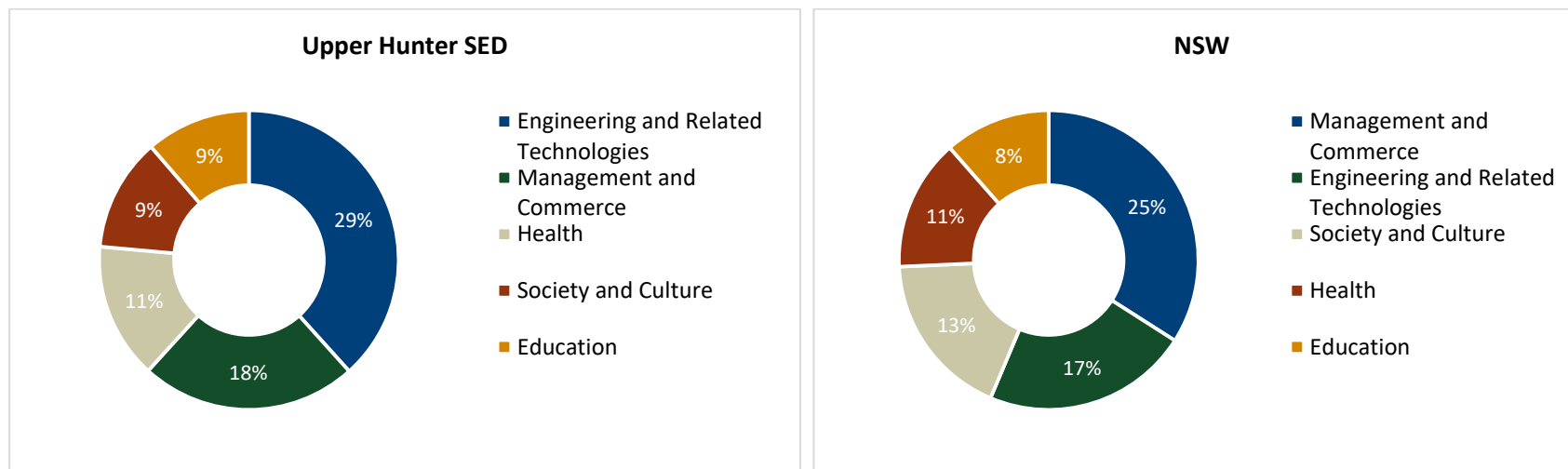


Figure 5.21 Top Five Fields of Tertiary Study

Source: 2016 ABS Community Profile

5.6.4.5 Health Characteristics

The study communities fall within the Hunter New England Local Health District (LHD).

Key health status characteristics of the broader Muswellbrook health region, as reported in the Hunter New England LHD database include:

- in 2014-15, the Muswellbrook LGA had heightened health risks associated with the number of adults per 100 who smoked (24.6 compared to 16 in NSW), high risk alcohol consumption (23.8 compared to 16.7 in NSW), and persons who engaged in low or no exercise (73.7 compared to 49.2)
- higher rates of immunisation compared to NSW in 2016-17, with 96.2% of 1 year old, 93.9% of 2 year old and 95.6% of 5 year old children being fully vaccinated, compared to 93.8%, 90.9% and 93.5% respectively across Australia
- rates of respiratory system disease have increased in the Muswellbrook LGA from 24.5 (2008) to 27.7 per 100 (2011-12) people since 2008, which is comparable to current rates in NSW as a whole (27.4 per 100)
- estimates of number of people aged 18 years and over, with private health insurance, in Muswellbrook LGA (41.8 per 100) are less than that of broader NSW (51.5 per 100)
- 23.8% of children in the Muswellbrook LGA identified as developmentally vulnerable in one or more Australian Early Development Index (AEDI) domains
- in the Muswellbrook LGA (2014-15), for every 100 people over the age of 15 years, there are approximately 16 that have poor or very poor self-assessed health. While this has decreased since 2007-2008 from 17.4 per 100 to 16 per 100 (2014-15), it is still higher than the NSW average of 14.3 (2014-15)
- estimates of people aged 18 years and over with one of four risk factors are relatively high in Muswellbrook with 85.9 as a rate per 100 people compared to NSW which has a rate of 78.2.

Data relating to asthma hospitalisations (NSW Health Stats, 2018) indicates that rates of hospitalisation (per 100,000 population) in the Muswellbrook LGA are largely below NSW, however peaked in 2007, dropping back down to less than the NSW rate in 2009. Additional information on available health infrastructure and services is provided in the Physical Capital section at **Section 5.6.7**.

The Upper Hunter Strategic Land Use Policy acknowledges that within the community there is a perceived decrease in health and wellbeing as a result of the mining industry. This report states, air, noise and visual pollution can cause cumulative impacts on communities with each new source of pollution adding to the overall impact on the region (further discussion provided in **Section 5.7**).

Whilst research into the cumulative impacts of mining and power generation in the Hunter Valley are limited, a study of general practice data published by the CSIRO in 2013 found no evidence of significantly elevated health issues for Hunter Valley residents for the period of years 1998 to 2010 (Merritt, Cretikos, Smith & Durrheim, 2013). However, the study did report a potential impact on respiratory problems, with a decrease in respiratory problems in NSW and no change in levels for the Hunter Valley region.

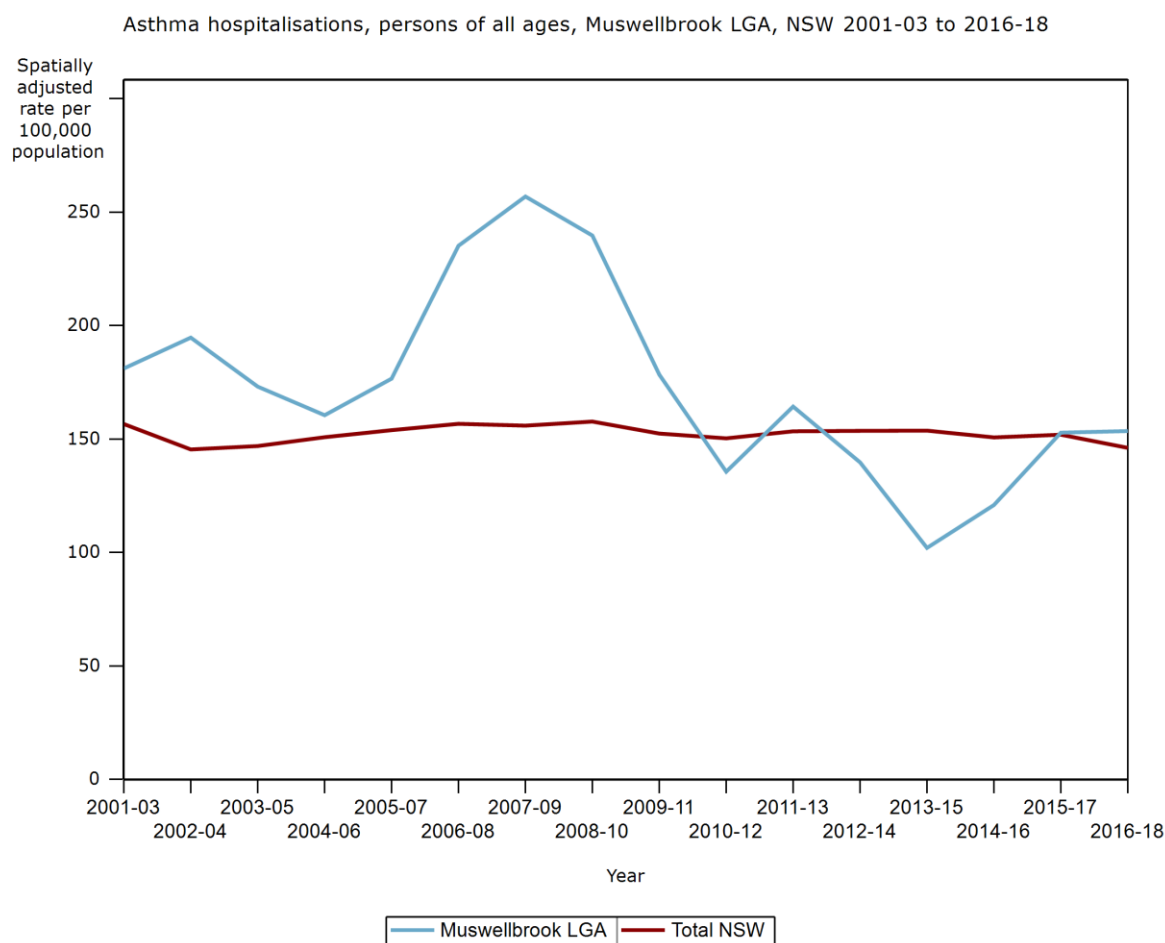


Figure 5.22 Asthma Hospitalisations for Persons of All Ages Muswellbrook LGA (2001-2018)

Source: NSW Health Stats, 2018

Health data for the Hunter New England LHD (which is inclusive of the Hunter, New England and Lower Mid North Coast regions), similarly shows an increase in hospitalisations for respiratory diseases (which include influenza and pneumonia, other acute respiratory infections, asthma, chronic obstructive pulmonary disease, lung cancer, 'remaining respiratory disease'). Rates of hospitalisations for respiratory diseases per 100,000 persons have increased from 1441 in 2001/2002 to 1721 in 2017/2018 (refer to **Figure 5.23**).

Figure 5.24 shows the breakdown of respiratory diseases by type and illustrates that the accumulation of 'remaining respiratory diseases' accounts for the most hospitalisations. In this regard, it should be noted that there have been increased hospitalisations from 2015 to 2017 for all respiratory disease types excluding lung cancer which has been steadily declining. Furthermore, rates of 'influenza and pneumonia' and 'remaining respiratory disease' hospitalisations have continued to rise between 2016-17 and 2017-18, while all other respiratory disease hospitalisations have reduced.

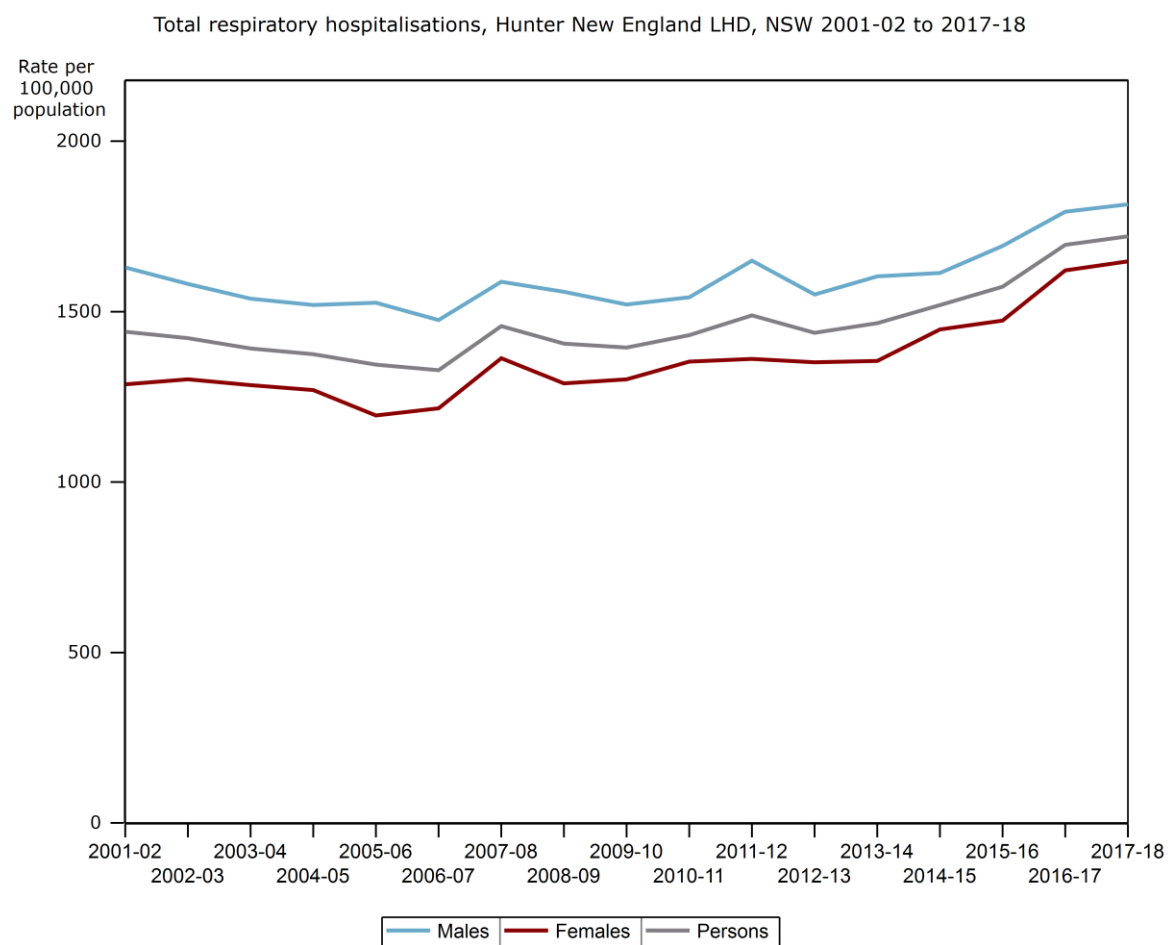


Figure 5.23 Total Respiratory Hospitalisation for Hunter New England Health (2001/2002 to 2017/2018)

Source: HealthStats NSW (2019), <http://www.healthstats.nsw.gov.au/>

Respiratory diseases hospitalisations by disease type,
Persons, Hunter New England LHD, NSW 2001-02 to 2017-18

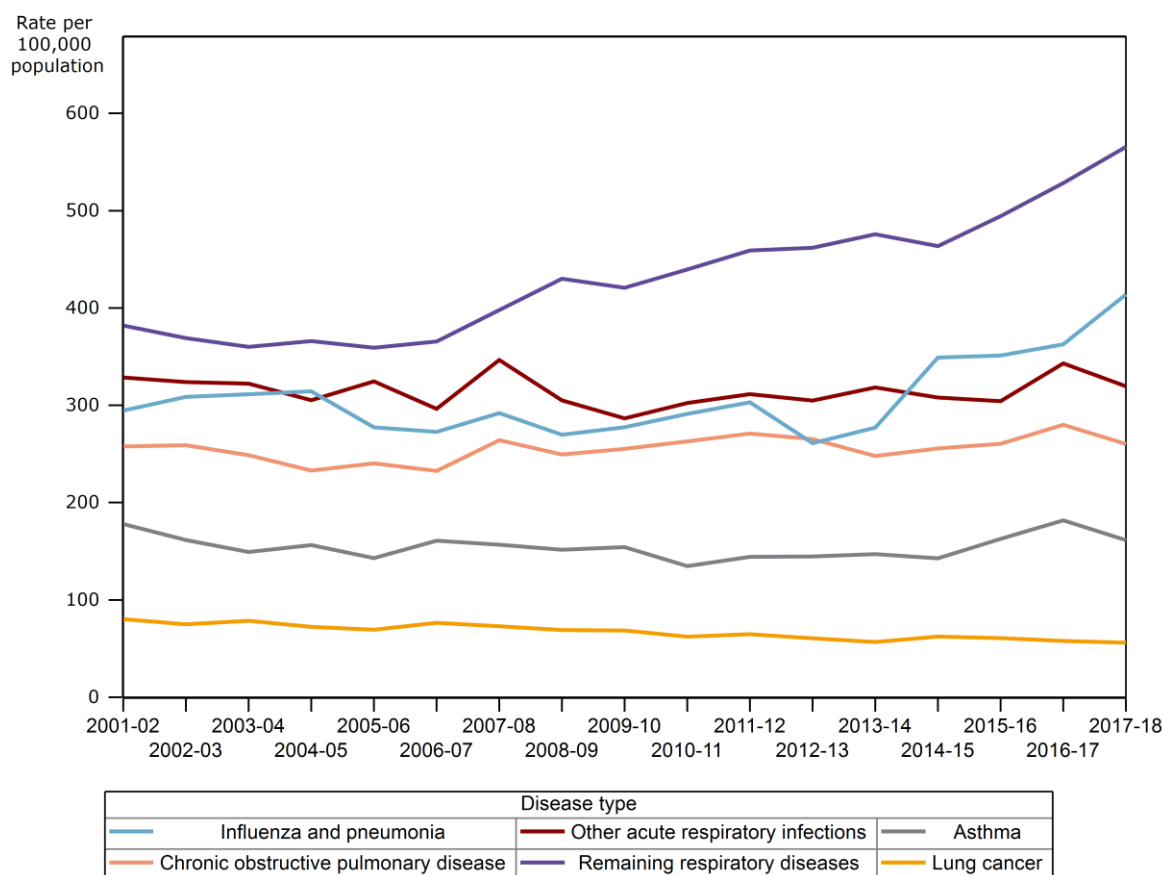


Figure 5.24 Respiratory Diseases Hospitalisations by Disease Type for Hunter New England Health (2001/2002 to 2017/2018)

Source: HealthStats NSW (2019), <http://www.healthstats.nsw.gov.au/>

The numbers of hospitalisation for respiratory diseases in 2017-18 in the Hunter are the second highest when compared to the other local health districts in NSW, with the highest number found in the South Western Sydney LHD. However when considering the rates per 100,000 persons across the LHD, Hunter New England LHD (18,617 hospitalisations, 1720.9 rate per 100,000) is lower than Murrumbidgee (2544.9), Western NSW (2262.1), Far West (1980.1), the Nepean Blue Mountains (1894.9), South Western Sydney (1868.2), and the Central Coast (1811.1). The Hunter New England Health district is comparable to the average rate across all New South Wales LHD's, 1714.2 per 100,000 (refer to **Figure 5.25**) (HealthStats NSW, 2019).

Similarly, it should be noted that whilst the respiratory hospitalisation data gives an indication of the specific kinds of respiratory diseases currently impacting the community, the overall increase in hospitalisations follows a general trend across all disease types, as can be seen in **Figure 5.25**. Data indicates that overall hospitalisation rates have been steadily climbing since 2001 at comparable rates to that seen in respiratory diseases, with hospitalisations per 100,000 of the population remaining consistently higher in the Hunter New England Health District than the rest of NSW from 2001 to 2018, particularly for females.

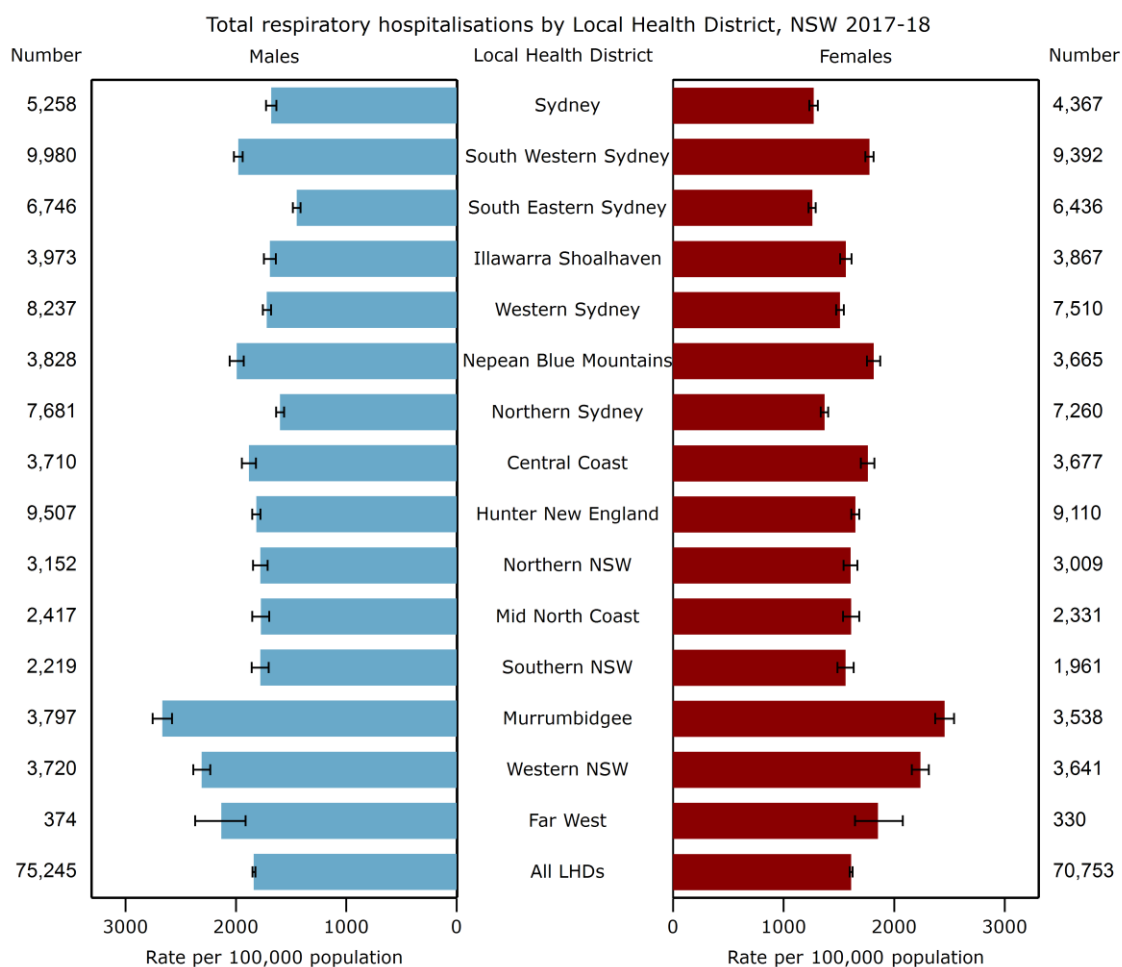


Figure 5.25 Total Respiratory Hospitalisations by LHD (2017/2018)

Source: HealthStats NSW (2019), <http://www.healthstats.nsw.gov.au/>

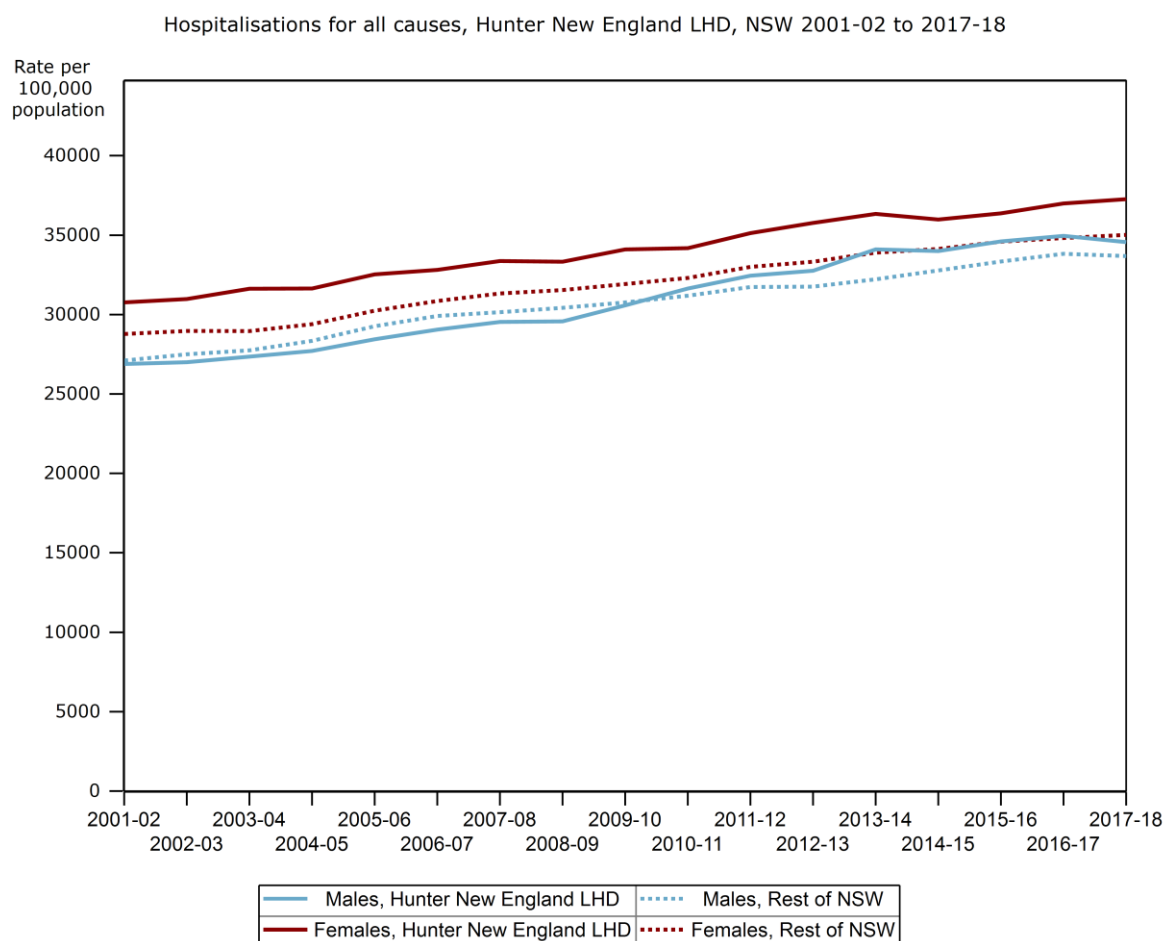


Figure 5.26 Total Hospitalisations in the Hunter New England LHD and the Rest of NSW (2001-2018)

Source: HealthStats NSW (2019), <http://www.healthstats.nsw.gov.au/>

5.6.4.6 Human Capital Summary

Overall, the populations of the Upper Hunter region and Muswellbrook LGA have experienced moderate population increases when compared to NSW state-wide. The median age of the Upper Hunter SED (40) is older than that of NSW (38), whilst the Muswellbrook LGA (35) median age is younger. However, within the Muswellbrook LGA the median ages of the Manobalai (45) and Castle Rock (43) communities are considerably older, while the median age of 30 years in Wybong is notably young.

Almost all studied communities have experienced an increasing number of people approaching retirement age over the last 10 years, mirroring a state-wide trend. The Muswellbrook LGA is also home to a large number of young children and new families.

The Upper Hunter SED and Muswellbrook LGA areas have a high proportion of Indigenous community members and a lower proportion of individuals who were born overseas, when compared to the state average. Sandy Hollow and Manobalai display the highest proportions of both these groups.

Muswellbrook LGA is home to eight primary schools and only one secondary school, with two other high schools present in neighbouring areas. Levels of educational attainment in the Muswellbrook LGA and Upper Hunter SED are generally low, with less community members having completed Year 12, equivalent Post-secondary qualifications or a Bachelors degree level qualification for all areas, in comparison to the state. However, the amount of people holding certificates is considerably higher in Mangoola (74%), Wybong (56%), Denman (53%), and Muswellbrook (50%) than in NSW (30%). Engineering and related technologies are the most popular field of tertiary study across all communities.

The SEIFA Index of Education and Occupation (IEO), prepared by the ABS, reflect the general level of education and occupation-related skills of people within an area. Interestingly, the IEO SEIFA Index for each of the study communities is indicative of relative disadvantage, compared to other areas in NSW (**Figure 5.27**). Muswellbrook LGA falls within the 1st decile and is ranked 4th out of all the LGAs in NSW.

However it should be noted that the Index may be skewed for these smaller populations, such as Sandy Hollow, Wybong, Mangoola and Manobalai, given that each person greatly impacts the area's SEIFA score making it more difficult to undertake comparisons.

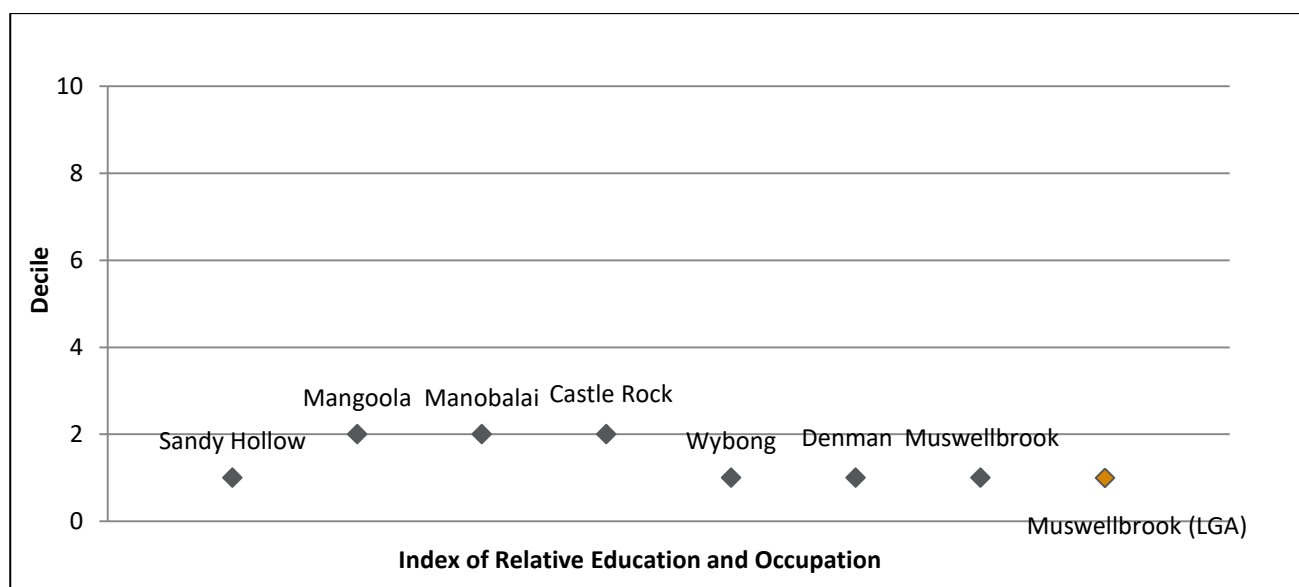


Figure 5.27 Index of Education and Occupation (IEO)

Source: ABS, SEIFA Indexes 2016

As highlighted in **Table 5.13**, Mangoola employees currently account for approximately 3.2% of the local population in the Muswellbrook LGA, with the highest proportion of the workforce population found in the localities of Wybong (8.0%), Sandy Hollow (7.9%) and Denman (5.9%). The MCCO Project would see continued employment for these workers for the proposed Project term and the subsequent economic flow on effects to the locality, LGA and the broader region.

Table 5.13 Estimated Workforce and Household Population Size for Mangoola Coal Mine (MCM)

Employee Location	Number of Employees	Average Household Size by Locality	Total MCM Related Population (Family #)**	Total Population of Locality	Percentage of MCM Related Population within the Locality (%)
Muswellbrook LGA (total)	204	2.5	511	16,080	3.18
Muswellbrook (SSC) *	141	2.5	353	12,072	2.92
Denman (SSC) *	44	2.4	105	1,788	5.88
Sandy Hollow (SSC) *	6	2.2	13	170	7.87
Wybong (SSC) *	4	2.8	10	127	8.04
Muswellbrook LGA (Other)	10	2.5	24	-	3.18***
Upper Hunter LGA (total)	89	2.5	222	75,531	0.29
Scone (SSC)*	41	2.4	99	2,564	3.87
Merriwa (SSC)*	24	2.4	58	1,761	3.31
Aberdeen (SSC)	18	2.5	46	2,084	2.19
Upper Hunter LGA (Other)	5	2.5	12	-	0.29***
Singleton (LGA)*	57	2.7	154	22,986	0.67
Lake Macquarie (LGA) *	10	2.5	24	197,371	0.01
Maitland (LGA)*	7	2.7	20	77,305	0.03
Port Stephens (LGA)*	7	2.5	18	69,556	0.03
Cessnock (LGA)*	5	2.6	13	55,560	0.02
Newcastle (LGA)*	5	2.4	12	155,411	0.01
Central Coast (LGA)*	4	2.5	9	327,736	0.003
<i>Other (includes Hunter Region (other), Sydney, Mid-Western Region, Tamworth Region, Wollongong and Brisbane)</i>	12	-	-	-	-
Total (excluding Other)	400	-	1,703	997,536	0.17

Source: ABS Community Profiles (2016), ABS QuickStats (2016), MC (2018)

* Population and average household data sourced from QuickStats

** Figures have been rounded to the nearest whole number.

***total LGA proportions are used for LGA (Other)

5.6.5 Social Capital

Table 5.14 provides a summary of the key social capital indicators for the study communities relevant to Mangoola's operations and compared to the Upper Hunter SED and the broader state of NSW, with further discussion regarding these indicators provided in the subsequent sections.

Table 5.14 Summary of Key Social Capital Indicators for Surrounding State Suburbs, Muswellbrook LGA, Upper Hunter SED and NSW

Indicator	Mangoola	Castle Rock	Wybong	Manobalai	Sandy Hollow	Denman	Muswellbrook	Muswellbrook LGA	Upper Hunter SED	NSW
Married (%)	61	54	54	53	43	47	43	45	50	49
Families with children (%)	38	35	56	29	40	39	42	43	42	46
Families with no children (%)	44	40	41	58	43	42	36	37	41	37
Single parent family (%)	0	10	9	13	20	19	22	19	16	16
Lone person households (%)	13	18	15	9	31	31	28	27	26	24
Proportion living at a different address 1 year ago (population mobility) (%)	0	13	7	6	11	13	17	15	13	14
Proportion living at a different address 5 years ago (population mobility) (%)	28	29	54	17	37	34	44	41	35	39
Volunteered through an organisation or group (last 12 months) (%)	25	20	21	40	22	26	16	18	22	18
Proportion of the population over 65 years receiving a pension (%)	-	-	-	-	-	-	-	73.1	-	67.6
Poor proficiency in English (%)	-	-	-	-	-	-	-	0.2	-	3.8

Source: ABS 2016, PHIDU 2018

5.6.5.1 Mobility and Community Networks

The levels of population mobility (over a one-year period) greatly fluctuated amongst the study communities, with Sandy Hollow, Mangoola, Manobalai, Castle Rock, Wybong and Denman falling below the NSW average of 14%. It is interesting to note, Muswellbrook LGA was more mobile (15%) than NSW, potentially reflective of the cyclical nature of mining in the area.

Over a five year period the townships of Wybong and Muswellbrook, and the Shire of Muswellbrook (LGA) all had higher proportions of those living at a different address (54%, 44% and 41% respectively) than NSW (39%). This indicates a more transient population, which is commonly a feature of regions where mining plays a significant role in the economy and workforce (refer to **Section 5.6.6.1**).

Similar proportions of the population 15 years and above, who undertook 'voluntary work for a group or organisation in the last 12 months', were found in Muswellbrook LGA (18%) as there were in NSW (18%).

The townships of Manobalai, Denman and Mangoola had considerably higher proportions of volunteering (40%, 26% and 25% respectively).

Participants from Round 1 of the consultation also commented on the close-knit community networks in their area:

"Strong sense of community, everyone is very close. We have known a lot of people for a long time. Very friendly area to live in."

"Rural area, small community where everyone knows just about everyone."

However, participants also perceived this sense of community as being eroded by the mining industry.

"Pre-mine community was undisturbed but was greatly impacted with mine commencement."

"Key strengths, used to be a vibrant community then Mangoola moved in and a lot of people moved out. Strong community but a lot of people have moved away. Small community left which will be errored away even more with the extension."

"Friends. Lost lots of friends due to mining operations."

The resilience and the ability of the community to adapt to change was however identified as a key strength:

"It's resilience and ability to co-exist and adjust to changes."

"We stick together and try to look after each other."

The proportion of population born overseas in the Muswellbrook LGA has increased from 6% during the 2006 census to 9% in 2016. NSW showed increases from 24% to 30%. The study areas had much smaller proportions of those born overseas, ranging from 10% in Sandy Hollow down to 3% in Castle Rock.

5.6.5.2 Family and Household Composition

Proportions of single parent families have increased by approximately 2% in Muswellbrook LGA from 2006/2011 to 19% in 2016, marginally higher than the state average of 16%.

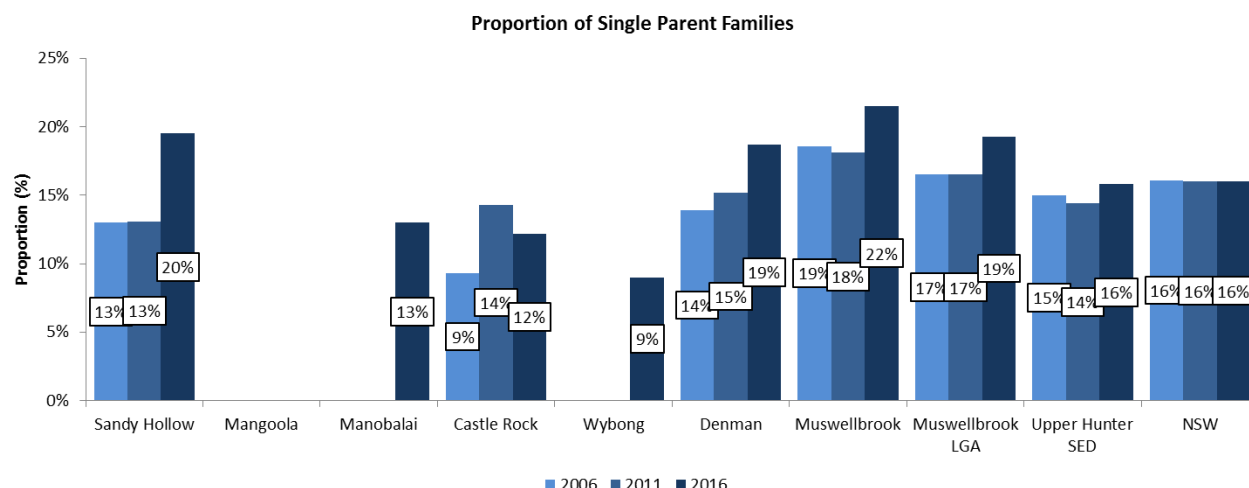


Figure 5.28 Single Parent Families

Source: 2016 ABS Community Profile

The most notable proportional difference across the study communities in relation to household composition is the higher proportion of lone person households in Sandy Hollow (31%), Denman (31%) and Muswellbrook LGA (27%) when compared to NSW (24%). Conversely, Castle Rock only has 18% lone person households, with a vast majority of households (87%) being family households. Aside from Mangoola and Manobalai, all other study areas ranged from 68% to 72% (consistent with the NSW average). Mangoola and Manobalai only had a relatively small proportion of family households, 50% and 63% respectively.

It is important when interpreting this data to note the small sample sizes for Sandy Hollow, Mangoola, Manobalai, Castle Rock and Wybong. In small populations, each person greatly impacts the area's proportions making it more difficult to undertake direct comparisons.

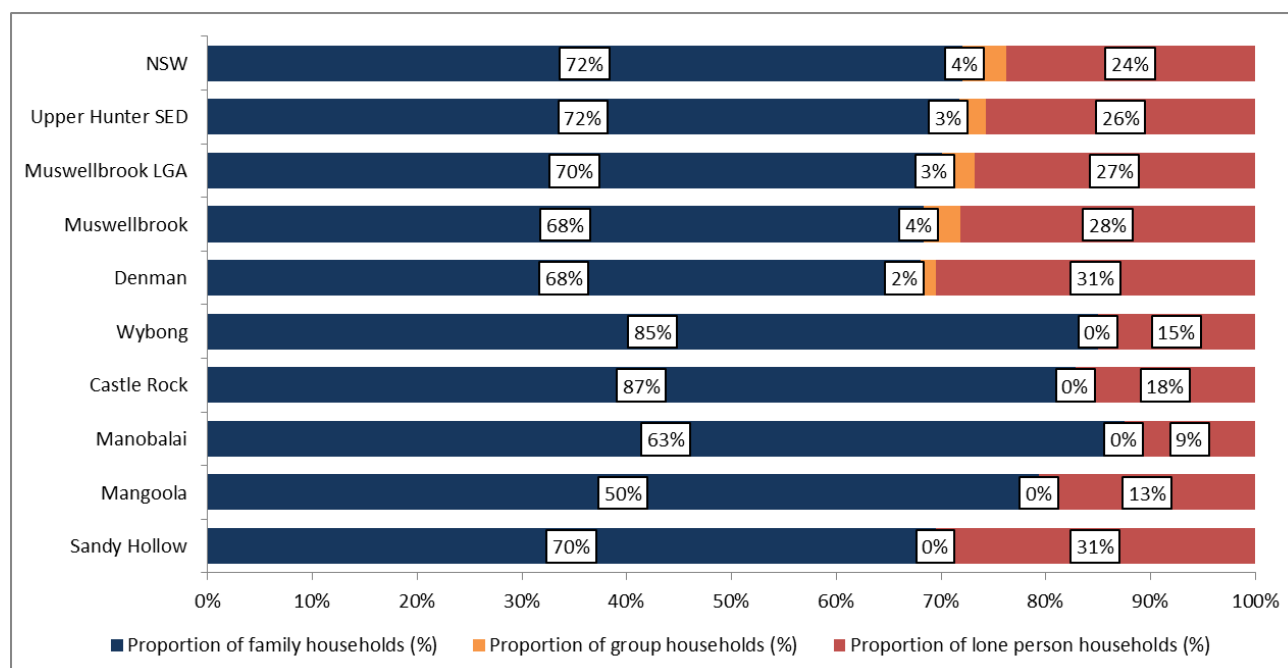


Figure 5.29 Family Composition

Source: 2016 ABS Community Profile

5.6.5.3 Justice and Crime

NSW Bureau of Crime Statistics and Research provides a ranking system for LGAs based on the number of incidents and rates per 100,000 population. This affords comparison with other LGAs in NSW for different categories of crime. **Table 5.15** shows the rankings from 2013 to 2017 for selected top offences - the closer the rank is to 1 the more incidents of crime and the higher the rates per 100,000 people.

In general, across selected offences, Muswellbrook ranks lower than most LGAs in NSW. The Offences where Muswellbrook notably ranked poorly in 2017, includes break and enter dwelling (9/119), drug offences – cannabis (18/119), malicious damage to property (23/119), assault – domestic violence (24/119), and steal from a motor vehicle (24/119).

These rankings have fluctuated over the years, with the arrows in **Table 5.15** indicating an increase or decrease in rank over the past three years. In addition to the offences noted above, the Muswellbrook LGA also displays an upward trend in offences such as liquor and drug related offences.

Table 5.15 Muswellbrook LGA Crimes and Crime Rankings

Muswellbrook LGA Crimes and Crime Rankings	2013	2014	2015	2016	2017	Change In Rank Over 3 Years
	Rank	Rank	Rank	Rank	Rank	
Assault - domestic violence	22	13	31	33	24	↑
highest rank	120	120	119	119	119	
Assault - non-domestic violence	23	54	12	30	31	↓
highest rank	120	120	119	119	119	
Break and enter dwelling	9	12	21	15	9	↑
highest rank	120	120	119	119	119	
Sexual offences	67	46	27	18	31	↓
highest rank	120	120	119	119	119	
Break and enter non-dwelling	22	28	14	16	26	↓
highest rank	120	120	119	119	119	
Steal from a motor vehicle	13	17	16	17	24	↓
highest rank	120	119	119	119	119	
Steal from a retail store	54	18	6	13	30	↓
highest rank	117	118	116	116	117	
Steal from a dwelling	16	14	22	17	43	↓
highest rank	120	120	119	119	119	
Liquor offenses	81	14	95	54	38	↑
highest rank	120	120	119	118	118	
Malicious damage to property	17	22	9	18	23	↓
highest rank	120	120	119	119	119	
Motor vehicle theft	10	14	14	7	27	↓
highest rank	120	119	118	118	119	
Drug offences - cannabis	27	27	20	43	18	↑
highest rank	118	120	119	119	119	

Source: BOCSAR 2018

5.6.5.4 Social Capital Summary

The Muswellbrook LGA shows signs of relatively poor social capital in some areas, as indicated by higher than average rates of mobility, lone person households, single parent families, and higher rates of certain violent and non-violent crimes. However, some of the smaller communities within the LGA showed more positive results on the social capital indicators assessed.

Levels of population mobility within the communities of the Muswellbrook LGA are heightened compared to the NSW state average, particularly in the township of Muswellbrook and the state suburb of Wybong. Given the increased presence of, and reliance on mining, this may reflect the transient workforce associated with employment in the mining industry and other industries such as power station maintenance.

Amongst the study areas, the smaller localities of Manobalai, Denman and Mangoola exhibited high levels of volunteering, indicative of higher overall levels of community participation. While participants reported a strong, close-knit and resilient community, they also identified that this was being impacted by the mining industry which has caused people to relocate away from the area. The Strategic Regional Land Use Plan for the Upper Hunter (DEP 2012) states that the “region’s most valuable asset is its people and the strong communities they form”.

Crime levels are disproportionately high across the Muswellbrook LGA, with notable increases in rates of domestic violence assaults, drug (cannabis) and alcohol offences, and break and enter of dwellings. Whilst theft related crimes, property damage and non-domestic violence related assaults appear to have experienced a decrease over the last three years; rates remain high compared to other LGAs in NSW.

Figure 5.30 provides the overall socio-economic status and level of disadvantage within each community, as determined by the Index of Relative Socio-economic Disadvantage (IRSD) - a SEIFA score prepared by the ABS which ranks areas in Australia according to relative socio-economic disadvantage. A low score indicates a greater degree of disadvantage, with the lowest 10% of areas receiving a decile of one, and the highest, a ten. It should be noted that no comparison can be made between LGAs and State Suburbs on ranking, as rankings are only comparative within each geographic classification. Based on this index, the data indicates that:

- compared to other LGAs within NSW, Muswellbrook LGA exhibits heightened levels of socio-economic disadvantage, falling within the third decile
- all other study areas are similarly disadvantaged. Of the smaller communities, Mangoola, Manobalai and Castle Rock are the least disadvantaged, scoring within the fourth decile
- Denman and Muswellbrook score in the second decile, indicative of higher levels of socio-economic disadvantage across all of the state suburbs assessed.

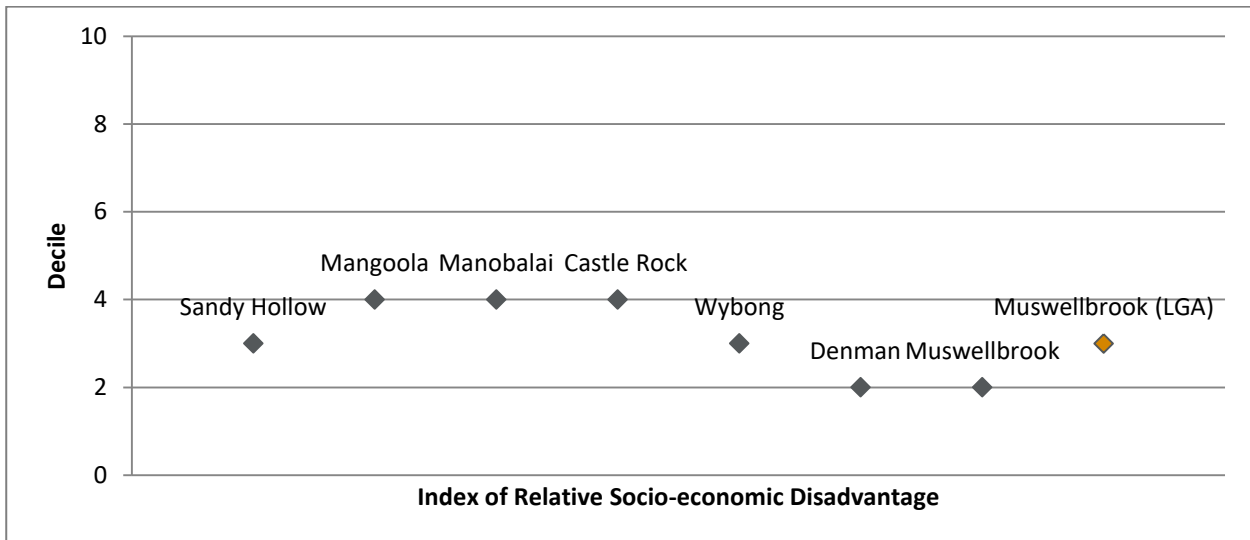


Figure 5.30 Index of Relative Socio-Disadvantage (IRSD)

Source: ABS, SEIFA Indexes 2016

5.6.6 Economic Capital

Table 5.16 provides a summary of the key economic capital indicators for the relevant communities with further discussion regarding these indicators provided in the subsequent sections.

Table 5.16 Summary of Key Economic Capital Indicators for Surrounding State Suburbs, Muswellbrook LGA, Upper Hunter SED and NSW

Indicator	Mangoola	Castle Rock	Wybong	Manobalai	Sandy Hollow	Denman	Muswellbrook	Muswellbrook LGA	Upper Hunter SED	NSW
Median total personal income (\$/weekly)	530	712	556	532	730	590	630	640	613	664
Median total household income (\$/weekly)	762	1,781	1,291	1,125	1,199	1,176	1,331	1,346	1,302	1,486
Median mortgage repayment (\$/monthly)	0	2,041	2,167	0	1,257	1,700	1,668	1,733	1,733	1,986
Median rent (\$/weekly)	180	230	210	250	205	260	250	250	250	380
Labour force participation (15-85 years) (%)	61.1	62.8	51.1	51.6	62.1	57.5	57.9	58.9	58.6	59.2
Unemployment (%)	0.0	3.3	15.2	9.4	0.0	4.2	9.6	8.2	6.4	6.3
Financial stress from mortgage or rent (2016) (%)	-	-	-	-	-	-	-	30.9	-	29.3
Employment in mining (%)	26.1	24.7	27.5	22.6	5.7	21.4	23.2	21.9	15.4	0.9

Source: ABS 2016, PHIDU 2018

5.6.6.1 Industry and Employment

Employment and Labour Participation

Census data indicates an increase in the proportion of the population that is unemployed in the Muswellbrook LGA broadly and in the township of Muswellbrook more specifically over previous Census periods with increases of 3% and 5% reported between 2006 and 2011 (**Figure 5.31**).

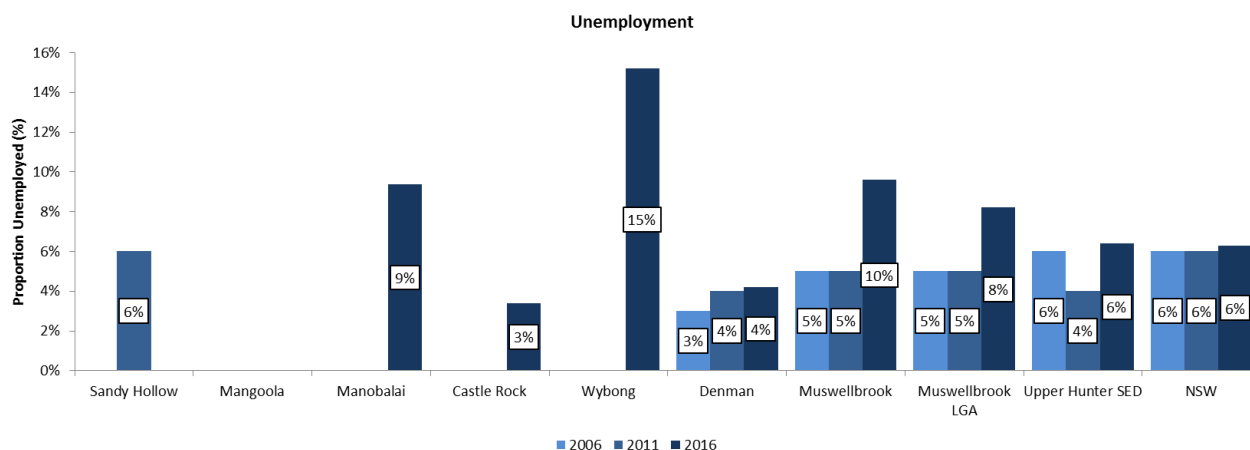


Figure 5.31 Proportion of Population Unemployed (2006, 2011, 2016)

Source: ABS Census (2016) – Community Profiles

In the Muswellbrook LGA, there have been large variations in the unemployment rate, with June (2014) marking the beginning of a sharp increase in unemployment rates in the area (see **Figure 5.32**). Rates peaked in December 2015 at 13%, but have since dropped and appear to be stabilising around 6%. Before the sharp increase, the unemployment rate in the area was around 3.5%.

Considering the unemployment rate (green line) coupled with the work force participation numbers (blue line) and unemployment numbers (brown line), we can see that the sharp unemployment rate increase occurred as a result of a decrease in the labour force, and an increase in the numbers of unemployed. In late 2017 to June 2018 there is an increase evident in both labour force participation and unemployed persons.

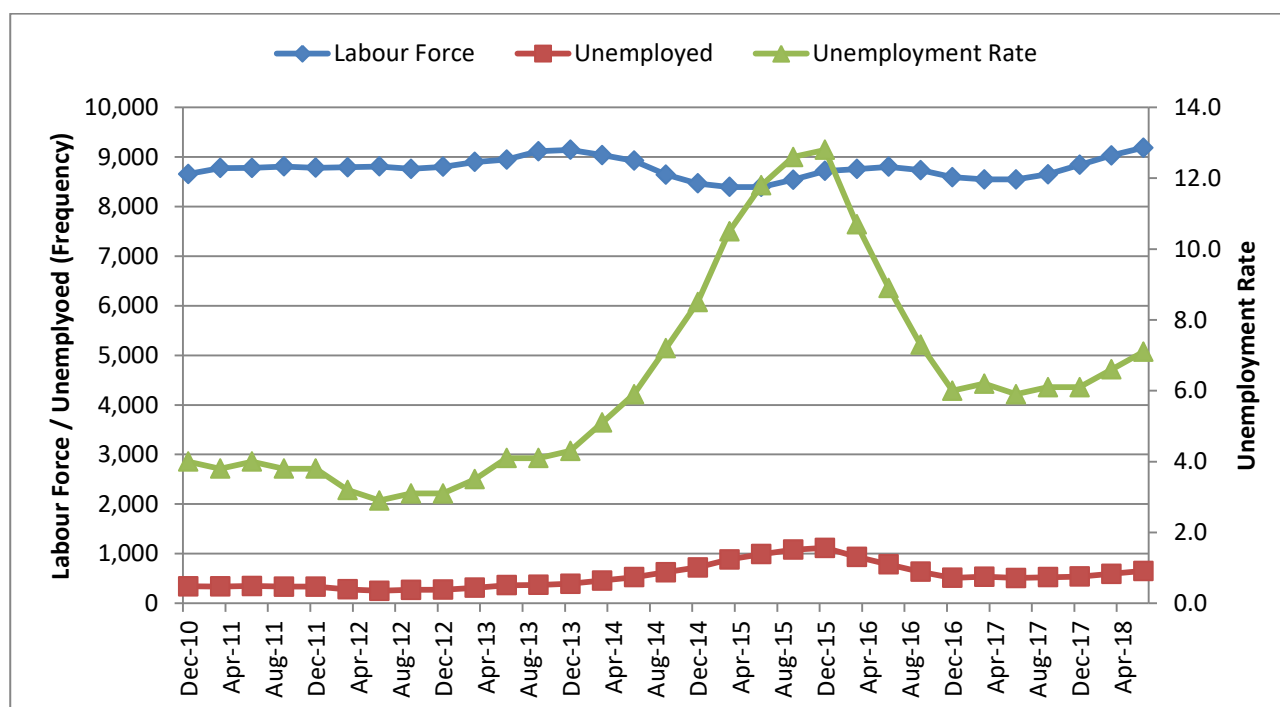


Figure 5.32 Muswellbrook LGA Unemployment Rate December 2010 through to April 2018

Source: Small Area Labour Markets, Department of Jobs and Small Business, Australian Government (2018)

Economic Diversity - Key Industries and Occupations

Muswellbrook LGA is home to a diverse economy with significant industries including coal mining and power generation, viticulture, agriculture, thoroughbred horse breeding and tourism. Mining has been an integral industry to Muswellbrook LGA with underground coal mining commencing in the late 1800s, with a move to more open cut mining in the region occurring in the late 1940s. As noted earlier, there are currently five mining operations in the LGA, Muswellbrook Coal (Idemitsu), Mt Arthur Coal (BHP), Bengalla (New Hope Mining), Mangoola (Glencore) and Mt Pleasant (MACH Energy).

Muswellbrook LGA is well known for its suitability to wine production, and as mentioned in **Section 5.6.3**, hosts a number of major viticulture establishments. The LGA also has a number of prominent thoroughbred horse studs.

Power Stations are also a major industry in the area and AGL owns and operates Liddell Power Station and Bayswater Power Station between Singleton and Muswellbrook. Production from AGL provides approximately 30% of the electricity needed by the population of New South Wales (AGL, 2016), making AGL Australia's largest electricity generator. AGL is also the largest domestic buyer of Hunter Valley coal and employs just over 600 people, most of who live in the Upper Hunter.

The Herfindahl index is a measure of homogeneity/diversity and is used to measure economic diversity. It is calculated as the sum of squares of proportional employment within detailed industry sectors, using ABS INDP4 data (with an index closer to 1 indicating less economic diversity). The Herfindahl index for the Muswellbrook LGA is 0.054, indicating lower levels of economic diversity than the Upper Hunter SED (0.031) and NSW (0.0092) as the score is closer to 1.

All study areas have considerably less industry diversification than the Upper Hunter SED and NSW with Mangoola, Wybong, and Manobalai exhibiting much lower economic diversification (0.680, 0.349, and 0.296 respectively). All these study areas have a higher proportion of industry invested in coal mining.

Table 5.17 Herfindahl Index of Industrial Diversity

	Denman	Castle Rock	Mangoola	Manobalai	Wybong	Sandy Hollow	Muswellbrook	Muswellbrook LGA	Upper Hunter SED	NSW
Herfindahl Index	0.062	0.191	0.680	0.296	0.349	0.082	0.060	0.054	0.031	0.0092

Source: Umwelt 2019

However, index scores for Sandy Hollow, Castle Rock, Mangoola, Manobalai and Wybong should be interpreted with caution; given they are small communities and only have a small number of different industries of employment. Given these small sample sizes, counts for each industry have been randomly adjusted by the ABS for confidentiality. Herfindahl scores can be more robustly interpreted at an LGA level.

Mining was the top industry of employment in Mangoola, Castle Rock, Wybong, Denman, Muswellbrook and the Upper Hunter SED. Agriculture, forestry and fishing was the top industry of employment in Sandy Hollow and Manobalai, with mining still the second largest industry in Manobalai.

In comparison to NSW, it is evident that the mining industry is a dominant force across all of the study communities and the Upper Hunter as a whole. Wybong has the largest proportion of employment in mining (28%), followed by Mangoola (26%) and Castle Rock (25%).

As will be discussed further in **Section 5.7**, increasing economic diversity in the Upper Hunter and the Muswellbrook LGA is a key challenge faced by the NSW Government and the MSC. The Strategic Regional Land Use Plan Upper Hunter (2012) suggests that the dominance of the mining industry (including related industries) places pressure on other industries including the thoroughbred and viticulture industries which have to compete for land, labour and wages.

Table 5.18 Top Three Industries of Employment (2016)

	Sandy Hollow	Mangoola	Manobalai	Castle Rock	Wybong	Denman	Muswellbrook	Muswellbrook LGA	Upper Hunter SED	NSW
Top 3 industries of employment	Agriculture forestry and fishing (13%)	Mining (26%)	Agriculture forestry and fishing (48%)	Mining (25%)	Mining (28%)	Mining (21%)	Mining (23%)	Mining (22%)	Mining (16%)	Health care and social assistance (13%)
	Construction (9%)	Agriculture forestry and fishing (17%)	Mining (23%)	Agriculture forestry and fishing (13.6%)	Agriculture forestry and fishing (20%)	Health care and social assistance (9%)	Retail trade (10%)	Retail trade (9%)	Agriculture, forestry and fishing (11%)	Retail trade (10%)
	Public administration and safety (9%)	Administrative and support services (13%)	Electricity, gas, water and waste services (9.7%)	Construction (10%)	Construction (18%)	Agriculture forestry and fishing (8%)	Health care and social assistance (9%)	Health care and social assistance (8%)	Health care and social assistance (9%)	Education and training 8%

Source: ABS Census Community Profiles – 2016

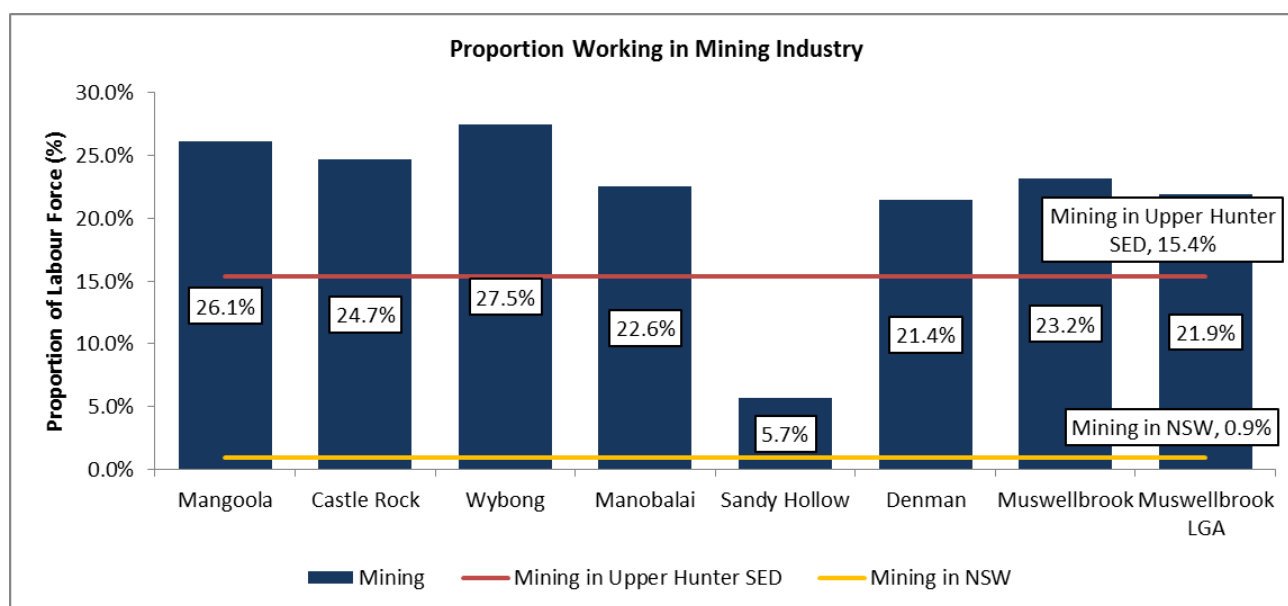


Figure 5.33 Proportion of Workforce Employed in Mining

Source: ABS Census (2016) – Community Profiles

The top three occupations for the Upper Hunter (SED), Muswellbrook LGA, and the study communities proximal to the Project (Manobalai, Wybong and Castle Rock) included machinery operators and drivers and technicians and trade workers. For Castle Rock, Manobalai, Mangoola and the Upper Hunter SED, the other key occupations included Managers. Mangoola also had a higher proportion of labourers and Wybong had a higher proportion of professionals. Such occupational roles are consistent with the emphasis on mining and agriculture, forestry and fishing – the primary industries of employment in each of the study areas (refer to **Table 5.19**).

The data from the ABS shows within the Muswellbrook LGA, the industry where the majority of the technicians and trades workers, machinery operators and drivers are working is in mining. A large proportion of labourers and managers were also employed in the agriculture, forestry and fishing industry (refer to **Table 5.20**).

Table 5.19 Top Three Occupations (2016)

	Sandy Hollow	Mangoola	Manobalai	Castle Rock	Wybong	Denman	Muswellbrook	Muswellbrook LGA	Upper Hunter SED	NSW
Top 3 occupations	Machinery operators and drivers (27%)	Machinery operators and drivers (35%)	Managers (45%)	Technicians and trades workers (26%)	Machinery operators and drivers (30%)	Machinery operators and drivers (20%)	Technicians and trades workers (21%)	Technicians and trades workers (20%)	Technicians and trades workers (18%)	Professionals (24%)
	Labourers (17%)	Labourers (17%)	Machinery operators and drivers (23%)	Machinery operators and drivers (15%)	Technicians and trades workers (23%)	Technicians and trades workers (19%)	Machinery operators and drivers (18%)	Machinery operators and drivers (18%)	Machinery operators and drivers (15%)	Clerical and administrative workers (14%)
	Managers (17%)	Managers (13%), technicians and trades workers (13%)	Technicians and trades workers (9.7%)	Managers (14%)	Professionals (23%)	Labourers (13%)	Labourers (12%)	Labourers (13%)	Managers (14%)	Managers (14%)

Source: ABS Census, Community Profiles

Table 5.20 Muswellbrook LGA Occupations by Industry of Employment (2016)

Occupation by Industry of Employment (%)	Occupation (%)								
	Managers	Professionals	Technicians and Trades Workers	Community and Personal Service Workers	Clerical and Administrative Workers	Sales Workers	Machinery Operators and Drivers	Labourers	Total
Agriculture, forestry and fishing	34	2	3	0	6	1	1	14	7
Mining	8	13	32	0	7	1	65	5	22
Manufacturing	3	2	6	1	5	3	2	9	4
Electricity, gas, water and waste services	2	6	12	0	5	0	3	5	5
Construction	3	1	9	0	5	1	5	10	5
Wholesale trade	4	0	4	0	3	5	2	1	3
Retail trade	13	2	3	0	5	63	1	8	9
Accommodation and food services	7	0	4	19	4	12	1	13	6
Transport, postal and warehousing	4	1	1	0	6	1	9	1	3
Information media and telecommunications	2	1	1	0	1	2	0	0	1
Financial and insurance services	1	1	0	0	8	0	0	0	1
Rental, hiring and real estate services	0	0	1	0	2	5	1	0	1
Professional, scientific and technical services	2	6	4	0	8	0	0	1	3
Administrative and support services	1	1	3	1	4	0	4	15	4
Public administration and safety	4	8	2	15	8	0	1	2	4
Education and training	3	28	1	15	8	0	1	2	6
Health care and social assistance	3	25	1	37	10	1	0	3	8
Arts and recreation services	2	1	2	2	0	0	0	1	1
Other services	2	1	9	5	6	1	1	3	4
Inadequately described/Not stated	4	2	2	0	2	2	3	5	4

Source: ABS Census, Community Profiles

5.6.6.2 Income, Spending and Cost of Living

Across the study communities, the median weekly household income in 2016 was highest in Castle Rock at \$1,781, with the figure falling below the NSW median of \$1,486 in all other communities. Mangoola was especially low when compared to the NSW median at \$762.

With the exception of Castle Rock, and those communities newly gazetted in the 2016 Census (refer to **Section 5.6.2**), all suburbs within the Muswellbrook LGA as a whole have experienced a decrease in median household income since 2011, whilst NSW and the Upper Hunter have seen an increase (refer to **Figure 5.34**).

Figure 5.35 and **Figure 5.36** show that median rent was well below the NSW figure of \$380 per week in all study communities, with the highest reported in Denman at \$260, and the lowest in Mangoola at \$180 per week.

Median rent for a three bedroom house has fluctuated from 2006 to 2016 in Muswellbrook LGA starting at \$210 per week in 2006, to \$340 in 2011 and then back down to \$300 in 2016. This differs from median rent trends in the Upper Hunter SED, where rent was \$230 in 2006 then plateaued at \$320 in both 2011 and 2016. NSW rent has seen a trend upwards from \$265 in 2006 to \$430 in 2016.

As illustrated in **Figure 5.37**, median monthly mortgage repayments have greatly increased across all study areas from 2006 to 2011. While the amounts paid were lower in Muswellbrook LGA (\$1,733) and the Upper Hunter (\$1,733) than in NSW (approximately \$1,990), these payments remained stable from 2011 to 2016.

The highest mortgage repayments for 2016, above the NSW average, were in Wybong and Castle Rock, \$2,167 and \$2,041 respectively. In contrast, the lowest repayments were evident in Manobalai where median mortgage repayments were \$1,125 per month in 2016.

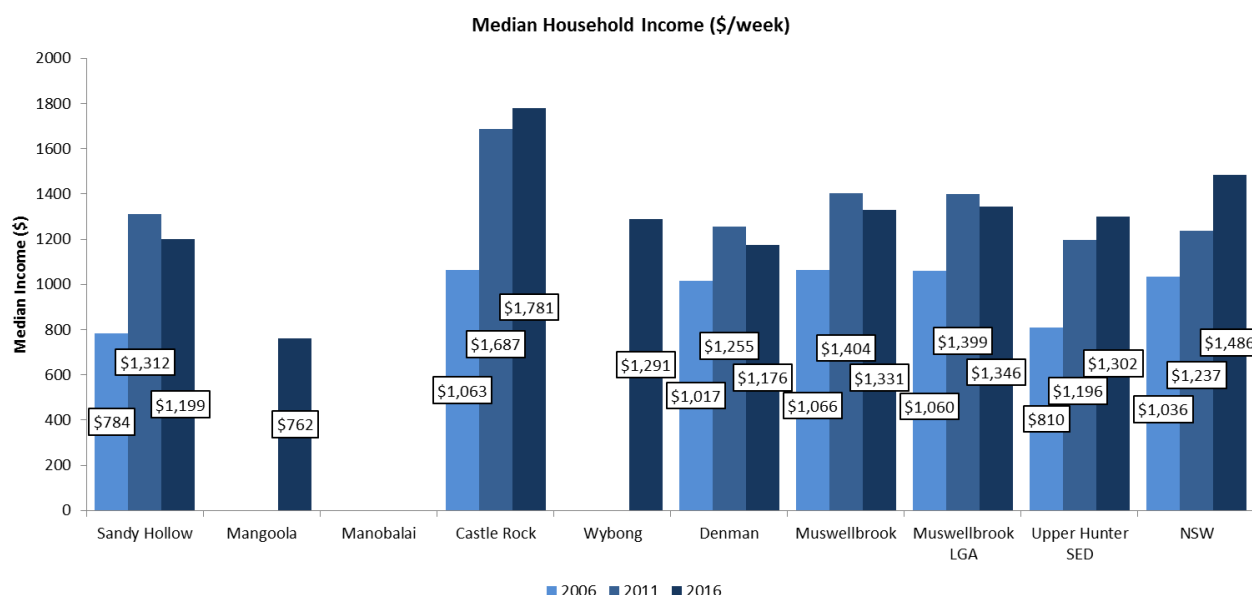


Figure 5.34 Median Weekly Total Household Income

Source: ABS Census (2016) – Community Profiles

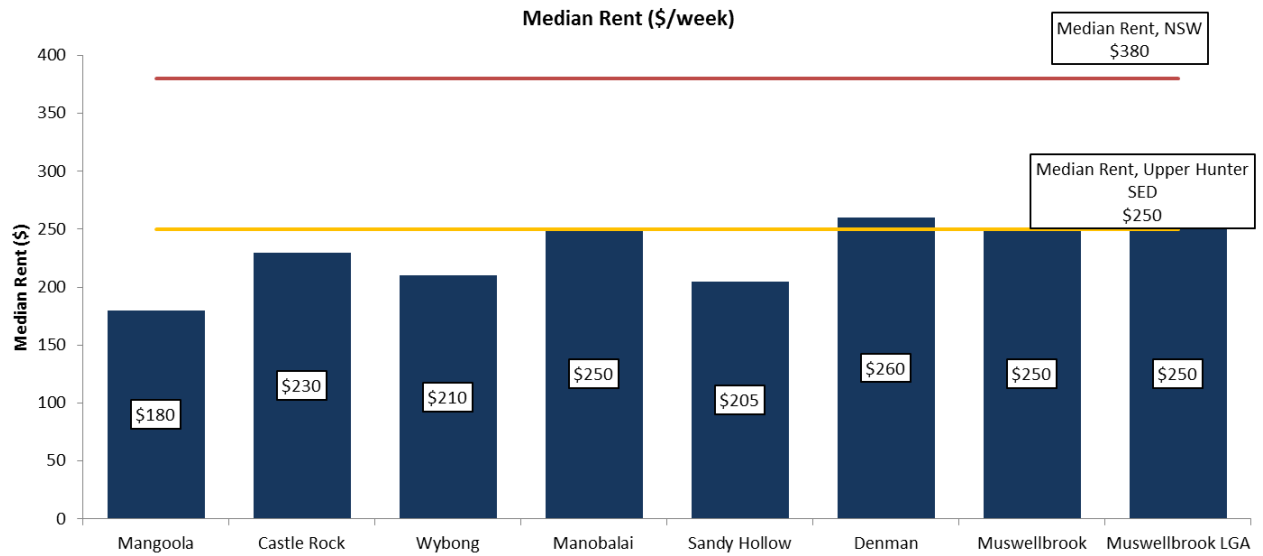


Figure 5.35 Median Weekly Rent (2016)

Source: ABS Census (2016) – Community Profiles

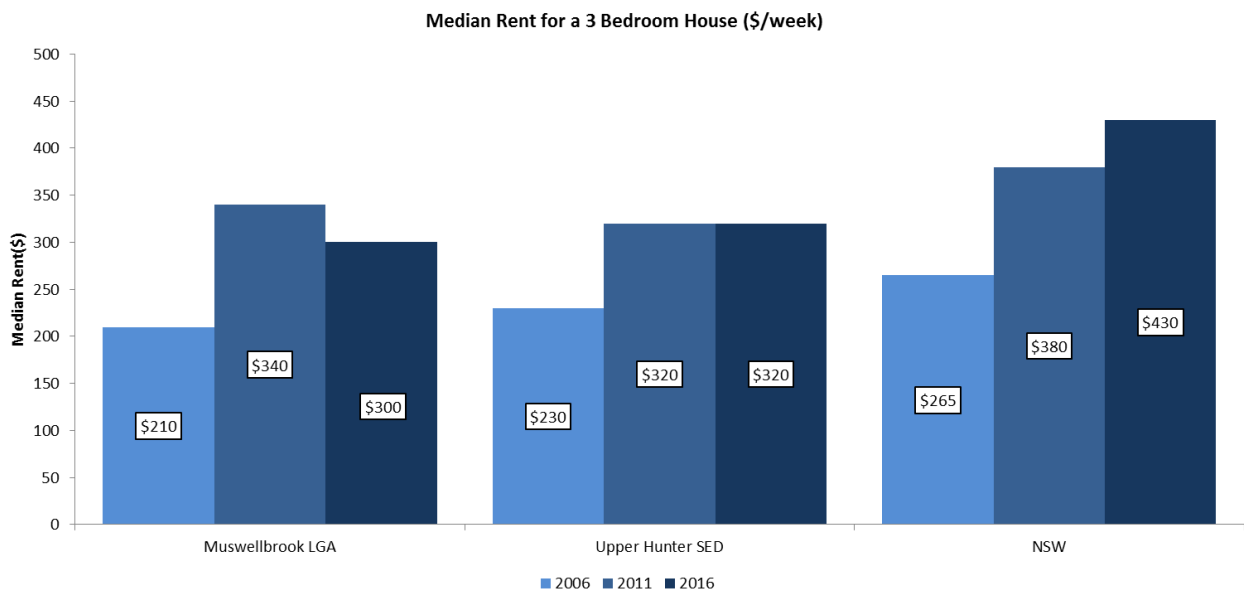


Figure 5.36 Median Weekly Rent for a Three Bedroom House

Source: ABS Census (2006, 2011, 2016) – Community Profiles

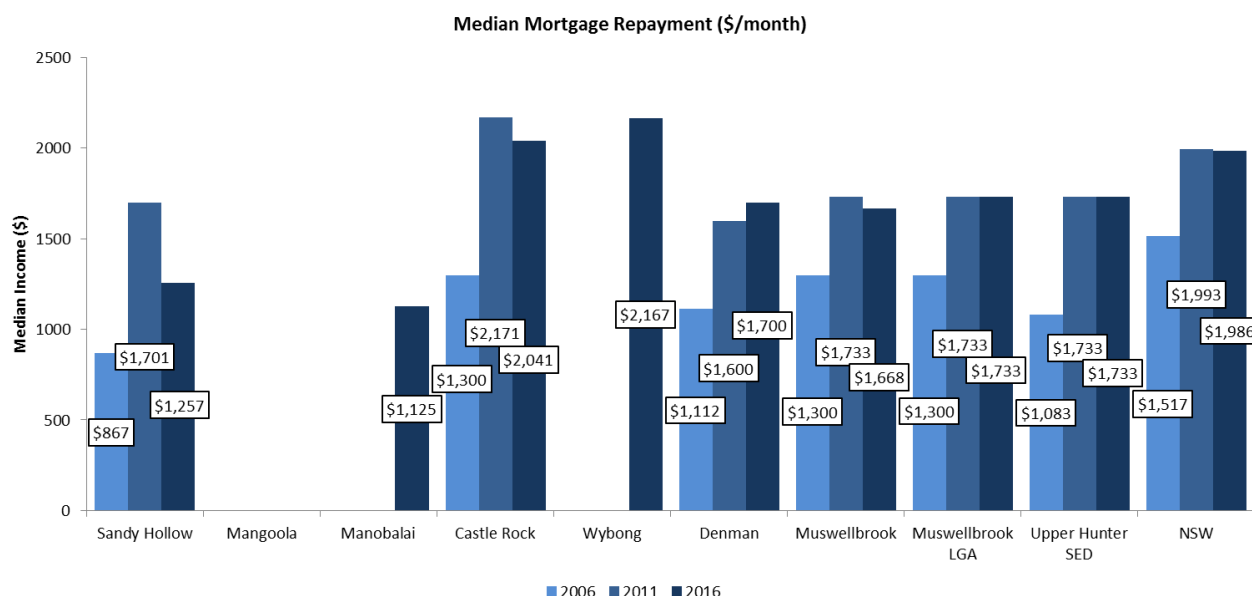


Figure 5.37 Median Mortgage Repayment (2006, 2011, 2016)

Source: ABS Census (2006, 2011, 2016) – Community Profiles

5.6.6.3 Local Business Profile

Analysis of local businesses present in the Muswellbrook LGA, as of June 2017, highlights that:

- the largest numbers of businesses were agriculture, forestry and fishing industry related followed by construction (refer to **Table 5.21**)
- most businesses in the LGA are non-employed (have no employees), followed by businesses with one-four employees (**Figure 5.38**)
- most businesses had a turnover of \$50,000 to less than \$200,000 annually (34%) or \$200,000 to less than \$2M annually (32%)
- only eight out of the total 1032 businesses in the Muswellbrook LGA reported their main industry as the mining industry, despite the industry contributing (in terms of gross revenue), approximately \$2,816M to the Muswellbrook LGA, followed by the electricity, gas, water and waste services industry at \$990M (REMPPLAN, 2019). It should be noted that the ABS count of businesses only includes the main source of industry value added, and does not account for diversity of activities and industry clients. As previously outlined in **Section 4.0**, a range of service providers and industries contribute to the mining sector through provision of services and supplies. These industries are not captured under the ABS count except where mining forms the majority of their activities.

Table 5.21 Number of Businesses by Industry in Muswellbrook LGA

Industry	Count
Agriculture, forestry and fishing	313
Construction	109
Rental, hiring, & real estate services	87
Other services	76
Professional scientific & technical services	63
Retail trade	59
Transport, postal and warehousing	48
Financial and insurance services	48
Accommodation and food services	45
Administrative and support services	42
Health care and social assistance	39
Manufacturing	30
Wholesale trade	25
Arts and recreation services	13
Currently unknown	10
Education and training	9
Mining	8
Information media and telecommunications	4
Public administration and safety	4
Electricity, gas, water & waste services	0
Number of Businesses by Industry - Total	1,032

Source: ABS 2018, 8165.0 - Counts of Australian Businesses, including Entries and Exits, Jun 2013 to Jun 2017
 Available <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/8165.0Jun+2013+to+Jun+2017>

Number of businesses - Muswellbrook LGA

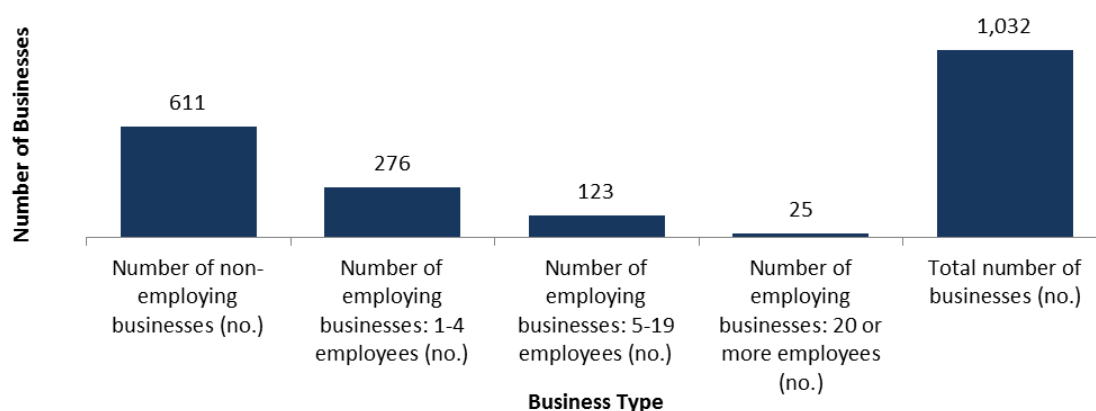


Figure 5.38 Muswellbrook LGA Business Employment Types

5.6.6.4 Economic Capital Summary

Economic diversification is a key strategy for the MSC and for the NSW State Government. Currently, the Muswellbrook LGA is reliant on a number of key industries, with most of the labour force employed in mining and agriculture, primarily as technicians and tradespersons, machinery operators and managers (refer to **Section 5.6.6.1**).

The SEIFA Index Economic Resources (IER) reflects the economic resources of households within an area and includes variables such as household income, housing expenditure (e.g. rent) and wealth (e.g. home ownership). A low score indicates a relative lack of access to economic resources in general, while a high score indicates greater access to economic resources.

Based on this index, and given that the lowest scoring 10% of areas are given a decile of 1, and the highest a 10, the data indicates that:

- Muswellbrook LGA has low access to economic resources, falling in the 3rd decile relative to all LGAs within NSW
- this trend is reflected in each of the study communities, aside from Manobalai which falls within the 6th decile, the highest amongst the study areas
- the townships of Muswellbrook, Sandy Hollow and Wybong scored in the 2nd decile, indicative of a lower level of access to economic resources.

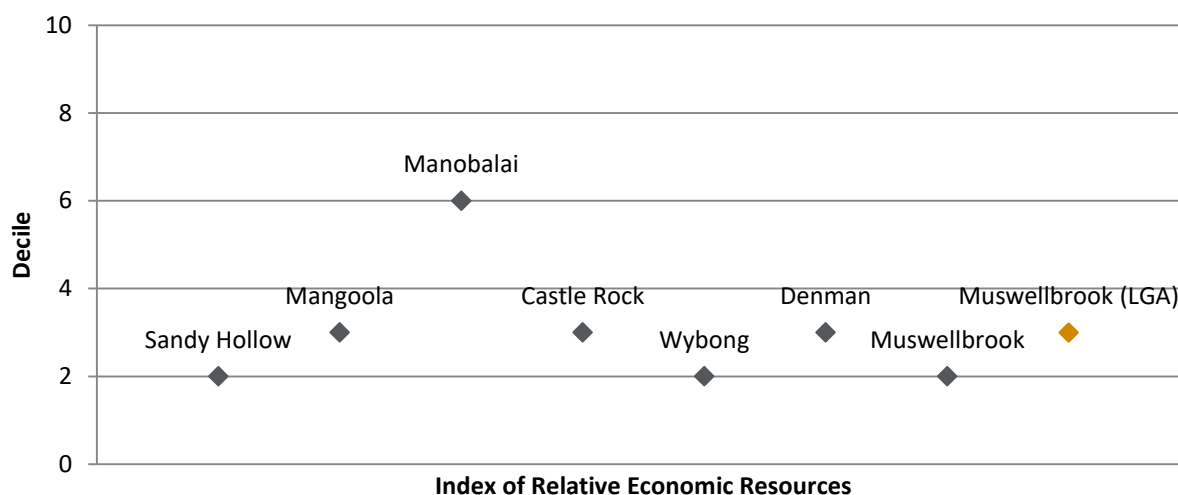


Figure 5.39 Index of Relative Economic Resources

Average incomes, mortgage and rental payments vary across the study communities with Castle Rock and Wybong having higher incomes and living expenses; while Mangoola has a significantly lower average income and lower living expenses. The wider LGA is more comparable to the state average across these indicators.

Unemployment rates vary across the communities, with Wybong, Muswellbrook and Manobalai having the highest proportion of unemployment (higher than the state average) and Castle Rock having the lowest (much lower than the state average).

Mining is the largest industry of employment for the Muswellbrook LGA, followed by retail, health care and the industry sectors inclusive of agriculture, forestry and fishing. All of the study areas have significantly higher proportions of the workforce employed in mining than the state average. When compared to other industries, mining contributes the greatest revenue for the Muswellbrook LGA by a significant margin (REMPLAN, 2019), highlighting the high economic dependence of the region on the industry.

5.6.7 Physical Capital

Table 5.22 provides a summary of the key physical capital indicators, with further discussion regarding these indicators provided in the subsequent sections.

Table 5.22 Summary of Key Physical Capital Indicators for Surrounding State Suburbs, Muswellbrook LGA, Upper Hunter SED and NSW

Indicator	Mangoola	Castle Rock	Wybong	Manobalai	Sandy Hollow	Denman	Muswellbrook	Muswellbrook LGA	Upper Hunter SED	NSW
Total occupied dwellings	24	51	40	32	62	670	4,370	5,715	26,906	2,590,230
Total private dwellings	25	63	67	36	85	784	5,189	6,831	31,688	2,889,057
Separate houses	24	51	40	32	52	592	3,811	5,060	24,608	1,729,820
Owned outright (%)	19	42	41	66	32	37	24	27	36	33
Owned with a mortgage (%)	29	20	8	17	35	33	31	32	34	33
Rented (%)	52	38	51	17	32	27	44	40	30	33
Other tenure type (%)	0	0	0	0	0	3	0	1	1	1
Average household size	2	2.7	2.8	2.7	2.2	2.4	2.5	2.5	2.5	2.6
Number of people per bedroom	0.5	0.8	0.7	0.7	0.8	0.7	0.7	0.8	0.8	0.9
Internet accessed from dwelling (%)	63	71	70	63	81	75	79	79	79	85
Travel to work as a driver (car) (%)	52	68	73	45	70	67	75	72	68	58
Average number of motor vehicles per dwelling	1.8	2.2	2.7	1.8	2.0	1.8	1.7	1.8	1.9	1.7
Rent assistance from the Australian Government (2016) (%)	-	-	-	-	-	-	-	28.7	-	17.4
Overcrowding (%)	-	-	-	-	-	-	-	1.8	-	5

Source: ABS 2016, PHIDU 2019

5.6.7.1 Infrastructure and Services

Physical or built capital includes provision of infrastructure and services to the community. Within this capital area, it is important to consider the type, quality and degree of access to public, built and community infrastructure (including amenities, services and utilities) and housing and accommodation.

Primary elements of physical capital have been assessed in relation to the Muswellbrook LGA and include public amenities and utilities as well as built and transport infrastructure, each of which are summarised below.

Community Infrastructure and Services

The built infrastructure in the Muswellbrook LGA is well developed for a regional area, with a wide range of recreational and open spaces, a number of primary schools, a secondary school (public), tertiary facilities (TAFE and remote university campus) and a well-resourced library.

There are multiple community halls in the region, with the Civic Centre and Library acting as prominent community hubs in the Muswellbrook SSC. The Wybong Community Hall, in particular, was identified during consultation as a key asset to the local community in proximity to the Mangoola Coal Mine operation:

“Wybong Hall is a centre for the community.” “Wybong hall is everything. The Hall is the only thing holding the community together.”

The Muswellbrook LGA also has an established Regional Arts Centre and there are some local annual events held in the locality each year such as the Upper Hunter Wine and Food Affair in Denman and the Upper Hunter Horse Festival in Scone. The locality of Pokolbin, in the lower part of the Hunter Valley, provides local residents and visitors to the Hunter region with access to a range of cultural and recreational activities with ongoing events such as ‘Art in the Vines’ and ‘A Day on the Green’ music performances, the Wollombi Music Festival and regular art/craft markets. MSC has allocated \$3 M towards community improvement projects in Denman.

In a survey conducted by Jetty Research in 2017, commissioned by MSC, approximately 90% of respondents reported that they purchased their groceries in Muswellbrook, and 68% sourced other goods from the township (MSC, 2017). Similarly, during consultation, the majority of participants stated that they purchased groceries and accessed retail services in Muswellbrook, followed by Denman.

Public Utilities and Services

The provision of public utilities is generally good within the LGA; however MSC has stated that the sewerage treatment services are considered under critical strain with current demand already exceeding the technical capacity of the plant and an urgent upgrade currently being investigated. In this regard, the MSC is in the process of upgrading the water treatment plant and recycling centre, and notes in the Community Strategic Plan 2017-2027 (2017) that the Muswellbrook LGA has one of the highest recycling rates in the Hunter and reuses 100% of its waste water.

The Muswellbrook LGA currently accommodates the Liddell and Bayswater Power stations operated by AGL which are capable of supplying 30% of the state’s energy needs. AGL has committed to closing Liddell by 2022. Bayswater will be upgraded to increase its capacity and efficiency (AGL 2018).

At a more local level, participants consulted as part of the SIA, noted that in the area around Wybong there was a need for improved utilities and services including access to water, internet access, television reception, mobile coverage and rubbish removal.

“We’re only on tank water and they’re not going to run pipes to a few houses scattered out here.”

“We had to buy water for the dam 12 months ago – we paid \$1500-\$1600 for it but it didn’t last long, we couldn’t keep that up.”

“They don’t pick up our rubbish – mattresses are dumped, cars. A couple of big skip bins where the community could take all their bulk rubbish. May stop all the litter and dumping of cars etc.”

“Mobile phone coverage gets a bit spotty through there – internet may be sketchy.”

“The community would definitely benefit from mobile service.”

Denman is also considered a community hub, and offers a range of recreational facilities including a golf course, sports centre, tennis court, skate park, BMX tracks, walking track and a pool.

Table 5.23 Summary of Services and Infrastructure – Muswellbrook LGA

Current Service Infrastructure	Muswellbrook LGA
Community	Muswellbrook Pre-school Kindergarten Muswellbrook Childcare Centre Muswellbrook Out of School Hours Care Denman Children’s Centre Upper Hunter Family Day Care Scheme Denman Library Muswellbrook Library Muswellbrook RSL Club Wybong Hall Range of Churches (including Saint Pauls Anglican and Saint Marks in the Wybong area)
Arts, culture and history	Muswellbrook Regional Arts Centre Heritage Town Walk
Education	Refer to Section 5.6.4
Emergency services/Policing	Police Stations (3) Fire Stations Muswellbrook Ambulance Station
Local businesses and service other facilities	3 shopping centres, retail, hospitality and financial service facilities Darley Stud Coolmore Stud Widden Stud

Current Service Infrastructure	Muswellbrook LGA
Accommodation and tourism	Cruickshank Callatoota Estate James Estate Two Rivers Wines Baybrook Motor Inn Centrabrook Motor Inn Hermitage Motel Noahs Mid City Motor Inn Muswellbrook Motor Inn Red Cedar Motel The Remington The John Hunter Motel Wayfarer Motel Denman Motor Inn The Grapevine Motel Denman Serviced Apartments Riverside Cabin and Van Park Denman Van Village Sandy Hollow Tourist Park Baerami Pines Hunter Valley Resort Retreat Homestead Two Rivers Guest Cottage
Transport	Osborn Bus Service, Muswellbrook Muswellbrook Taxis Muswellbrook Train Station (refer to Section 5.6.7.2)
Recreational facilities/ services	Muswellbrook Aquatic and Fitness Centre Highbrook Park Play ground Muswellbrook Indoor Sports Centre Denman Indoor Sports Centre Golf Courses (Denman & Muswellbrook) Simpson Park Tennis Courts (Denman & Muswellbrook) Denman Recreational Area Skate Parks and BMX Tracks (Denman & Muswellbrook) Olympic Park Precinct

The Hunter Regional Plan 2036 and the MSC Community Strategic Plan, identify strategies to continue to maintain Muswellbrook as a regional centre. This will include continued growth of the service, education, retail and commercial sectors within the Muswellbrook LGA.

Health

The Muswellbrook LGA has a number of hospitals and health services that also offer some specialist care. The Muswellbrook District Hospital is the largest of 6 hospitals in the Upper Hunter region. Smaller hospitals and health services in the region include Brook Medical Centre located in Muswellbrook, the Denman Hospital, Denman Medical Centre, and the Merton Court Aged Care facility in Denman. The nearest major referral hospital is the John Hunter Hospital in Newcastle is a 145 km drive from Muswellbrook.

The majority of participants consulted stated that they access health services in either Muswellbrook or Denman, with a smaller number stating that they travelled to Newcastle, Scone, Central Coast or Sydney for these services. However, a number of participants also identified the need for greater access to health services (including both General Practitioners and specialists) within the area.

There are four primary aged care facilities located in Muswellbrook. These facilities provide services involving home care, transitional care for those coming out of hospital, respite care, and residential aged care. Calvary Muswellbrook Retirement Community has 22 independent living units, Mount Providence Village 37 beds and Merton Court has 17 beds.

According to PHIDU, the Muswellbrook LGA has 50 residential aged care places per 1,000 persons over the age of 70 years, less than the NSW average of 83.4 (**Table 5.26**).

The Muswellbrook Shire Council Community Strategic Plan (2017-2027) identifies the need to facilitate the expansion of existing aged care facilities as a strategy to achieve increased social equity and inclusion (MSC, 2017).

Table 5.24 Primary Health and Medical Facilities

Location	Facility	Services
Muswellbrook LGA	Muswellbrook District Hospital (Public)	<ul style="list-style-type: none"> Between 50 and 99 beds Units: Domiciliary care, emergency department, Hospice care, maintenance renal dialysis, obstetrics services, oncology
	Denman Hospital (Public)	<ul style="list-style-type: none"> Less than 50 bed allocations Units: Emergency department, Hospice care, Nursing home care
	Brook Medical Centre	General Practice care, emergency treatment, obstetric care, surgical services
	Denman Medical Centre	General Practice

Source: MyHospitals

Table 5.25 Aged Care Services

Location	Facility	Services
Muswellbrook LGA	Calvary Muswellbrook Retirement Community	Provides residential aged care with 22 independent living units
	Integrated living (Muswellbrook)	Provides a range of support services including aged care in the home, transition care, wellness centre
	Mount Providence Village	37 beds Services include: Palliative care, post-operative care, respite care
	Merton Court	Small nursing home with 17 beds, provides residential aged care

Table 5.26 Aged Care Places

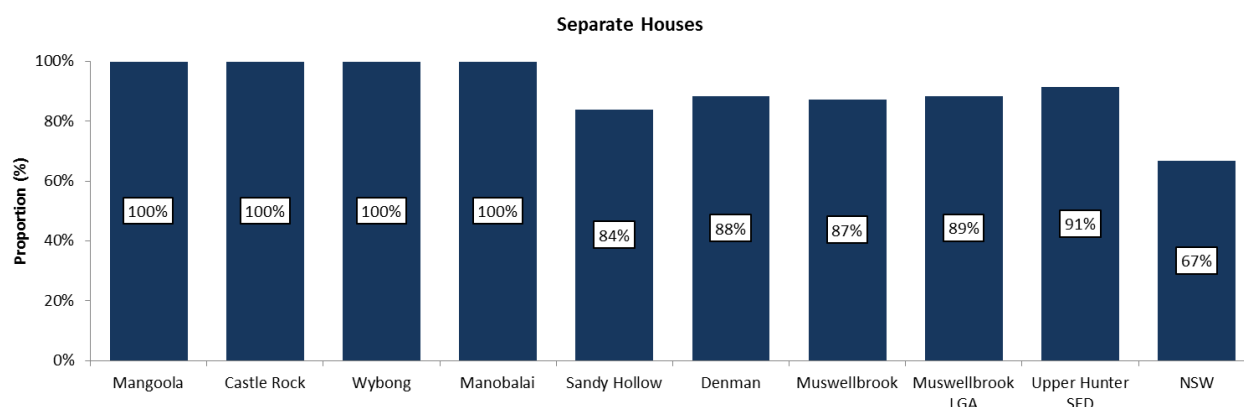
Indicator	Muswellbrook LGA	NSW
Residential aged care places per 1,000 population aged 70 years and over	50.0	83.4

Source: PHIDU 2018

Housing

Reflective of the rural location, the majority of dwelling types are separate houses, particularly within the areas of Mangoola, Castle Rock, Wybong and Manobalai (refer to **Figure 5.40**).

As Muswellbrook LGA has grown, it has seen a slight decrease in the number of free-standing houses, which can be explained by the increase to residential buildings labelled as semi-detached, row or terrace house, townhouse etc. (refer to **Table 5.27**). The Strategic Regional Land Use Plan Upper Hunter (2012) also states that there is a need for more diverse housing options in the region particularly as there is a decreasing number of persons per household and a lack of private rentals to accommodate the mining workforce.


Figure 5.40 Separate Houses as a Proportion of Dwelling type

Source: ABS Census (2016) – Community Profiles

Table 5.27 Separate Houses as a Proportion of Dwelling Type

Proportion Of Occupied Private Dwellings that are Separate (Free-Standing) Houses	2006	2011	2016
Mangoola (%)	-	-	100
Castle Rock (%)	97	100	100
Wybong (%)	-	-	100
Manobalai (%)	-	-	100
Sandy Hollow (%)	100	98	84
Denman (%)	86	87	88
Muswellbrook (%)	87	88	87
Muswellbrook LGA (%)	93	89	89
Upper Hunter SED (%)	90	92	91
NSW (%)	70	70	67

Source: ABS census - community profiles (2006, 2011, and 2016)

Property ownership types fluctuate dramatically across each study area. Muswellbrook LGA proportionally has more occupied private dwellings that are rented, than are owned outright or with a mortgage, which may be due to the fluctuations in the mining workforce.

A high proportion of rental properties were also found in Mangoola and Wybong which is indicative of the high number of mine owned properties in that area (refer to **Figure 5.41**). In Wybong, Mangoola and Castle Rock, approximately 49%, 28% and 11% of properties (respectively) are owned by Mangoola.

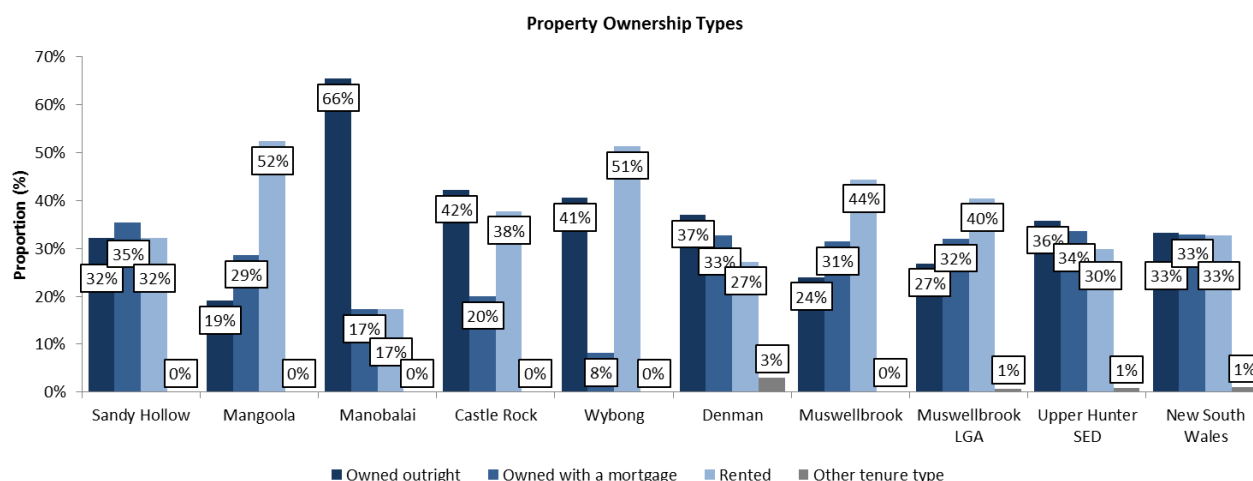


Figure 5.41 Property Ownership Types

Source: ABS Census (2016) – Community Profiles

As shown in **Figure 5.42** the majority of the study areas rental arrangements are through a local real estate agent. The two exceptions to this include Sandy Hollow and Manobalai, where the largest proportion of rentals are through other means (Rented 'Other' includes: Person not in same household, housing co-operative, community or church group, and other landlord type).

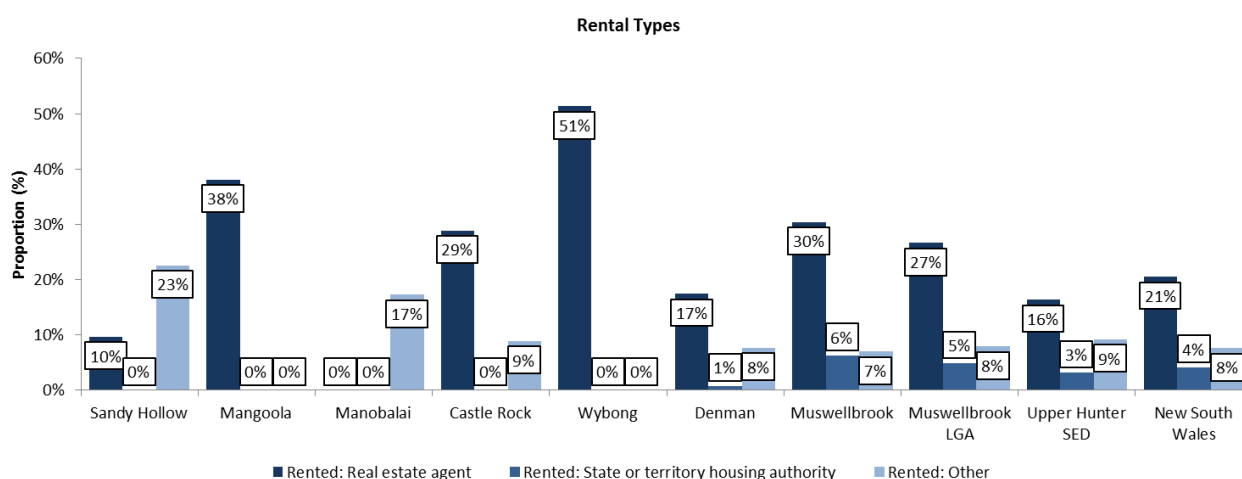


Figure 5.42 Rental Types

Source: ABS Census (2016) – Community Profiles

Figure 5.43 compares the proportions of properties that were owned outright at the 2011 census compared to 2016. The data indicates that there has been a slight decrease in properties owned outright in the Muswellbrook LGA from 28% to 27% respectively across the time period. It is interesting to note that Denman and Castle Rock show an increase from 34% to 37%, and 36% to 42% respectively.

Proportions of properties owned with a mortgage have also seen a decrease across each of the study communities, with the exception of Sandy Hollow. Sandy Hollow saw an increase from 23% in 2011 to 35% in 2016; although this may be explained by the changes in ABS boundaries for the area (refer to **Figure 5.44**).

NSW saw an increase of 2% in rentals from 2011 to 2016, this was mirrored in the Muswellbrook LGA; however the Muswellbrook LGA had a much larger proportion of rentals overall. A decrease in the proportion of rentals was most evident in Sandy Hollow, followed by Denman and Castle Rock (refer to **Figure 5.45**).

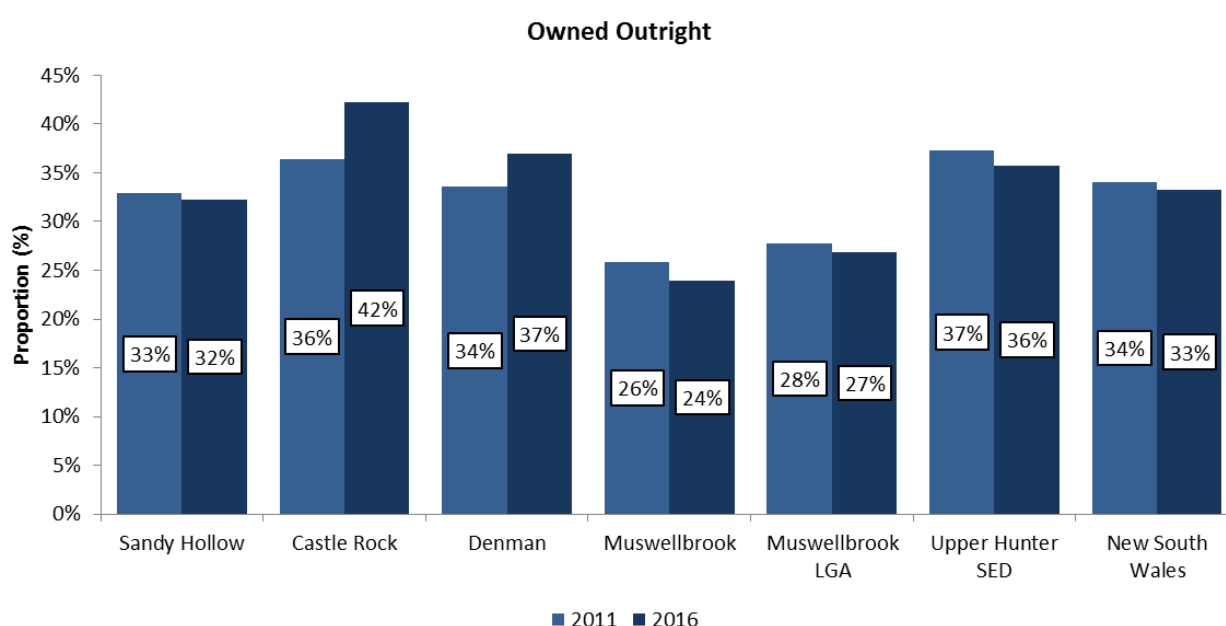


Figure 5.43 Properties Owned Outright

Source: ABS Census (2016) – Community Profiles

Note: Data not supplied for Mangoola, Manobalai and Wybong, given that data is only available for 2016.

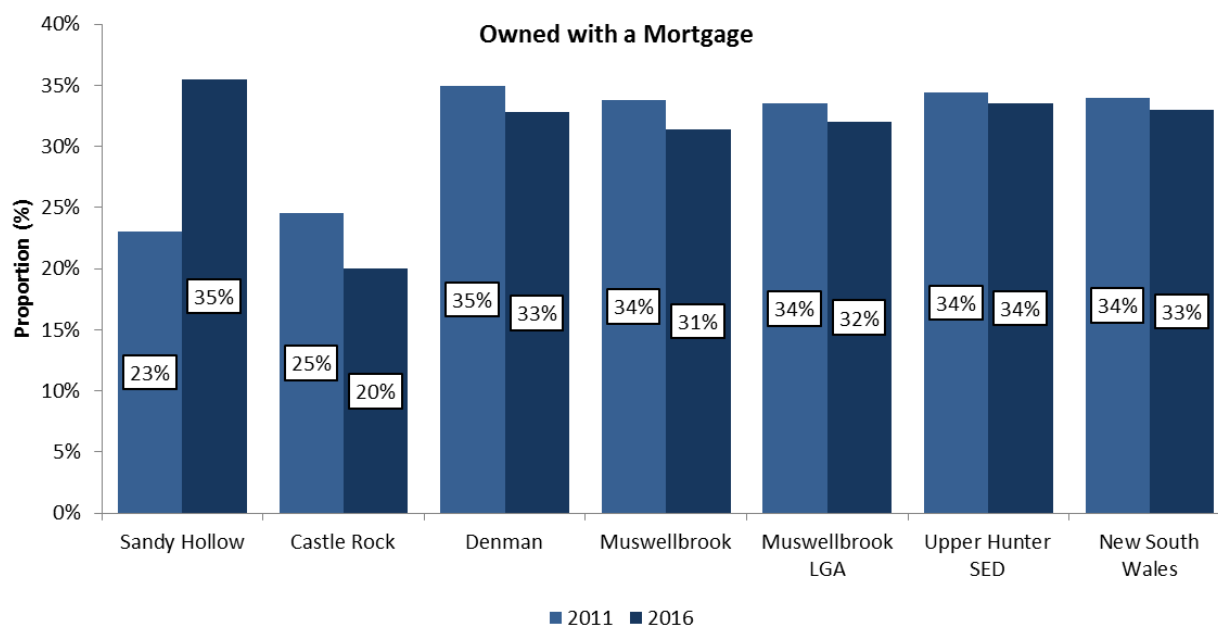


Figure 5.44 Properties Owned with a Mortgage

Source: ABS Census (2016) – Community Profiles

Note: Data not supplied for Mangoola, Manobalai and Wybong, given that data is only available for 2016.

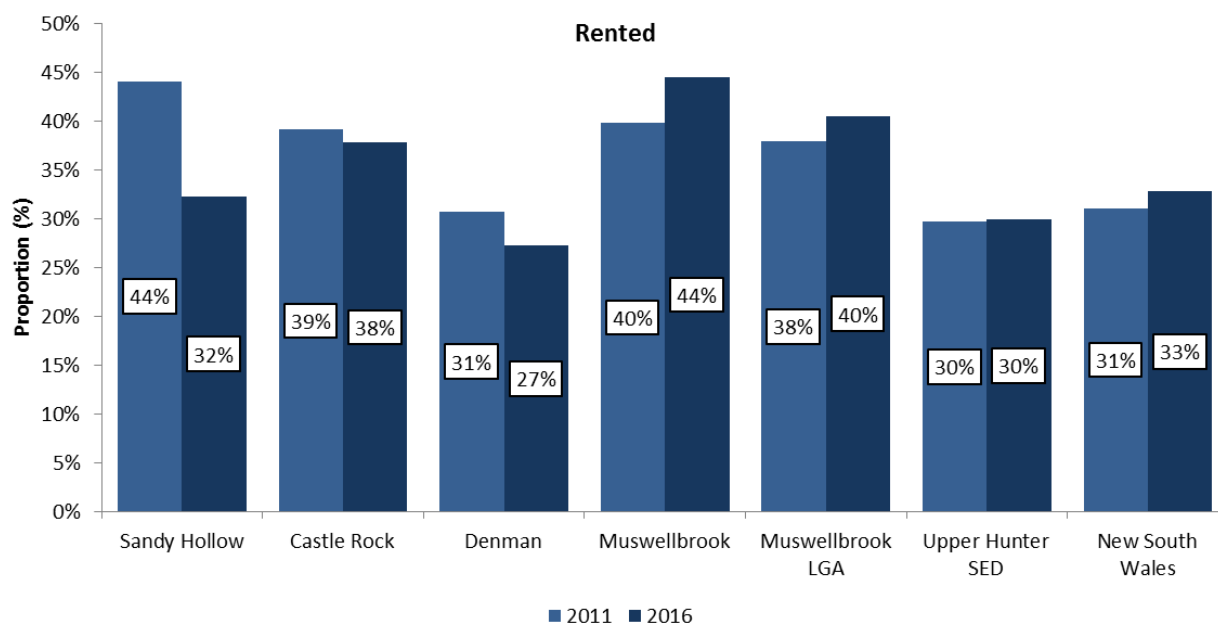


Figure 5.45 Rented Properties

Source: ABS Census (2016) – Community Profiles

Note: Data not supplied for Mangoola, Manobalai and Wybong, given that data is only available for 2016.

Table 5.28 provides a breakdown of rental types for 2011 and 2016. The largest increases can be seen in the township of Muswellbrook and the Muswellbrook LGA for real-estate agents. Decreases to proportions were seen across all study areas for occupancies being rented from ‘state or territory housing authority’ and ‘other’ means. The Muswellbrook Shire Council’s Community Strategic Plan (2017) highlights that while the LGA has over 450 social housing dwellings; there has been a shift to private ownership which has caused instability in the market.

For most study areas, the average household size is lower than the NSW state average of 2.6 persons, with Mangoola and Sandy Hollow being notably lower at 2.0 and 2.2 respectively. Three communities displayed an exception to this trend, with Wybong averaging 2.8 persons per household, and Castle Rock and Manobalai both averaging 2.7 persons.

In terms of overcrowding, Muswellbrook LGA fares considerably well, with 1.8% of households reporting overcrowding compared to 5% reported in NSW. The residents of Muswellbrook LGA also report heightened reliance on government financial support, with 28.7% of households receiving financial support from the Australian Government compared to 17.4% in NSW.

Table 5.28 Proportion of Rental Types

Occupied Private Dwellings - Rented	Rented: Real Estate Agent		Rented: State or Territory Housing Authority		Rented: Other	
	2011	2016	2011	2016	2011	2016
Sandy Hollow (%)	15	10	0	0	25	23
Mangoola (%)	-	38	-	0	-	0
Manobalai (%)	-	0	-	0	-	17
Castle Rock (%)	25	29	0	0	14	9
Wybong (%)	-	51	-	0	-	0
Denman (%)	16	17	2	1	12	8
Muswellbrook (%)	23	30	7	6	8	7
Muswellbrook LGA (%)	21	27	6	5	10	8
Upper Hunter SED (%)	14	16	4	3	11	9
New South Wales (%)	18	21	4	4	8	8

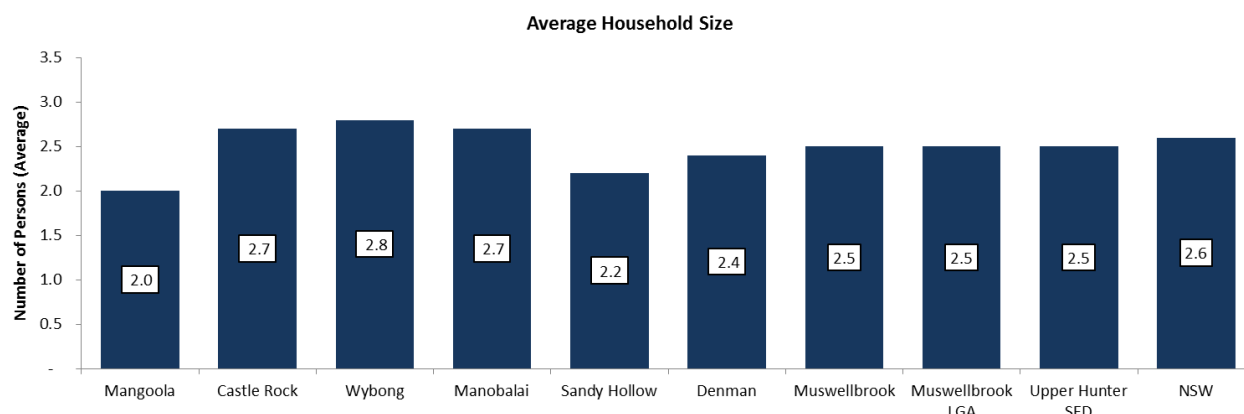


Figure 5.46 Average Household Size

Source: ABS Census (2016) – Community Profiles

From the housing data available, the suburbs of Muswellbrook, Denman and Sandy Hollow are all low demand markets (Realestate.com, 2019). Housing prices in the township of Muswellbrook have fluctuated since 2011 ranging from a spike of \$333,000 in 2013, to a dip in 2016 of around \$260,000 (realestate.com, 2019).

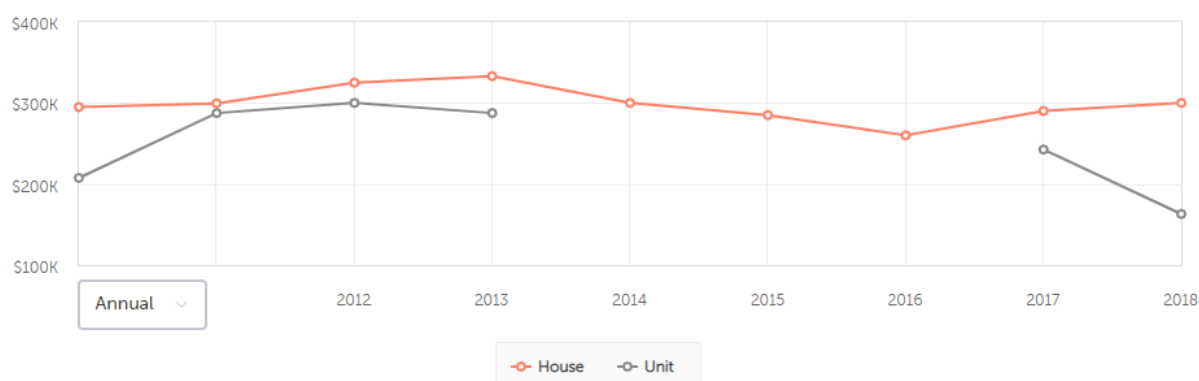


Figure 5.47 Muswellbrook SSC Median Housing Prices 2010-2018

In 2018, TEW Property Consultants undertook a comprehensive analysis of sales evidence of rural lifestyle properties and independent rural living units within Muswellbrook LGA and other localities which are proximate to coal mining operations. The report found:

- the rural/residential lifestyle properties of up to 5.0 ha (50,000 m²) have generally followed the movement in value as represented for residential properties (land size up to 1,500 m²) for Singleton, Muswellbrook and the Upper Hunter LGAs
- the majority of assets increased in value over the 13 years in the range 25% - 50% over that market value as was evidenced in 2005 (TEW, 2018)

- the most significant impacts in respect to changes in Market Value coincide with the decline in the coal industry from late 2012, represented by land values adduced at July 2013. Conversely, there is a marked increase in both volume of sales and median values cited for 2016/2017, which coincide with improved confidence in the coal sector notwithstanding that the locality (as at 2017-2018) is in the grip of a significant drought.

Table 5.29 and **Table 5.30** indicate the Median house prices and number of sales from 2006 to 2018 and the percentage increase or decrease in prices for Muswellbrook and Denman.

Table 5.29 Median House Prices and Sales: 2006 – 2018 in Muswellbrook SSC

Suburb	LGA	Year	No. of Sales	Median House Prices	% Increase /Decrease
Muswellbrook	Muswellbrook	2006	255	\$ 242,500	8.79
		2007	272	\$ 247,500	4.01
		2008	224	\$ 259,000	4.76
		2009	252	\$ 261,500	0.87
		2010	274	\$ 287,000	9.90
		2011	40	\$ 286,500	-0.28
		2012	292	\$ 324,000	13.05
		2013	214	\$ 329,000	1.62
		2014	124	\$ 295,000	-10.28
		2015	112	\$ 273,000	-7.52
		2016	160	\$ 259,000	-5.06
		2017	191	\$ 286,913	0.65
		2018	248	\$ 295,720	4.72

Source: TEW Property Consultants (2018)

For Muswellbrook, the most significant annual increase appears to have occurred in the period 2011-2012 where there was a 13.05% increase in median house prices reaching \$329,000 in 2013. This was followed by the largest drop in prices over the time period, where the median house price fell 10.28% in 2014 followed by another drop of 7.52% in 2015. The median house price for the suburb of Muswellbrook reached a low of \$259,000 in 2016.

Table 5.30 Median House Prices and Sales: 2006 – 2018 in Denman

Suburb	LGA	Year	No. of Sales	Median House Prices	% Increase /Decrease
Denman	Muswellbrook	2006	28	\$ 209,500	10.25
		2007	32	\$ 247,000	8.10
		2008	30	\$ 262,000	6.13
		2009	26	\$ 267,500	2.10
		2010	3	\$ 294,000	9.79
		2011	-		

Suburb	LGA	Year	No. of Sales	Median House Prices	% Increase /Decrease
		2012	26	\$ 400,000	-1.18
		2013	26	\$ 337,500	6.25
		2014	9	\$ 319,500	-5.28
		2015	13	\$ 287,500	-10.00
		2016	15	\$ 283,000	-1.61
		2017	31	\$ 318,196	1.79
		2018	32	\$ 310,610	0.81

Denman saw significant increases in median house prices from \$209,500 in 2006 to \$400,000 in 2012. This was mirrored by a decrease from 2013 to 2016 where prices fell from \$337,500 to \$283,000. It is important to note that the sample size of houses sold each year was relatively low, particularly in 2014 where only nine properties were sold.

Conclusions made by TEW (2018) indicate that the most significant impacts in respect to changes in Market Value coincide with the decline in the coal industry as occurred from late 2012 which is represented by land values adduced as at July 2013. Conversely, there is a marked increase in both volume of sales and median values evident for 2016/2017 which coincides with improved confidence in the coal sector.

5.6.7.2 Transport

The region relies heavily on private road transport (with limited bus transport). Over 76% of employed persons, who reside in the Muswellbrook LGA, travel to work by car (72% as a car driver and 5% as a car passenger) (ABS, 2016).

The New England Highway, on which the town of Muswellbrook is situated, is the primary inland route linking Brisbane and Sydney. Denman and Sandy Hollow are situated on the Golden Highway, which is developing as a major freight route between the Central West and the Port of Newcastle. The junction between these two major regional routes lies within the Muswellbrook LGA bounds.

Muswellbrook has good road connections to the east (New England Highway and Hunter Expressway), south-east (Bylong Valley Way), south-west (Golden Highway) and north-west (New England Highway) making it a regional focus in the Upper Hunter.

In regard to rail, the Shire of Muswellbrook (LGA) hosts the junction of the Main Northern railway line and the Ulan Valley railway line. It also contains the junction of passenger and freight rail corridors to the north-east and freight only corridors to the south-west (MSC 2019b). Media articles have identified MSC's plan to build three rail noise walls along their rail line after securing funding from the state government; the Council securing funding for the New England Highway upgrade from the Saving Lives on Country Roads Program; and the RTA's preferred plan for the New England Highway Muswellbrook Bypass.

On a more local level, landholders in the vicinity of the MCCO Project Area identified road upgrade and maintenance as a key need for the community:

"I think the mine has done a lot for the community but the roads are a big issue – we need better quality roads because of all the mine traffic, dozers and dump trucks etc."

Participants also acknowledged that improved transport services were required in the Wybong area, in particular buses that allowed access to services and education.

“Used to have a regular school bus – but this one drops the kids a kilometre from their house. That has to be disruptive to them to catch one bus in the morning and a different bus in the afternoon.”

Almost all of the general freight in the region is transported via road along the New England Highway from Muswellbrook to the power stations, and onto the coal loader at the Port of Newcastle which is Australia’s largest coal export port (Transport for NSW, Ports and Freight Strategy, 2018).

In regard to passenger transport, there are regular rail passenger services connecting Muswellbrook with Newcastle, Sydney and Brisbane on the Sydney Trains and NSW TrainLink networks. Intercity trains depart daily from the Muswellbrook train station. Media reports also identify plans to increase the number of passenger trains between the Upper Hunter and Maitland.

Although Muswellbrook is serviced by bus and train transport options, a 2015 survey conducted by the MSC found that most community members reported seldom using public transport, with 84% reporting only rare use of buses, and 58% rarely using trains. Fifty five percent of those surveyed indicated they would use the services if they occurred more frequently (MSC, 2015).

5.6.7.3 Physical Capital Summary

Physical Capital within the Muswellbrook LGA is generally at a high level for a rural regional centre of its size, particularly in terms of public infrastructure, as well as in relation to the provision of facilities and services primarily operated by the MSC.

While there are a number of primary schools that service the region, there is only one high school. Students who do not attend this high school must travel outside the Muswellbrook LGA.

MSC and the Federal Government have developed an initiative to address the issue around the lack of tertiary educational facilities in the Muswellbrook LGA. As stated in **Section 5.6.4.4.2** the Upper Hunter Tertiary Education Centre was opened in Muswellbrook, a \$6.1M learning hub that houses both the Hunter Institute of TAFE Campus and a regional campus of the University of Newcastle.

The area hosts a range of arts and cultural activities, with plans for further expansion and diversification.

Access to health and other community services is primarily in Muswellbrook and Denman, with residents of the surrounding areas having to commute into town.

The market analysis study on median house prices conducted by TEW Property Consultants (2018) concluded that the most significant impacts in respect to changes in market value coincide with declines and booms in the coal industry. Whereby increases in both volume of sales and median values coincided with increased confidence in the coal market.

Transport and housing remain key issues for the area, along with the need to increase capacity of aged care residences and services.

Specific areas of improvement include:

- diversification of arts and cultural centres in the region
- increasing options for secondary education

- increasing aged care places and service availability
- public transportation services.

5.7 Regional and Local Issues and Aspirations

This section utilises a number of data sources to build a picture of community issues, values and aspirations at the regional level, the Muswellbrook LGA level and at a local state suburb level. Data used in this section has been sourced from:

- NSW State Government and MSC strategic plans
- local, regional and state media (refer to **Appendix 3**)
- outcomes of the Community Capitals Analysis (as detailed in **Section 5.6**).

5.7.1 Regional Issues and Opportunities

This section summarises the outcomes of a review of relevant Regional strategic plans and documents to highlight some central challenges and opportunities for the Upper Hunter Region and the Muswellbrook LGA for the future.

Relevant strategic planning documents that have been sourced for this review at a Council level include:

- Hunter Regional Plan 2036, NSW Government DPE (October 2016)
- The Upper Hunter Economic Diversification Project: Action Plan (2017)
- Upper Hunter Mining Dialogue (2018).

The Hunter Regional Plan 2036: The Hunter Regional Plan 2036 is a 20 year blueprint for the future of the Hunter Region which is intended to guide the NSW Government's land use planning priorities and decisions from 2016 to 2036. The vision for the Plan is:

The leading regional economy in Australia with a vibrant new metropolitan city at its heart

Muswellbrook LGA is located in the centre of the Upper Hunter Valley and is the predominant location for the state's power generation. It is also a key location for coal mining activities and an important agricultural area. Muswellbrook is well placed to enhance its role as an administrative centre and a centre of educational excellence in the Upper Hunter.

Some of the key issues for the region and LGA outlined in this Plan include:

- a need to diversify the economy within the Upper Hunter, and while mining, energy production, viticulture and thoroughbred horses will continue to underpin the economy and employment in the region; growth is expected in other industries including manufacturing, creative industries and defence
- increase tourism
- protect and enhance agricultural land
- protect biodiversity

- improve provision of housing stock
- improve employment opportunities
- support Muswellbrook as a strategic centre of the Hunter region.

Upper Hunter Economic Diversification Project: The Upper Hunter Economic Diversification Project: Action Plan (2017) works within the implementation framework established by the Department of Planning and Environment for the Hunter Regional Plan 2036 and delivers on the government commitment in that plan to diversify the economy in the Upper Hunter.

The Upper Hunter Economic Diversification Project Action Plan was prepared by the NSW Government's Hunter Regional Leadership Executive in 2017, and sets renewed priorities for encouraging new business and employment opportunities and sustainable regional transition for the region over the next 20-25 years. This renewed economic diversification initiative for the Upper Hunter is shifting the debate from land use conflict towards regional economic priorities based on comparative and competitive advantages, leading to opportunities to strengthen industry investment.

Key directions for economic development and industry transition outlined in the Hunter Regional Plan 2036 include:

- enhance connections to Asia-Pacific through global gateways
- transform the productivity of the Hunter
- protect and enhance agricultural productivity
- manage the ongoing use of natural resources
- diversify and grow the energy sector
- plan for greater land use compatibility.

Upper Hunter Mining Dialogue: The Upper Hunter Mining Dialogue was established in 2011 by the region's mining companies in response to community concerns about infrastructure and services, mine rehabilitation, water and quality (NSW Minerals Council 2018).

Many communities in the Hunter Valley have been built around the economic activity generated by mining, which continues to comprise a significant part of the Hunter's economy, injecting six billion in wages and payments to local businesses each year. The Dialogue recognises that the growth of mining in the Upper Hunter results in economic growth but also brings with it some challenges and impacts for the local community.

The Dialogue brings together local mining companies, community and business leaders, environment groups, residents, regulators and other industries to better understand and address these challenges together. The Dialogue is a collaborative effort addressing local community priorities by understanding its concerns and then working together to develop and implement solutions.

5.7.2 Summary of Issues and Opportunities – Upper Hunter Region

A summary of the issues and opportunities presented in these three key documents is provided in **Table 5.31**. The issues and opportunities have been categorised according to each of the community capitals. Many of the issues identified under these themes align with indicators of strength and vulnerability highlighted in the community capitals profile.

Table 5.31 Summary of Issues and Opportunities – Upper Hunter Region

Capital Area	Issues	Opportunities
Natural capital	<ul style="list-style-type: none"> • Competing land uses - agriculture, mining and residential and the need to balance the development of these with the protection of the natural environment and sustainability of this for future generations • Mining and coal seam gas extraction have the potential to impact on water quality in aquifers and surface water resources through their operations and treatment and disposal of their wastewater with possible flow on effects for environmental and human health • Retaining resource base for mining, agricultural and energy industries to allow for ongoing opportunities for economic, and hence social, development • Maintaining or enhancing opportunities for environmentally responsible mining and coal seam gas development to deliver reliable energy supplies to the state that reduce energy costs and carbon emissions and that generate economic wealth to the state • The natural environment in the region is under ongoing pressure from development including an increase in mining and coal seam gas development hence potentially impacting ecological values that are appreciated by the community and visitors • Approximately 13 threatened ecological communities listed under NSW legislation are known to occur in mining areas and as such are likely to be impacted reducing biodiversity values • Residential and commercial development in a number of towns and villages in the region is already constrained by flood zones reducing ability to increase housing stock 	<ul style="list-style-type: none"> • Region has significant natural resources including coal and coal seam gas and productive agricultural land • The Upper Hunter region comprises just 2% of the area used for grazing and cropping in NSW but provides a much greater contribution to the NSW production of many agricultural commodities, particularly equine, viticulture, milk and beef cattle • Geologically, much of the region is underlain by the Hunter coalfield, a world class coal deposit with approximately 60 coal seams containing predominantly high quality thermal coals and lesser quantities of soft coking (steel making) coals • The coal seam gas industry in the Upper Hunter Region is in its infancy, with no commercial production at this stage. However, the region contains large reserves of coal seam gas and is highly prospective for conventional gas • The region contains other mineral deposits as well as numerous extractive resource operations (e.g. hard rock, gravel) • The region includes a significant portion of the Hunter-Central Rivers Catchment Management area, and a smaller proportion of both the Hawkesbury Nepean and Macquarie River catchments • The Upper Hunter region retains substantial natural heritage with nearly 60% of the area blanketed with native bushland
Physical capital	<ul style="list-style-type: none"> • Growth of the mining sector will require infrastructure provision and upgrades (in particular, rail, roads, pipelines and ports) • Need for more diverse housing options due to decreasing persons per household and population growth 	<ul style="list-style-type: none"> • Resources for Regions: a \$160M program aimed at assisting communities to address local infrastructure issues and the local impact on mining affected communities

Capital Area	Issues	Opportunities
	<ul style="list-style-type: none"> Increased activity and population growth will impact on infrastructure provision in local communities Regional cumulative impacts on infrastructure due to the growth of mining and related industries in the region also possibly resulting in impacts on the provision of services and infrastructure Demand for social infrastructure, including health, community and social services, education and emergency facilities is likely to increase as a result of population and economic growth and any existing deficiencies are likely to be compounded At times, the lack of private rental accommodation in areas such as Singleton and Muswellbrook has forced miners and mining companies to occupy hotels, motels and other forms of short term accommodation resulting in potential shortages for general tourism 	
Economic capital	<ul style="list-style-type: none"> Further replacement of jobs through robotics and automated production is predicted with possible implications for employment The planned closure of Liddell and Bayswater power stations in 2022 and 2035 respectively will have long term implications for land, water and jobs – one quarter of region’s licensed water, 10,000 hectares of strategic land and infrastructure Open cut mining operations are fragmenting highly productive industries and lands and reducing the potential to further develop these industries to create diversity of employment Land use uncertainty is impacting on investment in diversified industries Uneven economic growth and distribution of economic resources (including wages) due to the mining industry 	<ul style="list-style-type: none"> Upper Hunter is dominated economically by coal mining and agriculture which contributes strongly to the regional, state and national economy Coal is NSW’s most significant commodity export - worth over \$14 billion in 2010/11. Approximately 60% of this coal is mined in the Upper Hunter region The Upper Hunter region is one of the State’s most fertile and productive agricultural areas. The agricultural industry is worth around \$5.9 billion annually to the regional economy, with dairy, horse breeding, viticulture and beef cattle industries being major contributors Tourism is an important industry for the region There is also significant employment in the region in service industries such as health care, education, retail and local administration Benefits of the mining industry include lower unemployment, higher average incomes and increased business investment Working with existing sectors to encourage further investment and growth

Capital Area	Issues	Opportunities
Social capital	<ul style="list-style-type: none"> Urban, regional and mining growth has the potential to further impact on known and yet to be identified cultural heritage 	<ul style="list-style-type: none"> Upper Hunter region is rich in both Aboriginal and historic cultural heritage Many communities are set within and around the Hunter's natural features and open space, which are among the region's best assets. The quality of these areas and the ability to access them gives residents an array of unique experiences and the opportunity for a healthy lifestyle Strong sense of regional identity and community
Human capital	<ul style="list-style-type: none"> A perceived decrease in human health and wellbeing (physical and psychological) is one of the key issues raised by some community members regarding the perceived impacts from coal mining in the Upper Hunter region Greater volumes of coal production mean an increase in potential air, noise and water pollution Aging population: 25% of the region's population will be over 65 years by 2036 	<ul style="list-style-type: none"> The Government is further developing a cumulative impact assessment methodology to address the challenges of cumulative impacts of the mining industry on community health and wellbeing (e.g. dust, noise and visual amenity) (Hunter Regional Plan 2036)

5.7.3 Local Issues and Opportunities – Muswellbrook Shire Council

This section summarises the outcomes of a review of relevant MSC strategic plans and documents to highlight the challenges and opportunities relevant to the Muswellbrook LGA.

Relevant strategic planning documents that have been sourced for this review at a MSC level include:

- MSC Community Strategic Plan 2017-2027
- Muswellbrook Town Centre Strategy (2016)
- Muswellbrook 2020: Online and telephone survey with residents (March 2011)
- MSC Further Improvement plan (2015)
- MSC Long Term Financial Plan 2017-2027
- MSC Section 94A Development Contributions Plan (2010)
- MSC West Denman Section 94 Contributions Plan (2012).

The regional planning documents and studies have identified a number of key issues and aspirations from an LGA perspective, including:

- economic and industry diversification and job creation identified as key needs by community members and the MSC
- Muswellbrook to be developed as a regional centre as part of the Community Strategic Plan 2017-2027 and Muswellbrook Town Centre Strategy (2016)
- a host of community needs identified, especially with regard to physical (roads, public transport and amenities, community centres, recreational facilities) and service infrastructure (youth services, housing, higher education, health etc.)
- catering for an aging population by increasing the availability of seniors housing and aged care facilities. The ABS (2011, 2016) data also indicates an ageing population within the Muswellbrook LGA, with an increase of males and females aged between 45 years and over. The largest increase is evident in those aged 65 years and older.

A summary of issues and opportunities is provided in **Table 5.32**. These issues and opportunities have been categorised by Community Capital area.

Table 5.32 Summary of Issues and Opportunities – Muswellbrook LGA

	Issues	Opportunities
Natural capital	<ul style="list-style-type: none"> Community concerns about final voids and rehabilitation 	<ul style="list-style-type: none"> Agricultural and farming land suitable for viticulture and livestock Coal resources
	<ul style="list-style-type: none"> Substantial areas of the Muswellbrook LGA have been disrupted for agriculture and coal mining Low native vegetation connectivity 	<ul style="list-style-type: none"> 43% of the Muswellbrook LGA is national park (Wollommi National Park World Heritage Area) Connectivity of vegetative offsets that resource projects are required to generate
	<ul style="list-style-type: none"> Rivers and creeks in poor ecological condition Low rainfall and water security 	<ul style="list-style-type: none"> Club to Club project developed which aims to rehabilitate the section of Muscle Creek between Muswellbrook Golf Club to the Muswellbrook District Workers Club Reliable water supply from Goulburn and Hunter Rivers
	<ul style="list-style-type: none"> MSC acknowledges that the Muswellbrook LGA makes one of the largest contributions to global warming of councils in NSW as a result of its economic reliance on thermal coal and thermal coal power generation 	<ul style="list-style-type: none"> Increased rehabilitation opportunities once mines in the Muswellbrook LGA reach end of operation Solar panels installed at MSC sites
Physical capital	<ul style="list-style-type: none"> Shift to private ownership of social housing has caused instability in the market 	<ul style="list-style-type: none"> Over 450 social housing dwellings
	<ul style="list-style-type: none"> Physical infrastructure does not match regional centre status Ageing water and wastewater infrastructure 	<ul style="list-style-type: none"> Well maintained road and rail infrastructure, proximity to major domestic markets (Sydney and Newcastle) and, through the Port of Newcastle, international markets One of the highest recycling rates in the Hunter and reuses 100% of its waste water Upgrade to water treatment plant (currently underway) and recycling centre
	<ul style="list-style-type: none"> Residents continue to want improvements in roads and community infrastructure 	<ul style="list-style-type: none"> Upgrades to aquatic centre, footpaths and cycleway. Well maintained community infrastructure helps support residents in maintaining quality of life and helps sustain economic and population growth
Economic capital	<ul style="list-style-type: none"> Concerns about limited economic diversity in the Muswellbrook LGA 	<ul style="list-style-type: none"> Viticulture, equine, and agricultural industries MSC's 2018-2019 budget has a strong focus on economic diversity

	Issues	Opportunities
	<ul style="list-style-type: none"> • Subject to the volatility of the coal market which in the past has had enormous social ramifications including rapid rise in unemployment • Concerns about planned mine and power station closures in the coming 10 years 	<ul style="list-style-type: none"> • Strong coal and power generation industry, however this will start to change with the closure of power stations
	<ul style="list-style-type: none"> • Community concern about future job opportunities and unemployment 	<ul style="list-style-type: none"> • Growth of the town will generate demand for jobs and services that will help offset some of the long term decline in the local thermal coal and power industries
	<ul style="list-style-type: none"> • Difficulties associated with transition to increase automation and rise in demand for knowledge and creative skills 	<ul style="list-style-type: none"> • Upper Hunter Innovation Hub in development • MSC has also been working closely with the University of Newcastle to encourage research and innovation in industries in which the Muswellbrook LGA has a comparative advantage – such as rural based renewable energy development and intensive agriculture
Social capital	<ul style="list-style-type: none"> • Certain social groups (including people from culturally diverse backgrounds, young people, people experiencing social exclusion or people who are geographically isolated) are not included in community decision making processes 	<ul style="list-style-type: none"> • Community pride • Range of community events held in the Muswellbrook LGA e.g. Upper Hunter Wine and Food Affair, St Helliers Heavy Horse Field Days, Bottoms Up Festival etc.
	<ul style="list-style-type: none"> • Perception of youth crime 	<ul style="list-style-type: none"> • Residents feel safe in their homes
	<ul style="list-style-type: none"> • Youth and older people seen as disadvantaged groups that require improvements in services and facilities • Concentrations of social disadvantage and isolation with restricted access to services (for example Wollombi Road residential area has a history of socio-economic and geographical disadvantage) 	<ul style="list-style-type: none"> • Wollombi Road Residential Precinct Master Plan which offers a way for revitalisation of this neighbourhood (supported by NSW Government)
	<ul style="list-style-type: none"> • Desire to increase the attractiveness and liveability of the Muswellbrook LGA 	<ul style="list-style-type: none"> • Rich and vibrant array of cultural activities • Muswellbrook LGA has a range of arts, culture and music bodies/groups • Muswellbrook LGA has a range of festivals and cultural events

	Issues	Opportunities
Human capital	<ul style="list-style-type: none"> University research centre developed in conjunction with the University of Newcastle Upper Hunter Conservatorium of Music New town centre TAFE campus for business courses 	<ul style="list-style-type: none"> Improvements in the availability of tertiary education facilities
	<ul style="list-style-type: none"> Need for improved health and medical services 	<ul style="list-style-type: none"> Muswellbrook District Hospital recently completed a significant upgrade of their facilities in the town, providing a larger, more suitable emergency department
	<ul style="list-style-type: none"> An aging population and changing retirement patterns Lack of supported and integrated seniors' living 	<ul style="list-style-type: none"> Smaller aging population when compared to other LGAs
	<ul style="list-style-type: none"> Social disadvantage and social exclusion – particularly in Muswellbrook South 	<ul style="list-style-type: none"> In May 2017 MSC adopted a Disability and Social Inclusion Strategy
	<ul style="list-style-type: none"> Need for enhanced support for, and increased access to, early childhood education, childcare facilities and the associated children's services The community seeks more youth and aged care facilities and services 	<ul style="list-style-type: none"> Mt Arthur Coal has developed the Muswellbrook Children's Services Strategic Plan which has identified that all children require care and early learning opportunities prior to the commencement of school

Source: Muswellbrook Shire Council Community Strategic Plan 2017-2027; Muswellbrook 2020: Online and telephone survey with residents (March 2011); and Muswellbrook Shire Council Long Term Financial Plan 2017-2027.

5.8 Social Profile Summary

Inherent within the SIA process is the need to identify and empower vulnerable groups. The World Health Organisation (WHO) defines vulnerability as:

“the degree to which a population, individual or organization is unable to anticipate, cope with, resist and recover from the impacts of disasters (significant change).” (WHO, 2002)

Both the WHO and more recently, Vanclay (2015) has outlined characteristics of vulnerable individuals/groups as:

“Children, pregnant women, elderly people, malnourished people, and people who are ill or immunocompromised, that are particularly vulnerable when a disaster strikes, and take a relatively high share of the disease burden associated with emergencies.” (WHO, 2002)

and;

“Although vulnerability is context- dependent and can include a very wide range of groups, typically the concept includes: Indigenous peoples, ethnic minorities, migrants, disabled people, the homeless, the poor, those struggling with substance abuse, and isolated elderly people.” (Vanclay, April 2015).

From the Social Profile analysis undertaken above, it is possible to assess key areas of community resilience and risk in the Muswellbrook LGA and the study areas closer to the project (Wybong, Manobalai, Mangoola and Castle Rock) and from this, potentially vulnerable groups within these communities who may be particularly at risk of being impacted by the MCCO Project, particularly given that MSC has already identified that certain social groups (including people from culturally diverse backgrounds, young people, people experiencing social exclusion or people who are geographically isolated) have traditionally not been included in community decision making processes.

These key findings are summarised below in **Table 5.33** and **Table 5.34** and in the text following these.

Table 5.33 Community Capitals Assessment Summary – Key Community Strengths and Challenges (Muswellbrook LGA)

Muswellbrook LGA			Potential Implications for Vulnerable Groups
Strengths	Abundant and diverse natural capital, including diversity of natural resources, abundance of coal resources, prime agricultural lands, and national parks and reserves	Aging population	Relevant aged cohorts in the population and potential vulnerabilities in relation to access to relevant services
	Significant population growth (Upper Hunter region only)	Below average rates of completion of Year 12 with high numbers only completing Year 10	Those with low education qualifications having reduced capacity to access employment benefits associated with project development – may require an increased focus on employment pathways
	Large proportion of working age demographic	Below average levels of post-school education (with the exception of Certificate level qualifications)	
	Predominantly family households	Poorer health indicators and outcomes and limited access to health services	Potential for further exacerbation of existing health issues should impacts from project development not be appropriately managed
	Establishment of Tertiary education presence for region	Low cultural diversity	Potential loss of cultural heritage
	Higher proportions of Indigenous engaged in post-secondary education than NSW	Muswellbrook ranks poorly compared to other NSW LGAs in break and enter dwelling, drug offences, assault - domestic violence, and malicious damage to property, steal from motor vehicle	Increased crime due to population change in the locality
	Housing costs – lower than NSW	Higher than average proportions of single parent families	Potential for single parent families to be more susceptible to changes in the local economy i.e. house prices, unemployment, poor health, access to services etc
	Housing stress comparable to NSW	Large proportion of lone person households	
	Rent for 3-bedroom house decreased from 2011-2016	Decreases in full-time employment	Long term unemployed have reduced capacity to access economic benefits related to project development, i.e. employment – may require an increased focus on employment pathways
	Dominance of mining industry	Higher unemployment than NSW	

Muswellbrook LGA				Potential Implications for Vulnerable Groups
	employment and associated occupations			
	Large industries (mining, agriculture, power stations) to carry economy		Lack of economic diversity in the region	
	Comparatively good provision of utilities and built transport infrastructure for rural area		Transport options are limited	Possible further restrictions on access to services and infrastructure for vulnerable groups such as the aged or those with poor health
			Social and community services under strain	As per above

Table 5.34 Community Capitals Assessment Summary – Key Community Strengths and Challenges (Proximal Communities: Wybong, Manobalai, Mangoola, Castle Rock)

Proximal Areas – Wybong, Manobalai, Mangoola and Castle Rock				Potential Implications for Vulnerable Groups
Strengths	High proportion of people in working age bracket (Wybong only)	Challenges	Rural population decline	Loss of rural population and potential reductions in sense of place and community
	Equivalent proportion completed post-secondary education in NSW (Wybong only)		Aging populations	Relevant aged cohorts in the population and potential vulnerabilities in relation to access to relevant services
	Low mobility in the last 5 years (Manobalai, Mangoola and Castle Rock)		Large proportion of population in older age brackets (Manobalai, Mangoola and Castle Rock)	
	Higher proportions of married couples and lower proportions of single parent families and lone person households		Below average rates of completion of Year 12 with high numbers only completing Year 10	Those with low education qualifications having reduced capacity to access employment benefits associated with project development – may require an increased focus on employment pathways
	Higher household incomes (Castle Rock only)		Below average levels of post-school education (with the exception of Certificate level qualifications)	

Proximal Areas – Wybong, Manobalai, Mangoola and Castle Rock			Potential Implications for Vulnerable Groups
	Median rent well below NSW average	Low cultural diversity	Potential loss of cultural heritage
		High levels of mobility in past 5 years (Wybong only)	Loss of rural population and potential reductions in sense of place and community
	More dwellings owned outright (excluding Mangoola)	Unemployment rates are high (Wybong and Manobalai)	Long term unemployed have reduced capacity to access economic benefits attached to project development, i.e. employment – may require an increased focus on employment pathways
		Low proportions of dwellings owned outright (Mangoola)	Non homeowners may be particularly vulnerable to further changes in rental markets/rental prices
		Transport options are limited	Possible further restrictions on access to services and infrastructure for vulnerable groups such as the elderly or those with poor health

Data collected from a variety of different primary and secondary data sources e.g. ABS statistics and review of other relevant social indicators, regional reports, government strategic plans, media reporting and consultation with key stakeholders, has provided a solid foundation and understanding of the social context in which the MCCO Project is located. This data presents some of the issues of concern and challenges facing communities in the locality and has been used as a basis, where possible, to assess the social impacts of the MCCO Project on the neighbouring communities of Wybong, Manobalai, Castle Rock and Mangoola, and the broader Muswellbrook LGA (refer to **Section 7.0**).

From this review, it is possible to identify a number of key issues and opportunities for the Muswellbrook area, as listed below:

- balancing the impacts and economic benefits of mining for the region in the long-term
- protection of strategic land uses e.g. viticulture, thoroughbred industry and rural residential settlements
- infrastructure, housing and service provision and improved planning for a growing region (e.g. roads/transport; housing accessibility, affordability and mix; health services)
- developing more and diverse employment, education and training services/opportunities for local people
- development of diverse housing options
- addressing perceived mining-related health concerns (e.g. air quality and dust, health research and assessments) and impacts on sense of community (e.g. mobility, property acquisition, mining workforce, social amenity)
- protecting key community values including local communities; rural lifestyle; social/community and recreation facilities and events; traditional community and family values
- job growth and economic diversification (including creative economy, small business, tourism, agriculture, retail, health services, etc.)
- access to education
- affordable and social housing
- social and community service provision
- infrastructure development
- aged care and childcare provision
- social inequality and inclusion
- conservation of heritage and environment.

As has been highlighted above, the issues identified within the Muswellbrook LGA span the breadth of community capitals – natural, social, human, physical and economic – with development in certain capital areas e.g. physical capital, providing the opportunity to further build and develop other capital assets e.g. economic, social, human. Consequently, discussions regarding investment and community development

within the LGA should be focused on those strategies that produce the greatest return across the community's collective capital assets, while enhancing local community values and aspirations.

At a local level, community residents have articulated a desire to see their community, their rural and social amenity protected; and physical capital developed to allow better access to health, education and retail services. These communities have strong social capital and a strong sense of community, but also perceive that this is being impacted by the presence of mining and property acquisitions which have reduced and fragmented the community.

At a regional level, issues relating to physical capital development appeared more salient e.g. addressing stress on existing infrastructure and services, addressing safety and capacity of transport/road networks, improving access to health care and aged care facilities, developing more education and training services/opportunities, addressing a diversity of housing issues – affordability, availability and diversity.

Given perceptions of dependency on the mining sector, there was also a desire for greater economic diversification, through the development and attraction of other industry and business sectors (as stated in regional and local strategic plans), and the need to address land use conflicts and cumulative impacts e.g. workforce mix, community participation, workforce competition associated with the presence of a prominent industry sectors (e.g. mining, thoroughbred and viticulture) within the locality.

However, as summarised in **Section 4.0** the presence of the mining industry and associated mine suppliers in the locality affords a range of local economic benefits to key communities across the region and more broadly, with associated workforces also contributing to the human and social capitals within these various localities. The contribution from Mangoola Coal Mine alone totals around \$31M, in annual employee household expenditure in the Hunter region, much of which is expended within the Muswellbrook and Upper Hunter LGAs. This is in addition to the direct and indirect economic benefits associated with the MCCO Project itself and continuation of the operations for a further five year period would maintain and sustain such contribution for this period.

As noted previously, as part of the NSW planning process, DPE uses the VPA mechanism, under the EP&A Act, to ensure that benefits of industry activity are shared and impacts of development are identified and appropriately managed at local and more regional levels. Through targeted social investment, administered through such agreements, impact management and further community enhancement can be undertaken to facilitate development across a community's key capital areas, whether at a localised or broader LGA level.

The profile section has highlighted issues of relevance across the locality through a review of a range of data sources, including engagement with key stakeholders. In order to address the impacts and needs identified, the following dot points identify those areas considered as part of this assessment to be the most salient:

- maintaining Muswellbrook's role as a regional centre
- economic development and diversification strategies
- further development of community events, sport/recreational and cultural facilities
- continual support for local community facilities and programs including the Wybong Hall, RFS
- development of telecommunications infrastructure (for the community in Wybong, Manobalai and Mangoola)

- planning to improve road, infrastructure and transport systems
- regional housing needs assessment and facilitation of sustainable and mixed housing development
- coordination and facilitation of engagement and collaboration forums and programs between government, mining companies, and community, particularly in relation to cumulative mining impacts, social investment and land use conflict
- improved access to health services
- provision of aged care facilities.

6.0 Perceived Positive and Negative Social Impacts

A key component of the SIA is the process of understanding, from a community perspective, community issues, values and uses associated with the assessment area, and specifically the perceived impacts and opportunities associated with the MCCO Project. These impacts are then further assessed to predict impacts in relation to the MCCO Project that are considered significant and which may require mitigation or enhancement (refer to **Sections 8.0** and **9.0**).

The aim of this section is to provide a more complete description of community perceptions of the MCCO Project from the perspectives of those involved, in a personal, community, social and cultural sense. The intent is to clearly outline stakeholder views and their perceived positive and negative impacts in relation to the MCCO Project.

This phase of the SIA program has three main objectives:

- to identify perceived issues/impacts associated with the MCCO Project
- to identify perceived issues/impacts associated with cumulative mining development in the region
- to identify strategies for management and opportunities for enhancement of perceived project issues/impacts.

These objectives were achieved through consultation as outlined in **Section 3.0** and included engagement with:

- proximal landholders residing in proximity to Mangoola Coal Mine (N=44)
- representatives from the local community - landholders and key stakeholders identified through the Glencore Community Perception Survey (Umwelt 2018) (N= 39)
- Indigenous groups, including RAPs, service providers and other local community groups (N=15)
- random sample of residents in the Muswellbrook LGA through the Glencore Perception Survey (N=48).

Participants were identified through a review of:

- Mangoola's existing stakeholder databases
- local community service directories
- media analysis
- snowball sampling i.e. contacts made from initial sources providing contact details of additional stakeholders to be engaged.

Proximal landholders were drawn from the localities (state suburbs) surrounding Mangoola Coal Mine's operations including Wybong, Manobalai, Castle Rock and Mangoola. Other key stakeholders were consulted more regionally through the Glencore Perceptions Survey (Umwelt 2018), including Indigenous Service Providers, government stakeholders, local business and community groups, and residents in the wider Muswellbrook LGA.

For the purpose of the current analysis, and as outlined earlier in **Section 3.4**, stakeholders have been grouped as follows:

- **proximal landholders**, including landholders and residents residing in close proximity to the current mining operations in the state suburbs (ABS, 2016) of Mangoola, Castle Rock, Wybong and Manobalai
- **Indigenous stakeholders**, including RAPs, Indigenous Service Providers and key stakeholders in the Muswellbrook LGA
- **key community stakeholders** in the Muswellbrook LGA
- **community residents** in the wider Muswellbrook LGA.

As part of the wider EIS community engagement, representatives from the MCCO Project have also met with local government representatives, state and Commonwealth Government agencies, local business and industry, community, cultural and heritage groups (associated with the area) and infrastructure and service providers. Key outcomes from this consultation have also been considered as part of the SIA.

The data gathered to inform the scoping phase of the SIA was obtained through personal and telephone interviews, community information sessions and the Glencore Perception Survey (Umwelt 2018), which is undertaken every three years across the communities and regions in which Glencore's operations are based.

A number of perceived impacts, both positive and negative, have been identified relating to Mangoola's existing mine operations and the MCCO Project. Outcomes of the assessment are presented in the following sections and have been categorised according to a number of social impact themes (e.g. property, sense of community, social amenity relating to dust, noise etc.). Information has been collected through the administration of structured interview guides which have addressed a range of topics relating to community values, project issues and opportunities, engagement approach, management strategies and potential enhancement and investment opportunities. Where possible, comparisons are made to previous stakeholder engagement undertaken, to identify any changes in issues raised.

Through the engagement program, stakeholders were asked to identify aspects of most importance to them and/or their respective community/organisation/business. It should be noted that when asked to identify issues in relation to a proposed change, stakeholders will naturally tend to focus on negative issues/impacts associated with a project; such issues are important to understand, to confirm that salient social issues/impacts and perceived risks are fully addressed and integrated in project assessment, planning and design. Through the engagement process, stakeholders have also identified a range of mitigation and enhancement strategies that they believe would serve to ameliorate and/or enhance project impacts, these are summarised at the end of this section and further detailed in **Section 8.0**. These strategies are over and above strategies developed by the proponent through their operational practice and in relation to the MCCO project, as part of the assessment process and pre-emptive mine planning and project design.

6.1 Issue Themes – Proximal Landholders

This section provides a review of the perceived positive and negative social impacts identified through engagement with proximal landholders to the Mangoola Coal Mine operations. As stated above, local landholders were drawn from the localities surrounding the proposed MCCO Project including the state suburbs of Wybong, Manobalai, Castle Rock and Mangoola.

Two rounds of direct engagement with landholders were held as part of the SIA Process. Round one occurred during the issue identification and scoping phase in July 2017 and included a total of 24 face to face and telephone interviews with landholders, 12 interviews undertaken with representatives from Mangoola and Umwelt and 12 with representatives from Mangoola only.

The second round of engagement was undertaken between October 2018 and February 2019 and included a total of 22 face to face meetings and 22 phone interviews with proximal landholders, with representatives from Umwelt only present at these interviews. Round two included all of those engaged during the first round and a further 19 additional landholders that were identified as being potentially impacted by noise as a result of the technical studies or due to snowball sampling, whereby details of additional stakeholders to be consulted are provided by those previously engaged.

Stakeholders consulted during Round two of SIA engagement were permitted to provide multiple responses in relation to identifying the perceived positive or negative impacts of the MCCO Project. Frequencies or counts obtained refer to the total sample size of 44 respondents, with counts for each perceived impact identified and recorded (only once per respondent) - multiple responses were however allowed.

Two community information sessions were also held with 48 stakeholders attending across both sessions. The first session held at the Upper Hunter Conservatorium of Music in Muswellbrook on 10 December 2018, encouraged stakeholder participation of the broader community within the Muswellbrook LGA, with the second session, held on 2 February 2019 at the Wybong Hall affording engagement with landholders/residents in closer proximity to the MCCO Project. Both community information sessions were advertised in the local media (e.g. 'Muswellbrook Chronicle' and 'Hunter Valley News'), and in project newsletters. The sessions provided an opportunity for community members to ask questions of the MCCO Project team and specialists working on the environmental and social impact assessment studies. Stakeholders were encouraged to view both static and interactive displays including over 30 posters summarising assessment findings; individual demonstrations of comparative examples of noise levels; and visual representations of drone footage depicting current and proposed landforms and rehabilitation.

Perceived impacts identified by proximal landholders cover a range of social impact categories, as defined in the SIA Guideline (DPE, 2017) and reflect the fears and aspirations of the stakeholders consulted. These social impact categories are defined in **Table 6.1**.

Table 6.1 Social Impact Categories (DPE, 2017)

Social Impact Category	Definition
Way of life	How people live, for example, how they get around, access to adequate housing How people work, for example, access to adequate employment, working conditions and/or practices How people play, for example, access to recreation activities How people interact with one another on a daily basis
Community	Including a community's composition, cohesion, character, how it functions and sense of place
Access to and use of infrastructure, services and facilities	Whether provided by local, state, or federal governments, or by for-profit or not-for-profit organisations or volunteer groups
Culture	Including shared beliefs, customs, values and stories, and connections to land, places, and buildings (including Aboriginal culture and connection to country)
Health and wellbeing	Including physical and mental health
Surroundings	Including access to and use of ecosystem services, public safety and security, access to and use of the natural and built environment, and its aesthetic value and/or amenity
Personal and property rights	Including whether their economic livelihoods are affected, and whether they experience personal disadvantage or have their civil liberties affected
Decision-making systems	Particularly the extent to which they can have a say in decisions that affect their lives, and have access to complaint, remedy and grievance mechanisms
Fears and aspirations	Related to one or a combination of the above, or about the future of their community

As noted in the SIA Guidelines, fears and aspirations relate to one or a combination of the social impact categories noted, and as such, it has been considered for the purpose of this assessment, that all of the identified impacts fall under fears and aspirations as shown in **Figure 6.1**.

Impacts relating to way of life, including how people live, work, play and interact with one another on a daily basis was the most prominent social impact category identified, followed by impacts relating to surroundings, including access to and use of the natural and built environment, and its aesthetic value and/or amenity (social amenity), associated with noise and dust, and subsequently impacts relating to personal and property rights, community, health and wellbeing.

Figure 6.2 further defines the social impact themes that fall within each of the social impact categories and demonstrate the interrelationships between the social impacts raised. **Table 6.2** is an impact matrix and shows that a number of impacts are relevant to more than one social impact category.

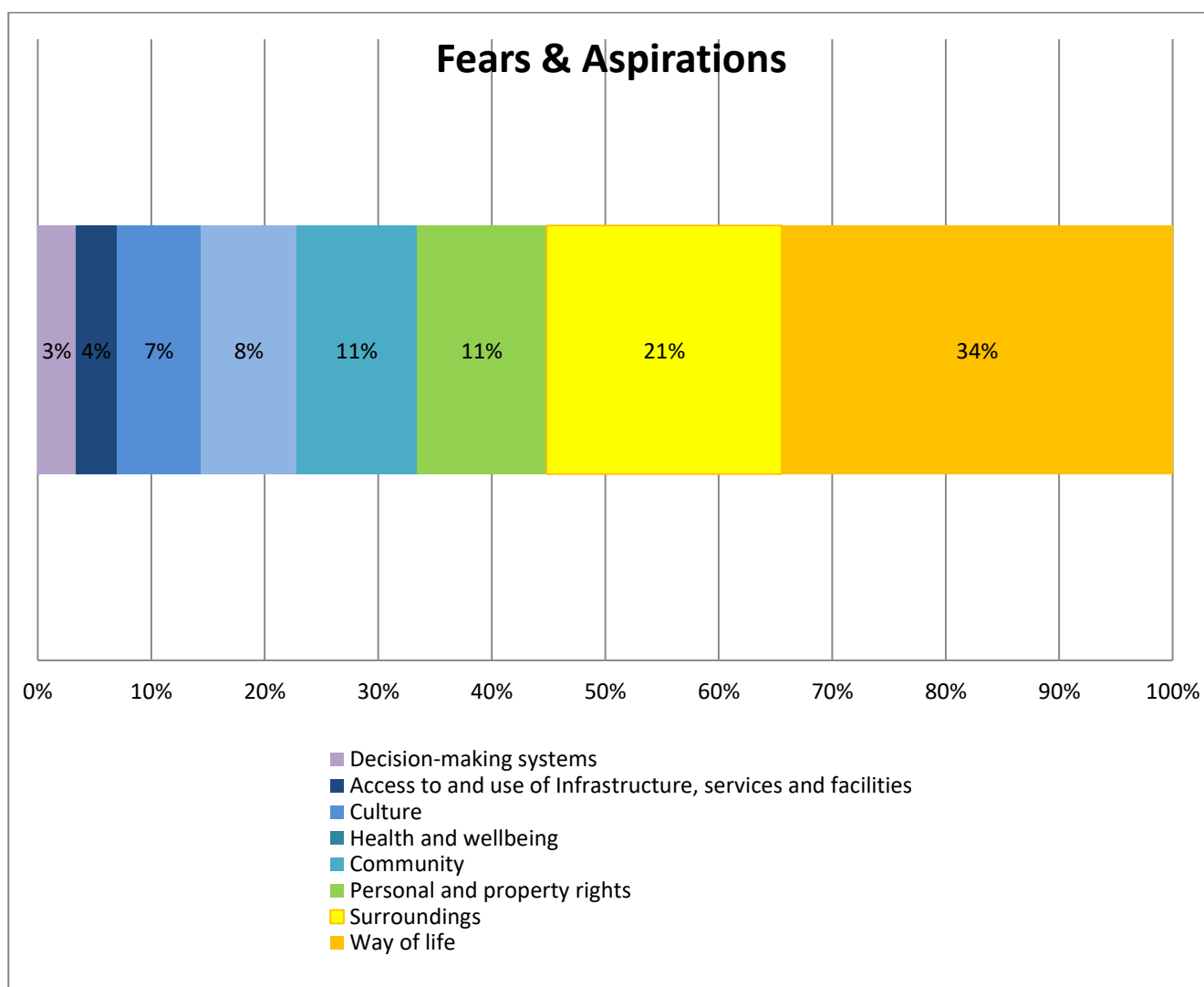


Figure 6.1 Percentage of Fears and Aspirations Raised by Social Impact Category

Source: Umwelt (2018)

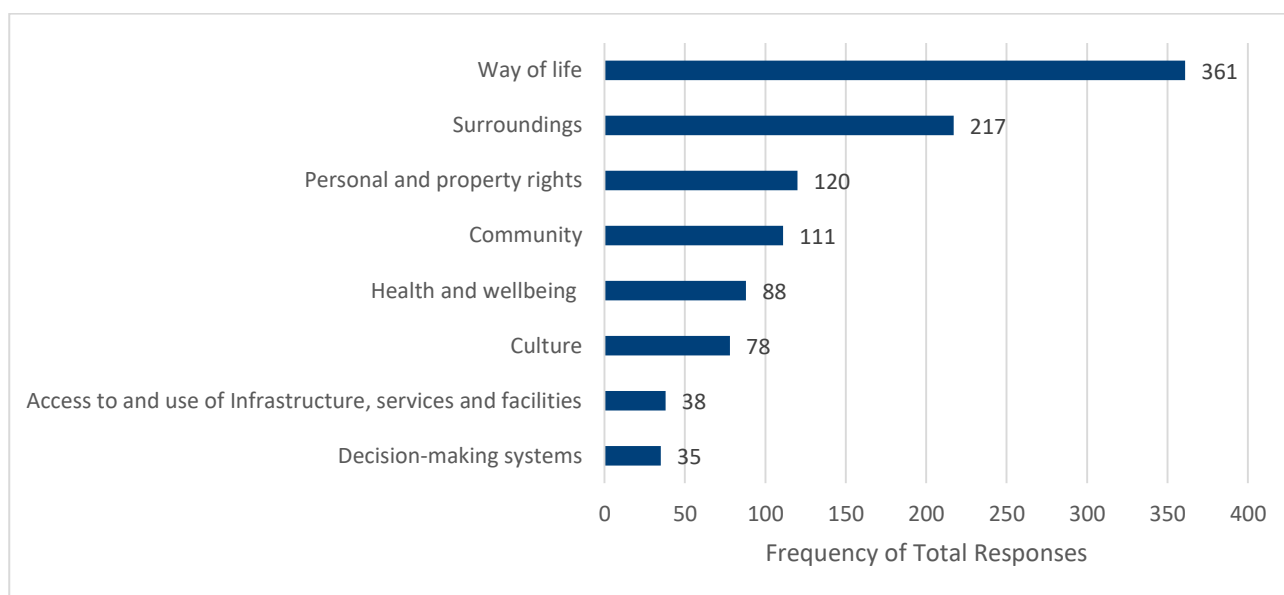


Figure 6.2 Perceived Impacts Identified by Social Impact Category (DPE, 2017)

Source: Umwelt (2018)

Note: n=44, multiple responses allowed

Table 6.2 Impact Matrix

Theme	Impacts	Way Of Life	Community	Access to and Use of Infrastructure Services and Facilities	Culture	Health and Wellbeing	Surroundings	Personal and Property Rights	Decision-Making Systems	Fears and Aspirations
Blasting	Noise	•				•	•			•
	Odour					•	•			•
	Property damage (vibration)	•				•		•		•
	Safety (debris)	•				•				•
Cumulative	Dust	•				•	•			•
	Feedlot						•			•
	Noise	•					•			•
	Other mining operations and leases	•					•			•
	Rail						•			
Dust	Amenity	•				•	•			•
	Amenity (solar panel operation/efficiencies)	•					•	•		•
	Amenity (swimming pool cleaning/filter operation)	•					•	•		•
Economic	Local and regional sustainability	•		•				•		•
	Community investment		•	•			•		•	•
	Employment	•		•				•		•
	Livelihood impacts	•						•		•

Theme	Impacts	Way Of Life	Community	Access to and Use of Infrastructure of Services and Facilities	Culture	Health and Wellbeing	Surroundings	Personal and Property Rights	Decision-Making Systems	Fears and Aspirations
Environment	Lighting	•					•			•
	Visual amenity	•					•			•
	Water	•					•			•
Health and wellbeing	Anxiety and stress	•	•	•	•	•	•	•	•	•
	Physical health	•				•				•
Noise	Operational noise	•					•			•
Land use & management	Pest and weed management	•					•			•
	Rehabilitation						•			•
	Future land use						•			•
Property	Ability to sell (Safeguard)	•						•		•
	Acquisition zoning	•						•		•
	Property value (Decrease due to mine)	•	•					•		•
Sense of community	Lifestyle/amenity	•	•		•		•			•
	Anti-social behaviour	•	•		•					•
	Culture: connection to place	•	•		•					•
	Sense of community - general	•	•		•					•
	Tenants	•	•		•					•
Traffic	Construction phase	•					•			•

Theme	Impacts	Way Of Life	Community	Access to and Use of Infrastructure of Services and Facilities	Culture	Health and Wellbeing	Surroundings	Personal and Property Rights	Decision-Making Systems	Fears and Aspirations
	During operation	•					•			•
	Property damage	•					•			•
	Road maintenance	•					•			•
	Safety	•				•	•			•
Engagement	Trust in government process - lack of decision-making power	•	•						•	•

Source: Umwelt (2018)

As shown in **Figure 6.3**, perceived issues identified as most important to proximal landholders are further defined as social impact themes and relate to property related impacts (70), sense of community (67), social amenity impacts relating to dust/air quality (42), noise (35), traffic (32), economic/livelihood impacts (32), health and wellbeing (25), cumulative impacts (19), blasting (16), and decision making processes (16). Noise and air quality/dust were prominent themes also expressed during engagement with proximal landholders for the Proposed Modification 6 in 2013 (Coakes Consulting, 2013). To address these issues, the project team has made a number of refinements to the final mine plan for the project to address these issues and concerns as much as practicable.

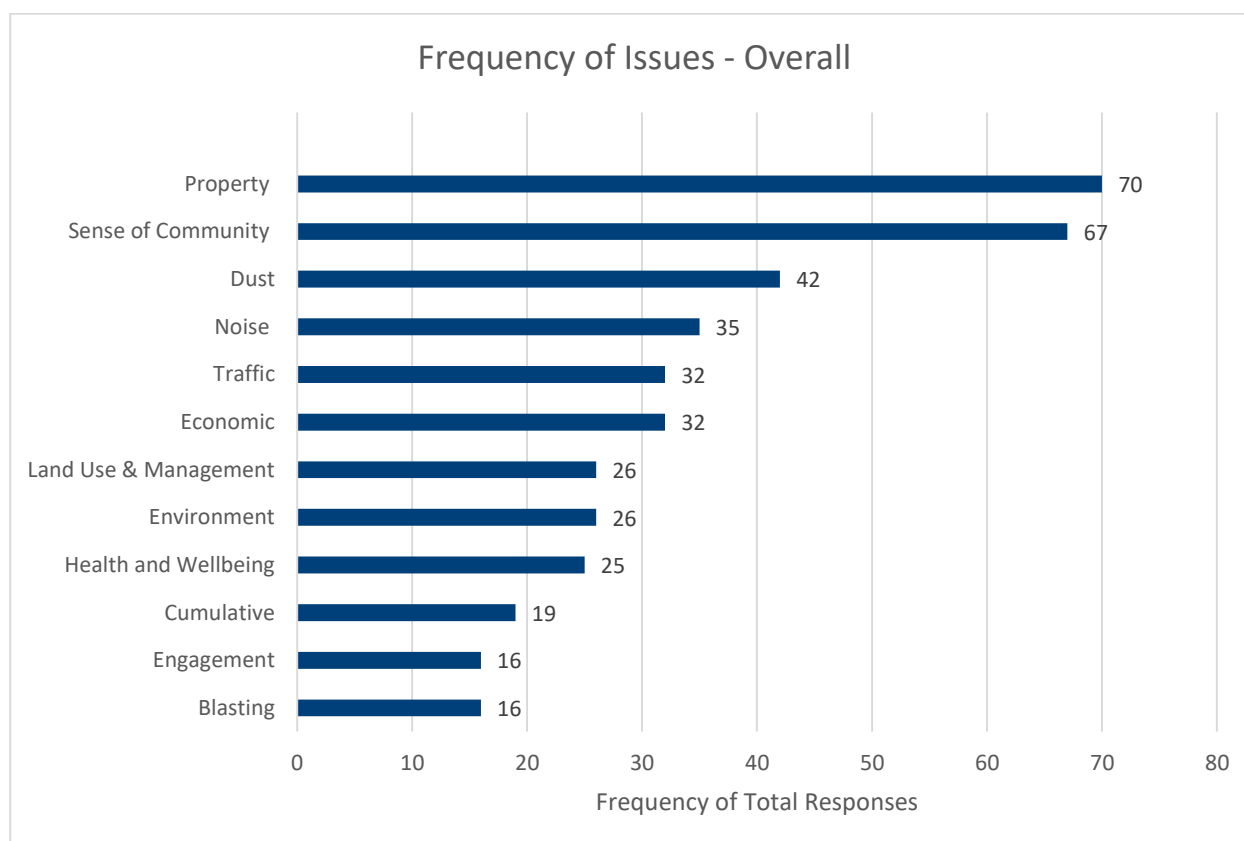


Figure 6.3 Perceived Positive and Negative Social Impacts Identified by Landholders

Source: Umwelt (2018)

Note: n=44, multiple responses allowed

To provide further detail on each of the key social impacts identified, the sections below address each impact separately and their relevant sub-issues, with qualitative quotes provided to highlight landholder sentiment as recorded through the interview process.

6.1.1 Property Impacts

The most frequently identified social impacts related to property (70), with concerns centred on the potential decrease in property value due to proximity to the mining operation; a sense of entrapment as a result of perceiving to be unable to sell property in the area; and concerns pertaining to acquisition zoning in relation to the MCCO Project.

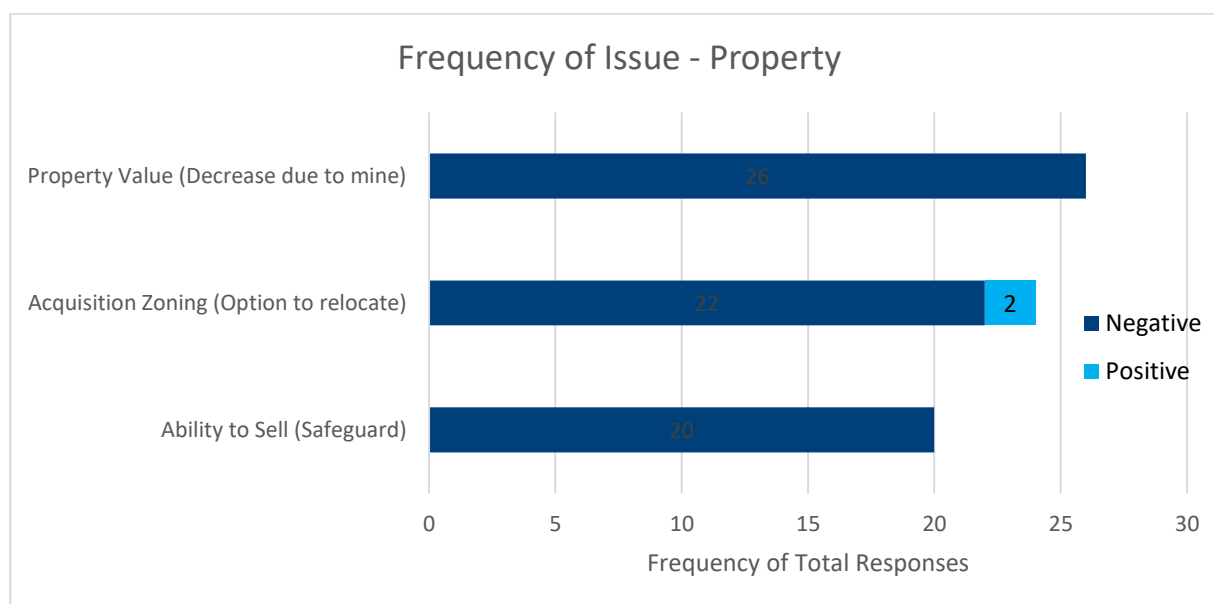


Figure 6.4 Perceived Property Impacts

Source: Umwelt (2018)

Note: n=44, multiple responses allowed

Stakeholders largely held concerns regarding the perceived value of their property, due to proximity to both current and proposed mining operations. There was a strong perception that property prices were being driven down for those properties in proximity to the mining operations, with some stakeholders expressing an inability to sell their property in the current market as a result of the existing mine and the proposed Project. This was expressed as a key area of concern for all of the localities in the north, as well as Denman in the south.

Stakeholders frequently stated that they had ceased undertaking any further property improvements, to reduce over-capitalising, should they be unable to recover costs in a potential property sale. Of 20 landholders that specifically mentioned their ability to sell as a potential negative impact, as a result of the MCCO Project, eight landholders (40%) were of the opinion that they would not attempt to sell their property, as they had witnessed neighbours who had placed their properties on the market and had received little or no interest from prospective buyers.

"If ever a time comes to put it on the market – no one wants to be Mangoola's neighbour. Property prices are being driven down."

"We don't want to pump any more time and money into a place that is going to be worth nothing."

"I have held off plans I had to improve our living conditions."

"We believe that there has been enough current testing of the market to see that the value of property has been lost."

"They have so much money and they have devalued the whole area, that doesn't seem right to me."

"We haven't tried to sell because we are watching others trying to sell and they can't due to the buyers finding out about the mine expansion."

Landholders expressed feelings of being ‘trapped’, commenting that the current operation and the MCCO Project has removed their ability to sell, should the need arise. In addition, should a sale occur, stakeholders suggested properties would be sold at a significantly reduced value, limiting future options for relocation. Landholders identified that they were reaching a stage in their life where they were considering relocation to smaller properties closer to town or elsewhere to afford greater access to appropriate services, and that the uncertainty associated with the ability to sell property on the market was creating increased stress and anxiety at the local level (refer to **Section 6.1.6**).

Current engagement for the MCCO Project has identified a significant increase in concerns relating to property-related impacts, since consultation undertaken during the SIA for Modification 6 in 2013. Operations at this time (in 2013) were proposed to continue within the existing mining footprint, with only two landholders raising property-related concerns. The increase in perceived property related impacts (70) may be attributed to the current MCCO Project proposing to extend the original disturbance boundary to the north of the current mine site.

Independent investigations relating to changes in property values and sale data during 2005-2018, for properties in proximity to mining operations, was investigated by Tew Property Consultants (refer to **Appendix 4**). This assessment suggested that rural properties markedly vary in property value and are influenced by many factors including land classification, size and condition.

The majority of properties considered during the investigation revealed that rural property prices overall in the broader Hunter region, have increased in value, for example, the broader region may experience positive impacts as a result of increased employment and demand for accommodation driving up rental or sale prices. Whilst it is difficult to accurately discern the impacts of coal mining upon individual property values as either a percentage of change in market value or a dollar equivalent, as Tew (2018) outlines the negative impacts of coal mining on property values are more likely to be localised or individually evident and a consequence of a particular property’s proximity to a mining operation.

Stakeholders suggested that the provision of a ‘property safeguard’, could alleviate resident concerns, whereby a choice to remain or to vacate the property was provided to each stakeholder.

“I am a prisoner in my own property.”

“Feel like the choice to sell has been taken away from us.”

“I just think we have no chance of selling our houses, not when they have been told the mine is coming within 3-4 kms of us. The bloke up the road has had his house on the market for 4 years, it’s a beautiful place but they hear about the mine and they pull out.”

“I’m 65 years old, I don’t want to try and move house in 10 years, I’d rather know where I stand now.”

“We want to leave but now we are stuck here, we will not just give it away as we will be homeless and have nowhere to go.”

A number of stakeholders suggested that they would be within close proximity to the proposed operations as a result of the MCCO Project, this was particularly evident for those to the north of the project (in the direction of the MCCO Additional Mining Area), and were therefore concerned that further impacts would be experienced. Such landholders were however not located within the proposed acquisition zone derived from the predicted noise and air quality results in the VLAMP.

Landholders frequently expressed distrust in the modelling used to predict noise impacts and determine acquisition zoning; this is discussed further in **Section 6.1.4**. While a small number of landholders consulted (two) were satisfied with the acquisition rights afforded them, stakeholders outside the acquisition zone were concerned that mitigation measures were currently afforded to some landholders and not others, raising concerns about perceived inconsistencies in application, and calling into question the fairness, equity and transparency of the management and mitigation process going forward.

“There is an acquisition process, but it has parameters on it and the price isn’t what they used to give in the old days. It’s changed for the worse.”

“They have also created a division within the community, an ‘us and them’, when it comes to the acquisition zone.”

“I face years of aggressively managing the implementation of mitigation measures.”

“X has been bought out and they are miles away – it’s unbelievable.”

In regard to acquisition, stakeholders raised concern that the criteria for acquisition was insufficient, and that noise or dust impacts should not be the only determinant of acquisition rights. Suggestions for a larger buffer of the Project Area were identified by some landholders as their view of a more appropriate zone of affectation.

6.1.2 Sense of Community

The second most identified social impacts perceived by landholders in relation to the MCCO Project, related to impacts on rural lifestyle and sense of community (67). This again was a primary concern for landholders in the northern localities of Manobalai and Wybong (refer **Figure 6.20**).

In this regard, landholders raised concerns regarding the loss of community members and population decline in the area, as a result of the acquisition of properties by Mangoola and perceived impacts of the operation; and the subsequent impact on the general amenity of the area and the community networks and ties that exist.

“Since Mangoola kicked off the mine, the community has changed a lot.”

“Families moving away. There’s not a lot left out here. Where they are going to mine is where the only families are left.”

“People that watch your back. It’s a small community who would bend over backwards for you.”

“We have lost a lot of close neighbours who have relocated quite some distance away.”

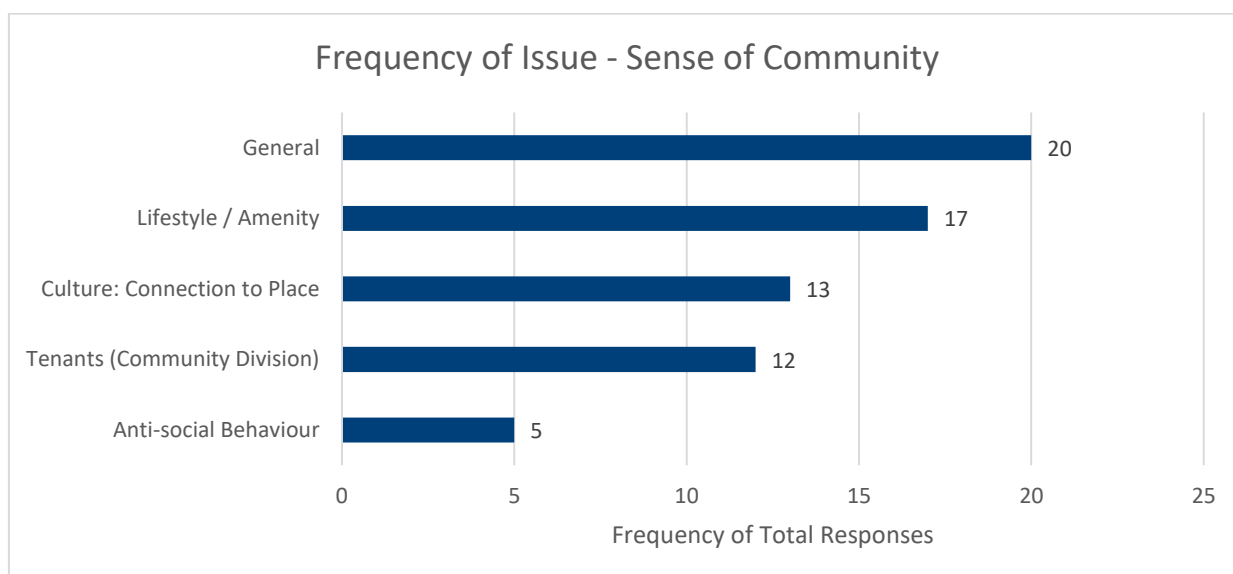


Figure 6.5 Perceived Sense of Community Impacts

Source: Umwelt (2018)

Note: n=44, multiple responses allowed

Stakeholders consistently held high concerns for community members who they considered more vulnerable within the community and who did not fall within the acquisition zone. Largely, stakeholders identified fears surrounding the duration in which the community would continue to face depletion of the local population.

“The community comes together to help those people and support them when they need it.”

Many landholders and their families had lived in the area for most of their lives and talked about their strong history in the area and their connection to place. Although some residents consulted were in favour of acquisition, they simultaneously held concerns that family history would be lost if their property was acquired and should in the future their houses be bulldozed to make way for future mining operations. Although no guarantee can be made to the protection of acquired properties, Mangoola do not currently have plans to excavate or damage acquired properties as a result of the MCCO Project. Likewise, some landowners did not wish to see their property tenanted by those less interested in property maintenance or left vacant to fall into disrepair.

“My family has lived there for generations. The whole history of our family will be gone.”

“My extended (family) has a strong family connection and return here continuously to connect with the land and where we call home.”

“We are so emotionally attached to this property and selling to the mines we know it won’t be cared for, it will be demolished.”

Some stakeholders discussed an emerging social divide between owned and tenanted properties and the effect of this on local community cohesion. A perceived lack of investment in the local area by tenants was suggested to be impacting on local participation, with local events/functions e.g. dances, BBQs in the Wybong Hall, less frequented.

“The tenants and the renters just don’t have the same patronage or involvement in the community.”

“The biggest impact on us was the acquisition of all these properties and all our friends leaving. You don’t have the same community spirit or relationship with people when you’re left with the tenants.”

In addition, some stakeholders expressed concerns regarding a perceived increase in acts of vandalism in the locality, including dumping of waste and anti-social behaviour, which in turn appeared to increase concerns regarding community.

Land management concerns were also raised by stakeholders in relation to perceived insufficient, or lack of, property maintenance carried out by tenants, resulting in an increase of vermin and dilapidation of properties, these concerns are discussed further in **Section 6.1.8**. The management of mine owned properties were also raised in this regard.

“With people who are renting – there’s cars that you don’t know – you don’t know if it belongs at that house or should you be taking special notice of it – there are break-ins – we never had that.”

There was a strong ‘nostalgic’ feel from current residents that their community had been changing, since the development of Mangoola Coal Mine, from what had once been a close and connected community, where people had strong ties and supported each other, to one that was more separate and detached. This issue is consistent with landholders consulted in Mod 6 2013, who expressed concern for the preservation of their rural sense of community, particularly in Denman, despite the existence of mining operations. With the onset of development in the area, it was noted that many established families have moved away, and that the once vibrant social events and celebrations e.g. Christmas and New Year, dances and group meetings, that used to occur in the Wybong Hall were now less frequent as a result of a dwindling population base.

Natural social changes may occur within rural communities such as demographic changes due to aging populations moving out of an area and new residents moving in. In this regard, there was an acknowledgement among those consulted that a number of residents were getting older, but that the presence of the mine was preventing the community from attracting new families to the area. However, there are a number of younger families that have relocated to the area since Mangoola commenced to seek a more rural lifestyle.

There was also a perception of a ‘sense of entrapment’ expressed by landholders, at both an individual and community level, that given residents were required to live with the impacts of mining, the proposition of further impacts (as a result of the proposed MCCO Project), resulted in a level of uncertainty surrounding the ‘what next’.

Investment by Mangoola in the community was welcomed by local landholders as a positive aspect of Mangoola’s presence, discussed further in **Section 6.1.9**; however some questioned whether such investment was in vain given the declining community.

“The way they support the Hall and the rural fire brigade receive support, but for us personally there are no positives.”

“They also need to invest back in different ways. All good, they put money into a hall – but it’s stupid. You are putting money into a hall that you are taking the community away from.”

Population decline was frequently attributed by landholders to mining activity in the area and a heightened concern for transport and services to remain within the community were noted. The availability of local school buses and the location and safety of pick up points were frequently mentioned. In particular, landholders feared that the proposed MCCO Project would impact local school bus routes and the provision of transport services for the elderly to access health facilities in Muswellbrook and the broader region.

"If we lose the school bus we don't think it'll ever be brought back, which will stop young families coming into the community – We need more people in the community."

"There's a bus pick up point about 600 metres from the pit."

Other infrastructure and services identified as lacking in the area and impacting landholders sense of community, included the provision for a communal rubbish bin for bulk and general waste, new bus stops and the maintenance of existing local community infrastructure including the local hall, church, and cemetery and improvements to mobile and television signal reception.

6.1.3 Dust (Amenity)

In relation to amenity, dust from existing operations and the potential for increased dust as a result of the MCCO Project were common concerns. A large majority of landholders consulted expressed that dust was impacting their way of life in a number of different ways, particularly the requirement for additional domestic cleaning of internal and external dwellings, excessive use of swimming pool filtration systems to clean pools, cleaning of water tanks, and concerns that solar panel efficiencies were also being reduced as a result of dust impacts.

"Drives me crazy cleaning."

"Having to keep windows shut all the time and constant cleaning."

"There is no point cleaning – as soon as you do it, it is back there."

"I am sick of cleaning the pool."

"The amount of chemicals we need to use now and running the filter all the time."

"My gripe is they will not clean my water tank out, we're 50 m out of the line."

Further amenity concerns were raised by landholders in relation to their lack of ability to enjoy the natural environment in which they live, due to having to close doors and windows to reduce dust and noise. Some stakeholders suggested that while mitigation measures such as air-conditioning have been offered to some landholders, such measures only contribute to feelings of a loss of lifestyle and being trapped indoors, with some landholders also not choosing to use their air-conditioning due to increased running costs.

"I don't want to live in a glass box - We are country people."

"They tell me I have to go inside and put my air conditioner on. I have to change my lifestyle to accommodate them."

"Our electricity bill was \$1400 less when we don't run our air-conditioner."

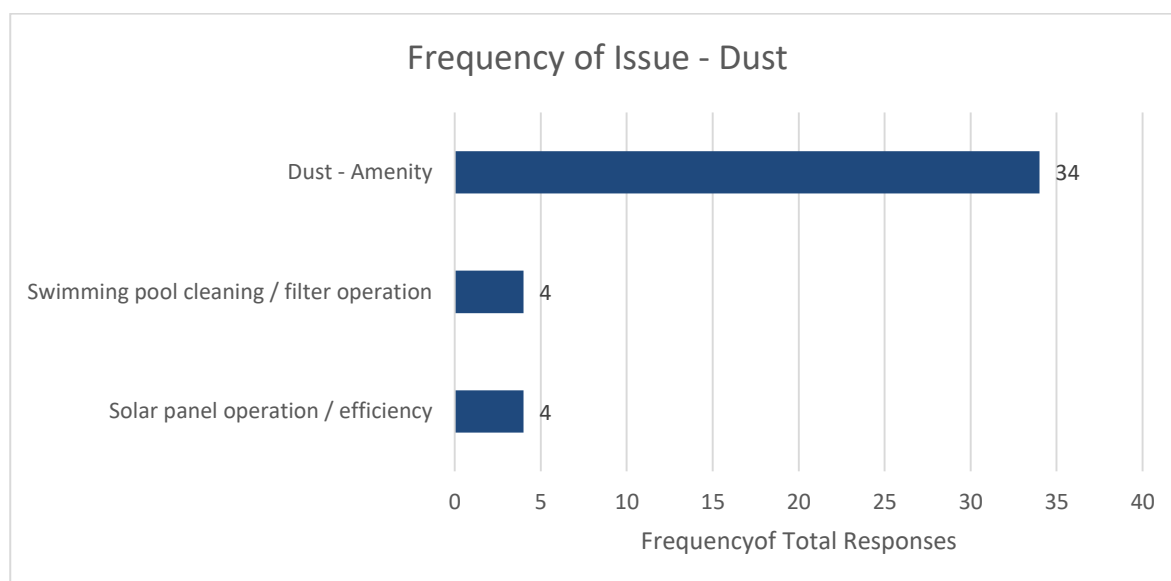


Figure 6.6 Perceived Dust (Social Amenity) Impacts

Source: Umwelt (2018)

Note: n=44, multiple responses allowed

Physical health concerns attributed to dust and the uncertainty of prolonged exposure to airborne particulates were mentioned by a number of stakeholders. Perceived health impacts included respiratory concerns, water contamination and uncertainty around impacts on health generally. These concerns are considered in more detail in **Section 6.1.6**.

Stakeholders also raised concerns in regard to trust in the dust monitoring process undertaken by Mangoola and the cumulative impacts from other mining sites in the region. Weather conditions, such as cloud cover/inversions and southerly winds, were often noted as a contributing factor to worsening dust conditions, with many landholders recognising the dust issue as potentially cumulative rather than only specific to Mangoola Coal Mine. Cumulative impacts are considered in more detail in **Section 6.1.11**.

“They come back with “invalid readings” or under readings – they never exceed the limits supposedly.”

6.1.4 Noise

Current operational noise was noted by a large proportion of proximal landholders, as shown in **Figure 6.7** concerns heightened due to the proposed MCCO Project. Night noise was specifically mentioned as affecting sleep and the well-being of family members. The most commonly noted noise sources identified in community interviews were mine vehicles reversing, dozers, loading of rock into empty trucks, and passing trains.

“When I put my head on my pillow I can hear a constant humming.”

“We hear them every night because there’s no competing noise.”

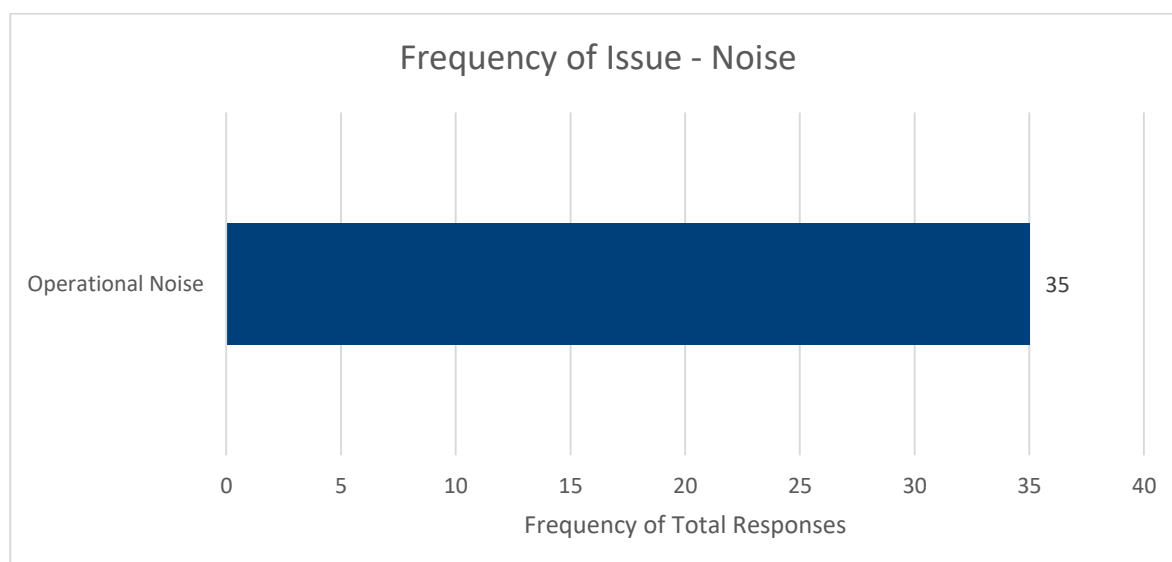


Figure 6.7 Perceived Noise Impacts

Source: Umwelt (2018)

Note: n=44, multiple responses allowed

The perception of noise impacts appears consistent with the complaints received by Mangoola across a 4-year period from January 2013 to November 2018, with noise complaints, accounting for over 90% of all complaints received during this period. **Figure 6.8** highlights that noise was still the most prominent issue raised during 2017-2018.

Noise complaints included general noise from site machinery, typically during night-time activities, in particular noise from excavation and loading e.g. shovel activities. As indicated in **Figure 6.9** the number of complainants differed dramatically from the number of issues raised, suggesting that some complainants were making significantly more complaints than others.

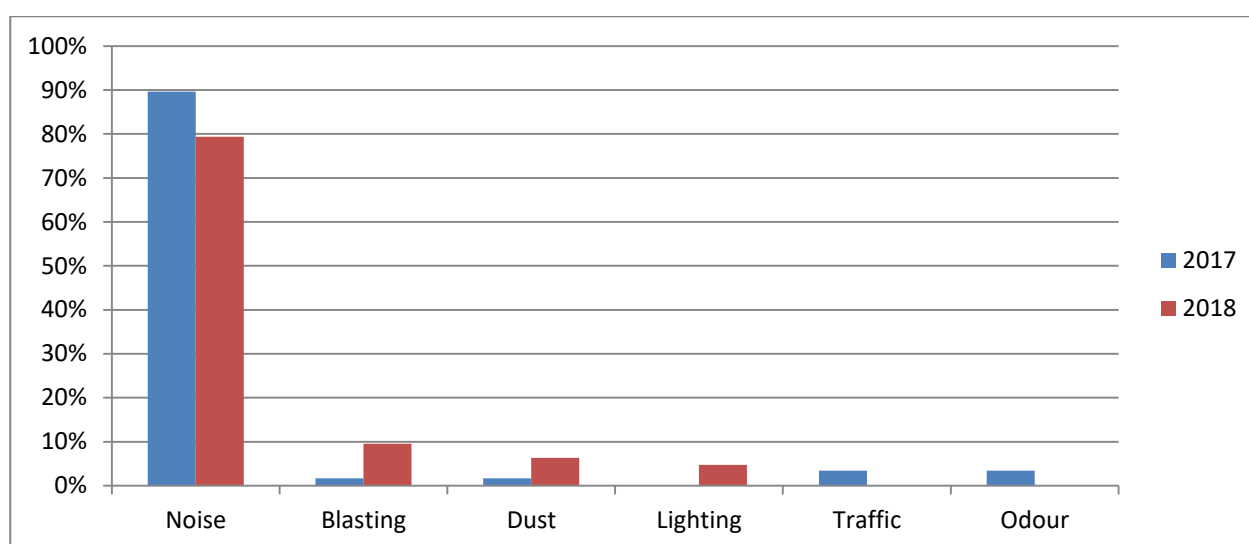


Figure 6.8 Complaints Analysis for 2017-2018

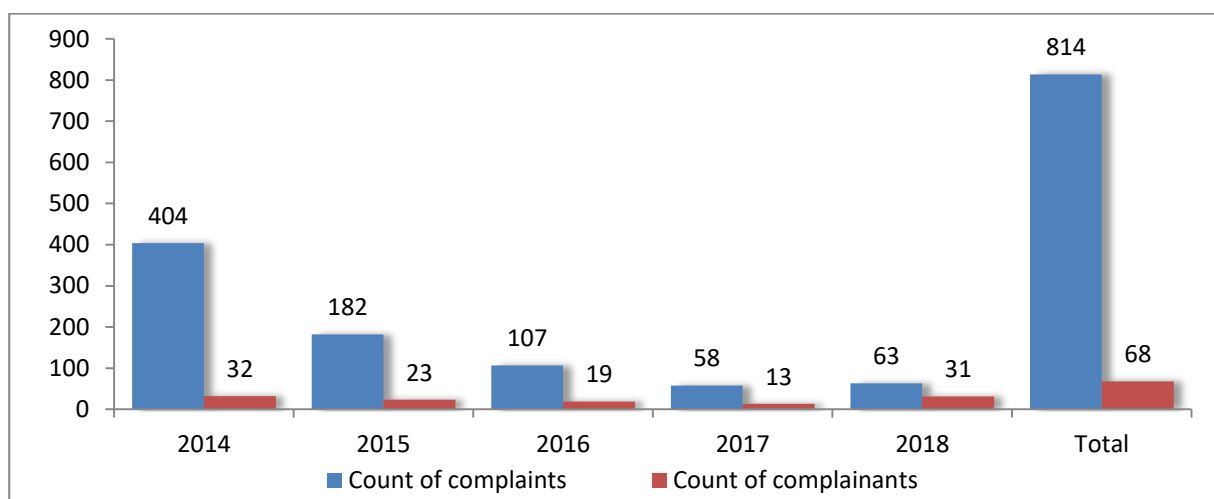


Figure 6.9 Number of Complaints (n = 814) and Complainants (n ≈ 68) Between January 2014 and November 2018

Source: Mangoola Complaints database (2018)

Again, the trustworthiness of monitoring data, in this case relating to noise, was questioned by stakeholders with those most proximal to the proposed operation the most concerned that impacts would increase as a result of the MCCO Project.

“We’ve had monitors out here and some of the stuff that comes back in the reports say a rooster was crowing or dog barking but funnily there’s little mining noise heard.”

In addition, a number of stakeholders raised concerns surrounding the inconsistency of mitigation measures being offered to each property as noted previously, and further discussed in **Section 6.1.12**. In this regard, nine stakeholders stated that their property had some form of noise mitigation as a result of current mining activity, such as double-glazed windows, roller shutters and insulation. Mitigation of impacts has been progressively initiated by Mangoola as a result of stakeholder concerns expressed during the Mod 6 project in 2013, with a range of measures afforded to proximal neighbours. However, despite such property mitigations being put in place by Mangoola, stakeholders considered that the MCCO Project would likely contribute further noise impacts that would affect their social amenity and/or their ability to sell their properties, should they wish to leave the area.

Four stakeholders explicitly suggested noise mitigation was not afforded to them either due to predicted results being below applicable criteria, or were of the opinion that they did not complain enough to be offered mitigation; whilst one stakeholder expressed concern that noise monitors were not placed within adequate proximity of their property to afford accurate readings.

“You used to listen to the noises outside, not try and block it out.”

“The noise drives me mad.”

“When they come on PO Road there’s no mountain - the noise will come up Yarraman Road from PO Road – and they haven’t told me how they are going to minimise that yet.”

“Now they are going to start up again in an area closer to our house so the noise will be intense again.”

"I experience it already and we have had to put in our own measures – either go inside or turn up our music. Now that it is coming closer it is definitely going to be noisier."

Typically landholders located south-east of the proposed development noted that they may hear less operational noise, as the MCCO Project moves further away; whilst noise impacts were perceived to increase for those landholders in the Wybong and Manobalai localities (**Figure 6.10**).

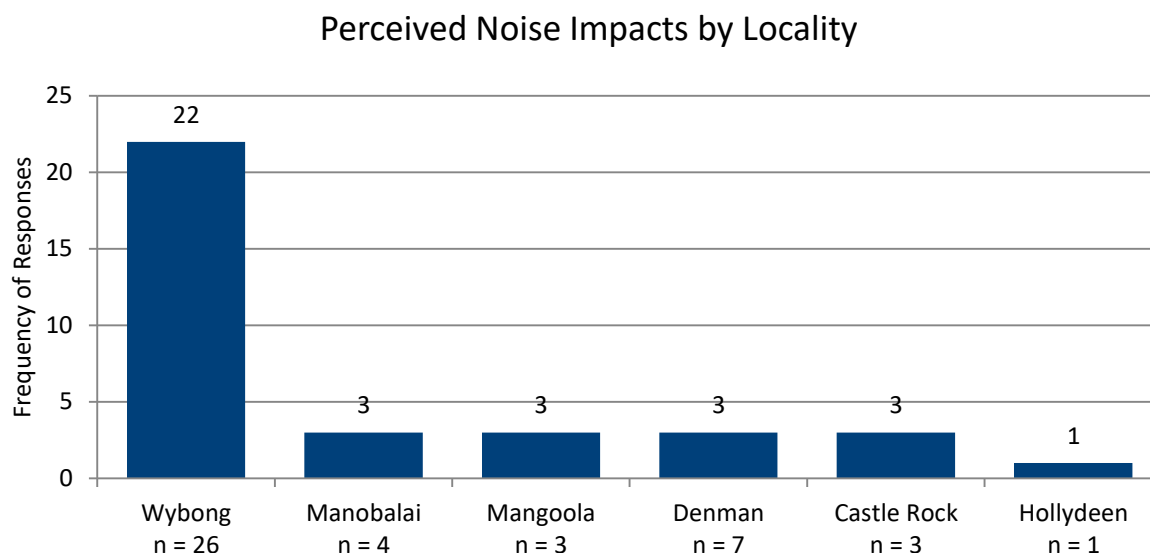


Figure 6.10 Perceived Noise Impacts by Locality

Source: Umwelt (2018)

Note: n=44, multiple responses allowed

6.1.5 Traffic

In general, traffic concerns in relation to the MCCO Project were raised by landholders, with specific concerns relating to the condition of current roads. As can be seen in **Figure 6.11** 11 stakeholders were specifically concerned with traffic and access during the construction phase, with some also expressing concern about traffic increases during operation (seven).

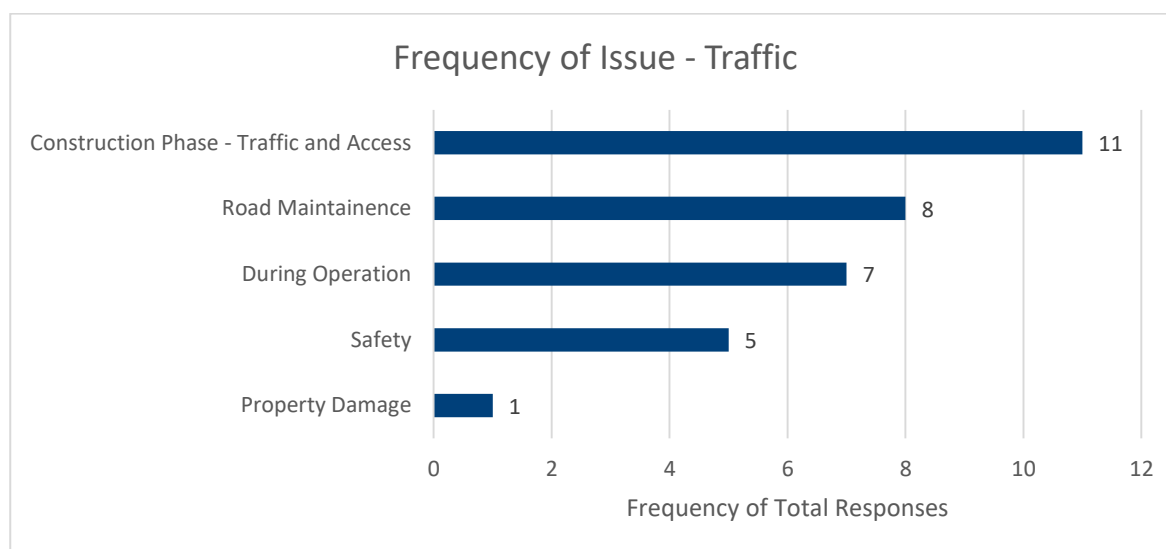


Figure 6.11 Perceived Traffic Impacts

Source: Umwelt (2018)

Note: n=44, multiple responses allowed

Landholders suggested that the width and quality of current roads would not adequately support increased traffic due to MCCO Project vehicles. Despite the fact that Ridglands Road will not be affected by the MCCO Project (the MCCO Project proposes the realignment of a section of Wybong PO Road only, not Wybong or Ridglands Roads), safety concerns were raised in relation to the width of this road, with landholders identifying that vehicles need to leave the road to adequately pass oncoming traffic freely.

“The road seems to break up a lot too because of all the extra traffic.”

“Will they be using Ridglands Road? It’s very narrow – they would have to widen it.”

“It needs to be widened out a least another meter either side. We don’t want any more fatalities or incidents.”

The use of portable traffic light systems was highlighted by stakeholders as a concern in regard to successful management of traffic during construction works. The duration of wait times due to the intermittent functioning of traffic light systems was raised as decreasing the usability of local roads and increasing resident travel times, based on previous experience.

“At one stage we had three sets of portable traffic lights – you can sit there for 20 mins and only one car goes through.”

Specifically relating to the construction phase of the MCCO Project, landholders held concerns for the design of surrounding roads including the proposed construction of a bridge/overpass over Wybong PO Road. As discussed in **Section 6.1.6** (Environment), landholders were concerned with the potential visual impact of an overpass in the area, with one landholder suggesting a tunnel would address this concern.

“I’m surprised they haven’t thought of the impact of that bridge and the extra traffic on that road.”

“If they put in the over pass the construction phase will affect me.”

“The Bridge over Wybong Road – prefer a tunnel underneath the road - keep the visual landscape nice.”

“Impacting on the visual aspect when I’m driving down the roads towards Sandy Hollow.”

Landholders held further concerns in relation to the design of realigned sections of Wybong PO Road, Wybong Road and Ridgeland Road suggesting that they would prefer to keep these routes as straight as possible and limit bends/curves in the road. Once again it should be noted that the MCCO Project is proposing to realign a section of Wybong PO Road only, not Wybong or Ridgeland Roads; and the design of the proposed realignment of Wybong Post Office Road is deemed the most advantageous for the community. One landholder held concerns for increased commute times as a result of these road changes. In addition, concerns relating to traffic volume, through the construction phase, and cumulative noise from construction and current mining operations were also noted.

Contrary, to stakeholder perception, no realignment of Wybong or Ridgeland Roads are proposed as a part of the MCCO Project and traffic studies have shown that an increase of commute times on Wybong PO Road is likely to be negligible (additional 55 seconds, at an average speed of 100 km/h when travelling towards Muswellbrook).

“It will mean that the corners they put in we won’t be travelling at 100/hr?”

“If they put in the overpass the construction phase will affect me, but if it’s not them, it’s the council doing some road works – you’ve always got that problem – roadworks are always constant.”

“Traffic will greatly impact on me – I’ve counted 30-40 cars in one row now. Increased stress that I am going to get wiped out on Ridgeland Road.”

In addition to traffic safety concerns, some stakeholders raised concerns regarding flooding in low areas of Wybong Road, given past experience, and the potential effect on traffic movements, safety and access to properties. The provision of appropriate road drainage and flood mitigation was suggested to address this concern.

“Three causeways near Big Flat Creek and Wybong –When it rains the water goes up to a foot high and lasts for a week – they need drainage and pipes in there if they are going to have traffic in there – we get cut off.”

6.1.6 Health and Wellbeing

A number of direct health impacts were discussed by landholders relating to current and proposed mining operations, including comments concerning dust and the uncertainty of prolonged exposure to airborne particulates. The most common health concern raised by stakeholders was respiratory concerns, followed by drinking water contamination. A small number of landholders considered the impact of plumes from blasting as a health concern for them specifically.

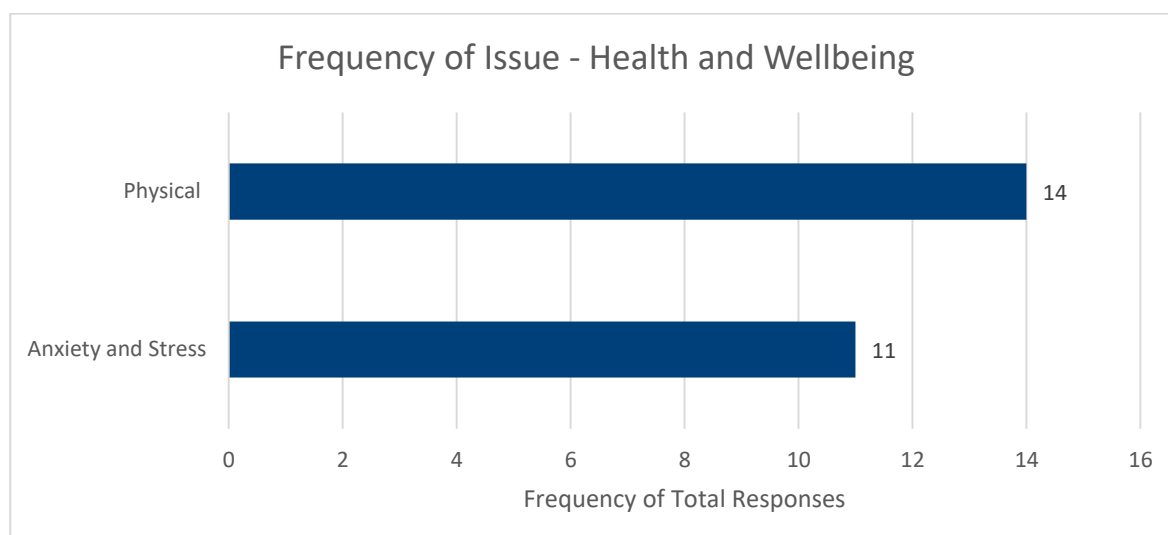


Figure 6.12 Perceived Health and Wellbeing Impacts

Source: Umwelt (2018)

Note: n=44, multiple responses allowed

Physical health concerns attributed to dust were mentioned by a number of landholders and emphasised by those in closer proximity to the MCCO Project. Such issues related to the impacts of dust on drinking water, as a result of current mitigation measures associated with the filtering of tank water to remove the “black dust” that is produced throughout the year.

In addition, uncertainty surrounding the potential for exacerbation of respiratory illness, especially for the elderly and young children, was also raised.

“We don’t know what the health impacts are going to be.”

“I ended up in hospital for not being able to breathe – I had to use a puffer for the first time – we went to Nelson Bay and I did not have any problems but as soon as I came home it started again.”

“I worry what it is doing to my kid’s health too.”

In addition to physical health concerns, 11 landholders commonly reported psychological health concerns, predominately related to stress and anxiety, as a result of the MCCO Project (see **Figure 6.12**). Specific comments centred on the increased pressure on interpersonal relationships and apprehension/anxiety regarding future lifestyle and financial stability - if unable to sell their property. Noise concerns impacting sleep patterns were also noted, particularly in relation to increased irritability and a lack of ability to focus on work or study.

“This is a really stressful situation for us and it is affecting our relationship.”

“We decided for our own mental health to tolerate it and not complain.”

“It’s getting so stressful and I’m at the point where I can’t sleep at night due to stress and worry.”

“This is all increased stress in my life. It affects me, my family, and my neighbours, my lifestyle, health impacts, kids, and the stress we all experience.”

"I face years of aggressively managing the implementation of mitigation measures, requesting independent noise and air quality monitoring, continually being informed of blasting times, altering our lifestyle to fit in with Mangoola Coal Mine operations, inability to sell my property, thinking of all of these scenarios creates a high level of stress for myself and fear for my family."

"The noise breaks sleeping patterns... there have been times when they go to school tired and exhausted from the disturbed sleep."

Residents also noted heightened stress when navigating industry reports, stating that technical jargon, data analysis and lack of industry knowledge creates confusion. Some stakeholders commented that they have been encouraged by Mangoola to utilise the grievance system to allow appropriate redress of issues associated with their operations, however some landholders perceived that the continual need to complain to Mangoola was limiting their ability to cope with the MCCO Project coming closer, and they did not want to be labelled a "whinger."

"They tell me I should ring and complain but I'm not one of those to ring and complain."

"There is inadequate independent support provided to landholders around understanding and interpreting planning procedures and relevant Policies i.e. NSW Planning Voluntary Land Acquisition and Mitigation Policy, Noise Industry Policy, Social Impact Policy etc."

"Landowners are at the mercy of the proponent ... if the proponent doesn't choose to provide information and only provides the minimal information required, landowners are left uninformed and disillusioned in a process as a number."

6.1.7 Environment

Impacts to the natural and built environment covered a range of different sub-issues (refer to **Figure 6.13**), including general visibility of the proposed mining area, introduction of bund walls, as well as the proposed construction of a bridge/overpass over Wybong PO Road. General visual impacts, including spill associated with night lighting, were relatively minor, with only two stakeholders identifying this impact.

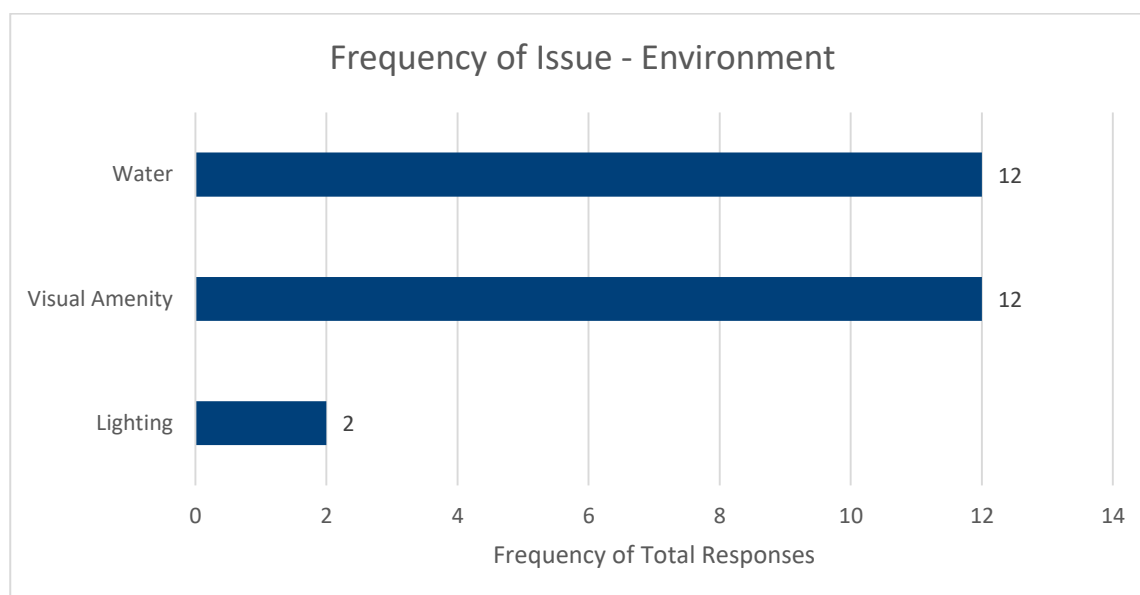


Figure 6.13 Perceived Environment Impacts

Source: Umwelt (2018)

Note: n=44, multiple responses allowed

A high proportion of landholders were concerned in regard to potential impacts on ground water, specifically any decline of water in local creeks and potential impacts to private bores.

“Driving in through Ridglands Road it looks beautiful and that’s where they will be mining – it won’t be beautiful anymore.”

“There’s nowhere in here that you won’t see the open cut mine. They are nasty looking.”

“When you start to get close to home and you’re starting to wind down after work – not having to skirt an active mining area for almost all of it. It’s confronting when driving up.”

“They might need a full forest, not just a line of trees along Ridglands Road, a full forest like they have done along Wybong Road.”

Some stakeholders raised concerns in regard to private bores and creeks that may be affected from the MCCO Project. The recent drought appears to be increasing concerns surrounding the availability of water, with many stakeholders stating they rely on a consistent water supply for livestock and property needs, having recently had to buy in water for these purposes. Increased salinity and bed rock displacement in the creeks were also perceived by proximal landholders to be due to current mining operations.

“If this goes ahead (I hit water at 80m) – it will affect the water table. They haven’t spoken to me about the water.”

“How will you explain a creek that has disappeared?”

“Underground bore...I’m concerned with that, I rely on this water for my house.”

“We need a property with good water – Wybong creek is a really good water source.”

“Hunter River trading scheme – there’s a lot of salt being dumped into the Hunter River from every mine.”

"Springs and soak area have dried up...it seems strange that they dried up after they started their operations and never got wet again. I don't know if they dug through these seams?"

6.1.8 Land Use and Management

As can be seen in **Figure 6.14** current rehabilitation efforts by Mangoola were commended by several stakeholders (5), who stated that Mangoola had excelled with their rehabilitation and that continual rehabilitation was perceived as a positive impact of the MCCO Project. As noted above in relation to visual impacts, some landholders suggested that further planting of trees both on and off site and on individual private properties would improve visual amenity and provide a further buffer from noise and dust.

"Mangoola's rehab is magic - you don't even know the mine is there - when it's on the other side of the road it'll be more visual though."

"I give Mangoola credit for their rehabilitation."

"What they have done on the other side of Wybong Road with revegetation and rehabilitation, it has been done very well, much better than other mobs."

"They're going to have to put the bund straight in and cover it with rehabilitation to hide the mine."

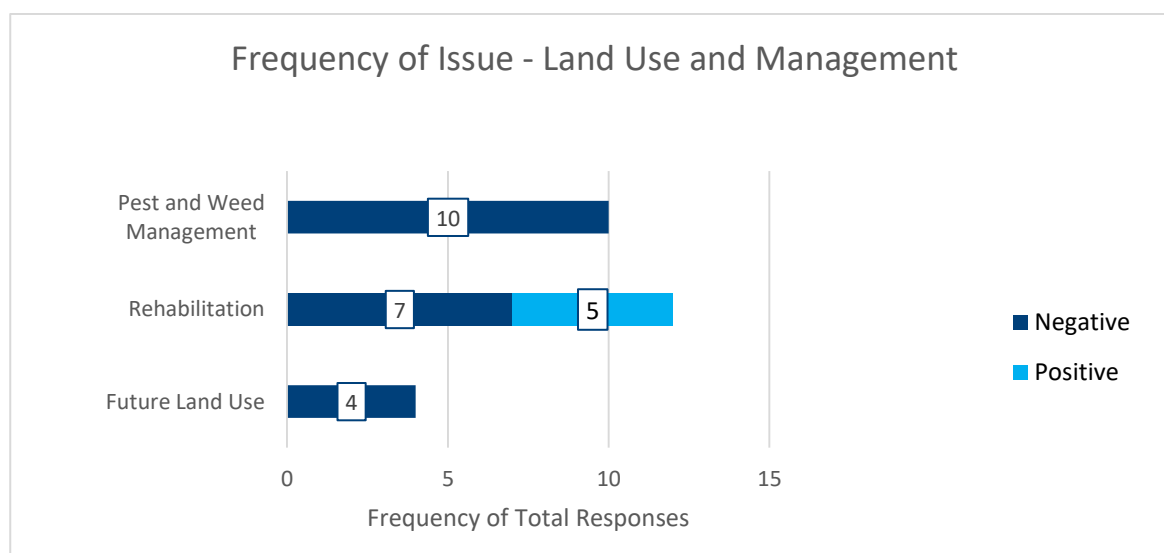


Figure 6.14 Perceived Land Use and Management Impacts

Source: Umwelt (2018)

Note: n=44, multiple responses allowed

In regard to maintenance of mine owed land, some landholders were concerned in regard to pest and weed management. Suggestions that Mangoola adopt appropriate maintenance of mining perimeters and security fences surrounding the MCCO Project to prevent kangaroos and other animals e.g. wild pigs and dogs, goats and deer, threatening the safety of road users and spreading weeds.

"They breed kangaroos – the mine doesn't do enough about them – they destroy people's cars and that's been happening for 4 years."

"They need to be blocked in. It's not doing any good to have them be bred just to be killed on the roads."

“Tiger pear - they’re not doing anything to control it. It grows along the fences and kangaroos spread it.”

“There’s 100s of kangaroos on the roads and there are mobs of 50 running across the roads. Driving at night is awful.”

Some landholders perceived an increase in vermin as a result of poorly-maintained tenanted and mine owned properties, suggesting that greater conditions needed to be placed upon tenants to maintain a high standard of property management.

“Mangoola need to control the vermin and I permit them to put baits in whenever they want.”

“If they leave them open or leave high walls there are big rocks they put there that increase vermin habitat and wild dogs.”

“They don’t maintain their properties well and encourage more vermin, wild dogs etc., especially kangaroos.”

A number of stakeholders (4), held concerns regarding future land use post mining, with concerns the land will be unfit for agricultural purposes. Appropriate void rehabilitation was considered important to reduce salinity entering groundwater and to control for pests.

“They can’t sell the rehab land, it isn’t good for anything, they have ruined it.”

“Kangaroo management and environmental impacts are also still on our mind.”

“What job opportunities are there going to be to keep the town going and encourage people to come back to rebuild a community. They talked about forestry but I don’t think anything has happened with that.”

6.1.9 Economic Impacts

Figure 6.15 highlights the potential economic concerns raised by landholders in relation to the MCCO Project and includes both positive and negative impacts of employment, potential income loss and concern for local economic growth.

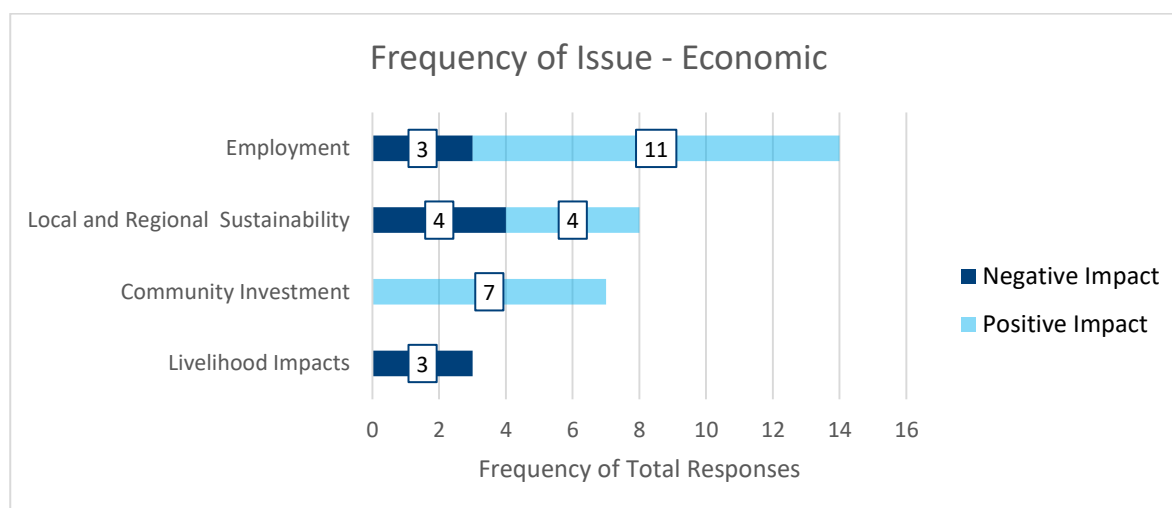


Figure 6.15 Perceived Economic Impacts

Source: Umwelt (2018)

Note: n=44, multiple responses allowed

Employment was discussed as a positive impact of the MCCO Project with 11 stakeholders identifying prolonged employment as a benefit to the local community.

“From what I understand, Mangoola source their workforce from the local community – and senior management live in the local community so continued and longer term employment and future employees.”

“It was a plus to get locals employed.”

“It’s creating employment for people, keeping people employed, and the support services for the mine.”

“Jobs for local people I guess is a positive – they will have jobs for a bit longer and I suppose that is good for the community.”

Although employment was expressed by the majority of landholders as a positive impact of the MCCO Project, a small number of landholders (three) were concerned in regard to local workforce provision and the number of young people in the locality being provided with training and employment opportunities. This issue was less of a concern than previously identified in the Mod 6 SIA engagement program.

While some landholders acknowledged that Mangoola sources employees locally, including managerial staff, others perceived that there was a substantial drive-in-drive-out (DIDO) workforce from Newcastle and the Central Coast. However, as detailed in **Section 4.1.2**, a review of current data relating to workforce residential locations indicates that around half (51%) of the existing Mangoola workforce reside in Muswellbrook with a further 22% residing in the Upper Hunter Shire.

“They have no interest in employing any local people from around here.”

“There is an employment aspect, but it may not necessarily be in the area affected. Lots of employment comes from Newcastle and Singleton, not really from here.”

“Historically operators don’t tend to support locally, their focus has been on out of town contractors and services.”

“We have a fairly high youth unemployment base here; I’d really like to see more training of the local kids.”

Local procurement was also mentioned by stakeholders as a concern, suggesting that local procurement needed to be maximised where possible through the provision of services such as fencing, livestock trading and trucking etc. In relation to the latter it was suggested that Colinta currently do not utilise local contractors for the transport of cattle, with cattle trucked to sale yards outside of the region despite the presence of the local Denman sale yard. Colinta typically run between 5000-6000 head of cattle in NSW, with seasonal fluctuations, and generally sell to feedlots at Quirindi or Dubbo and own a grazing and irrigation property in Mangoola running 1500 breeders (**Appendix 3**).

For local businesses that are engaged by Mangoola, the lack of more flexible contract terms was identified as a barrier to continued procurement.

“never seen a Colinta truck go through the yards.”

“If you don’t sustain the local industry they all die.”

“From what I understand, Mangoola source their workforce from the local community – and senior management live in the local community so continued and longer term employment and future employees.”

Four stakeholders expressed the opinion that the MCCO Project will provide economic growth for the Muswellbrook region, however in light of the comments above, there was a strong desire to see greater benefits of the operation and the MCCO Project e.g. local employment and procurement, flow into the locality of Wybong; with the perception that much of the benefit is currently experienced in Muswellbrook, the broader Hunter region and NSW.

Landholders recognised the contribution Mangoola currently make in regard to community investment (seven) and again expressed a desire to see investment and contributions targeted more locally.

“Happy that they provide funding to the community.”

“They did a great job at the Wybong Hall.”

“The way they support the Hall and the rural fire brigade receives support.”

“They do everything elsewhere – the Christmas concert, sporting clubs. What about the people that are actually impacted?”

A small number of landholders reported potential impact on livelihoods as a result of the presence of the operation and the MCCO Project, citing a lack of ability to progress business plans or sell the business, the impacts of mining activity on quality of products e.g. wool, and impacts on the everyday work e.g. unable to perform employment role effectively due to the experience of noise and other impacts. However others acknowledged that their livelihoods were based on employment in the mining sector.

“Now in limbo as to whether to continue, it’s a future income for us but not sure what to do”

“Mangoola Coal Continued Operations Project will impact on my ability to effectively attend to my duties in this position”

We're all for the mines really it gives employment for the kids"

"It's creating employment for people, keeping people employed, and the support services for the mine"

6.1.10 Blasting

A number of concerns were raised by landholders in regard to current blasting activity and the potential increases of impacts as a result of the MCCO Project. These concerns were primarily raised by landholders in close proximity to the Project Area, in Wybong and Manobalai state suburbs respectively.

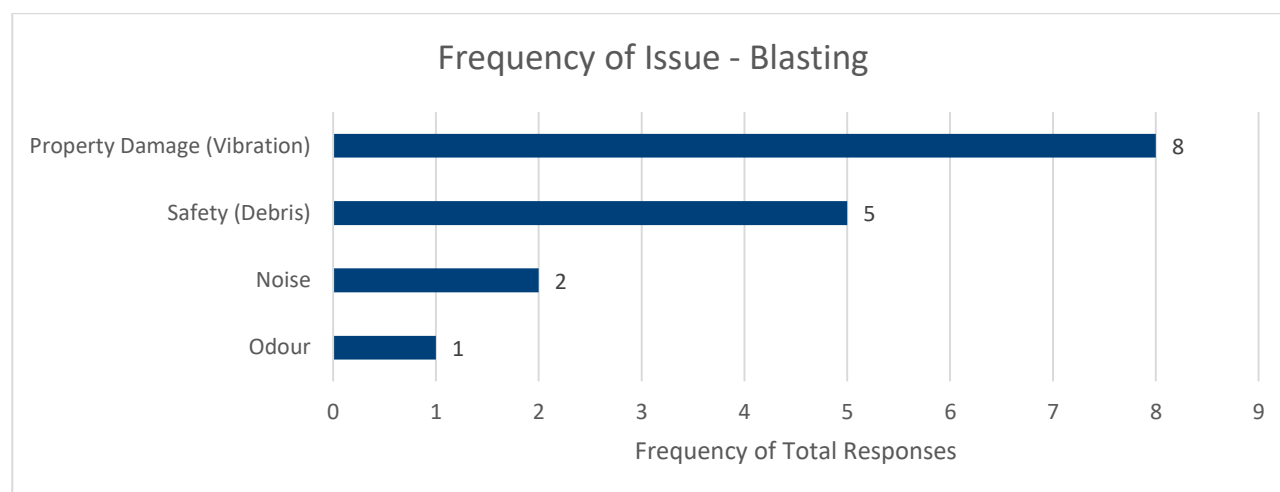


Figure 6.16 Perceived Blasting Impacts

Source: Umwelt (2018)

Note: n=44, multiple responses allowed

Four landholders in close proximity to the Project Area expressed concern that blasting at the existing operations had resulted in impacts or property damage, and that further blasting impacts on property were expected as a result of the MCCO Project. A small number of landholders also reported noise and odour based on their experience with current operations. Cumulative impacts in relation to blasting were also noted and are discussed further in **Section 6.1.11**.

"Blasting has caused damage to our house (Bathroom cracking)."

"The cracks in our house are getting worse. Blasting has caused damage to our house."

"Our glass photo frame fell off the wall and smashed."

"If they blast over there when the wind's blowing the wrong way you cop a bit."

Two landholders expressed safety concerns in regard to blasting, in the event that potential vibrations may dislodge secondary debris from the rocky escarpment surrounding their properties. Safety concerns included the wellbeing of children playing along the edge of the escarpment or from falling rocks, potentially damaging property below. One stakeholder suggested that there was the potential for blasting to also have an effect on livestock, including horses.

"All the rock behind our house – will they be disturbed when they start blasting?"

“My kids won’t be able to play up in the escarpment any more, those rocks could come down and hit my property.”

“Bringing the kids inside and making our life revolve around Mangoola’s blasting. My kids run around those hills and now I will not be able to send my kids outside.”

“[Safety concerns] when carrying a mare and a foal with a big bang.”

6.1.11 Cumulative Impacts

As illustrated in **Figure 6.17**, a number of landholders raised concerns in relation to the cumulative impacts of mining operations in the locality and broader region. These concerns included dust, noise, blasting, rail traffic, current exploration leases and other proposed developments such as the Yarraman Feedlot and Abattoir, which if approved and if it proceeds (no application lodged as yet) is likely to employ a workforce of approximately 500 people and utilise Wybong Road for primary access, providing direct access to the Golden Highway (Major Projects, 2019).

“We will have dust, noise, cows, smell and flies.”

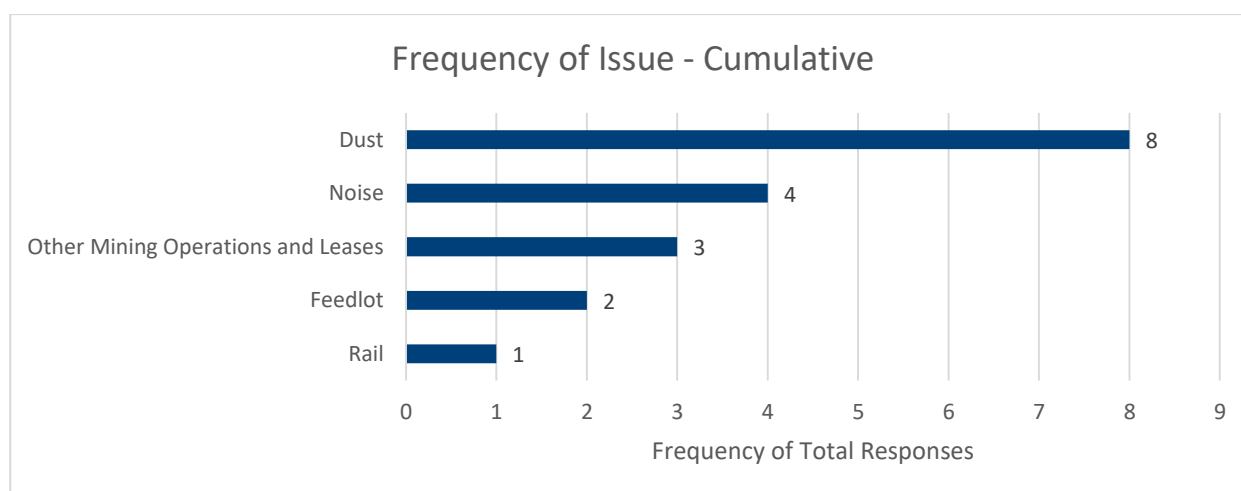


Figure 6.17 Perceived Cumulative Impacts

Source: Umwelt (2018)

Note: n=44, multiple responses allowed

Dust was commonly attributed to Mangoola, Bengalla, Mount Arthur and Mount Pleasant mining operations, with stakeholders reporting southerly winds often carrying dust from these mines. It was noted that the MCCO Project would only further exacerbate existing cumulative environmental issues.

“I’m suffering already – with dust from Bengalla and BHP - it all depends on the way the wind’s blowing.”

“The government should be looking at the cumulative impacts more closely and do something about it. It’s all of the mines contributing but it doesn’t seem to matter because individually they are meeting their guidelines.”

Landholders also expected that the MCCO Project would contribute to the noise currently experienced, with those in Wybong and Manobalai specifically concerned that the topography of the area i.e. mountains, would not effectively ameliorate the noise at night, due to the flat landscape and the valley apertures – creating a tunnel effect.

“There will be cumulative noise impacts of the existing mine and the expansion noise impacts.”

“The noise will get through the valley.”

“You hear the noise straight through the valleys – it’s amazing how much noise travels in here.”

Cumulative blasting impacts were also a concern for some landholders, specifically the impacts of dust, odour and vibration from all surrounding mine operations.

“Mt Arthur let off a blast with red dust and vapour– it stinks – you can smell Mangoola’s too.”

“Vibration of the blasting – Mt Arthur, Bengalla and Mangoola - you know which one let the shot off by the way the vibration comes through the house.”

“We have had the whole house shake and the photos swinging – all three mines blamed each other and didn’t take responsibility for it.”

A small number of landholders (3) also raised concerns in relation to other potential mining areas and the inability to receive effective mitigation measures from any mine operation.

“We are so far out of all these mines’ zones but we are impacted so badly.”

“We are also in the middle of Ridgeland’s mining lease as well – uncertainty with Ridgeland’s expansion.”

Stakeholders in the vicinity of the Mangoola rail loop were concerned with further impacts of the trains as a result of the MCCO Project, including potential increases in train movements, noise from shunting carriages and property devaluation. One landholder held high concern for privacy and visual amenity due to lights, noise e.g. horns sounding, and anti-social behaviour of certain drivers when trains are pulled up on the line near their property.

“The rail used to run 1-2 trains a day - but now we’ve got up to 30-40 trains a day plus all these mines around – it’s absolutely hard to sell.”

“If they are going to update the capacity of their mine we would get more trains coming through here - this will affect us from selling our place.”

Consultations with proximal landholders during Mod 6 2013, noted cumulative impacts related to impacts to rural amenity, including, dust and noise, sense of community and property values.

6.1.12 Decision Making and Engagement

In relation to landholder perceptions of Mangoola’s engagement process, Mangoola personnel were perceived as likeable, however eight landholders referenced an inability to make informed decisions, and little opportunity to question information provided, resulting in an overall distrust of the engagement and decision-making process.

Some technical study outputs were not complete at the time of consultation, meaning that the full technical study detail desired by some members of the community was not available, which may have contributed to this level of dissatisfaction. However, as part of the EIA and SIA process, there has been ongoing correspondence with proximal landholders to address questions and concerns as they arise, and to ensure that stakeholders are well informed of the MCCO Project.

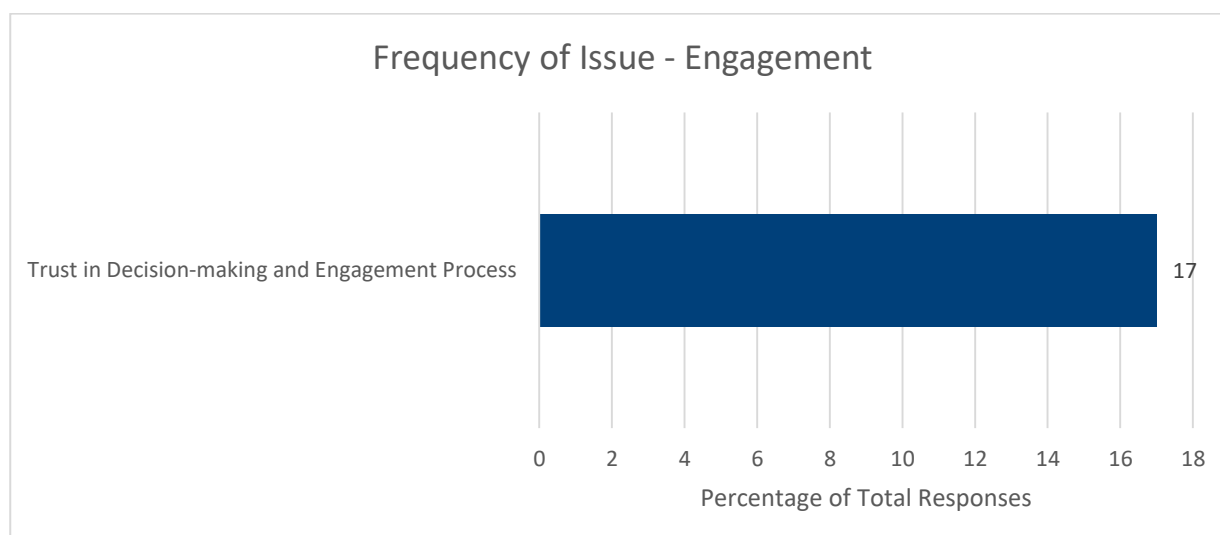


Figure 6.18 Perceived Engagement Impacts

Source: Umwelt (2018)

Note: n=44, multiple responses allowed

Across all the engagement comments received, there was a general theme relating to lack of trust in both Mangoola and the government and an expression of limited power in the process to influence project decisions.

Landholder satisfaction with company engagement totalled 4.9 out of 10 (see **Figure 6.19**) on average; with landholders noting the need for engagement to be proactive, transparent, timely and consistent as a means to improve stakeholder relationships.

Stakeholders often expressed an inability to successfully navigate complex technical reports and/or question technical data, which only served to decrease trust in the data and increase anxiety in relation to the MCCO Project. There was also the perception that language and terminology was being used to influence or deceive the community e.g. use of the word 'continuation' instead of 'expansion'. Landholders called for less jargon and more plain English in newsletters and reports. However, as illustrated in **Figure 6.19** and the quotes below, some stakeholders provided positive feedback on the process.

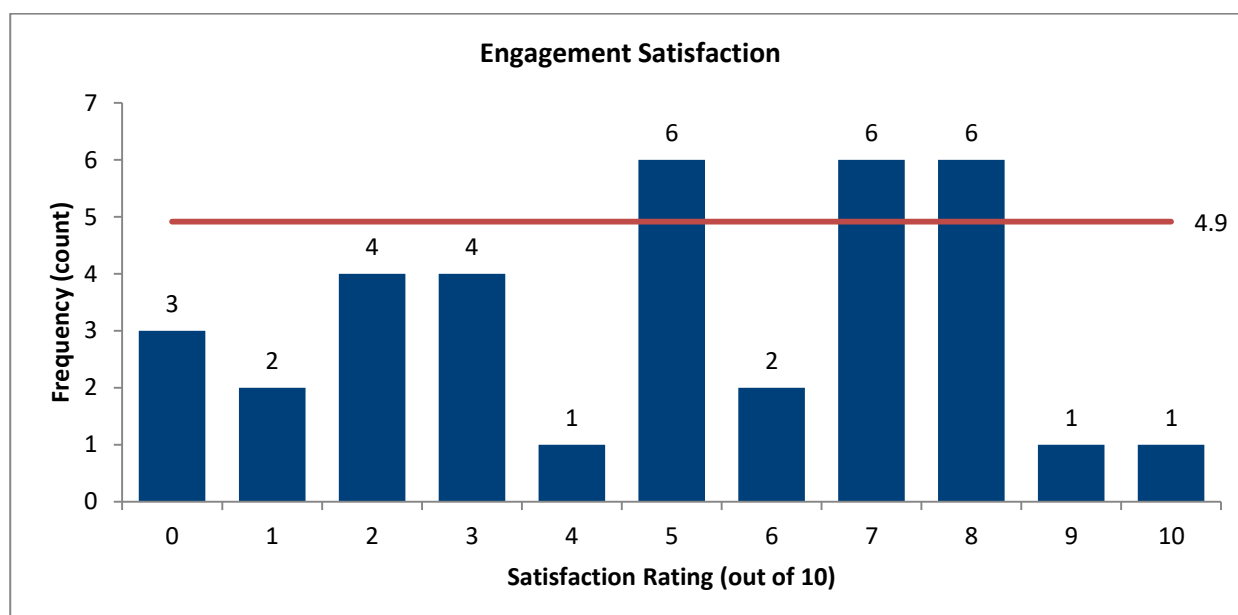


Figure 6.19 Engagement Satisfaction Rating (Out of Ten)

Source: Umwelt (2018)

Note: n=36 (8 respondents chose not to give a rating)

"We're deliberately kept in the dark for each modification."

"Even the government departments are a part of the process and they are not there to look after anyone – they're just there to make sure the mines get what they want."

"I give them a 10/10 for the boys coming here. We like the guys."

"Landowners are feeling disempowered in the process as Community Members, only by chance, are discovering additional information."

"Even the local council has no say – the best they can do is a little bit of money for the roads - everything rests with the DPE."

"The management team at the moment is trying to keep us informed."

"The legislation of land acquisition and effects really do fall in favour of mining."

"Half the trouble is that the government processes don't consider the landholders, the policies protect the mines."

"Pretty happy with the newsletter."

"All they want to do is tick the box."

"They keep reassuring us that they always operate within the guidelines. I find it difficult to believe."

"I like the meetings with them and we have seen the same people twice – in the early days there were so many different faces. This time engagement is better – we get some continuity with the same people."

"We can't possibly document everything that needs to be said - because everything needs to be documented and I get frustrated that I don't have time to be documenting everything."

"It's not really a continuation – that's a play on words - it's an expansion – it is broadening the envelope in terms of where they mine."

"They are always pretty good."

"I need to keep on repeating myself over and over again, asking my same simple questions after I am bombarded with continued technical references."

6.2 Impacts by Locality

Landholder concerns were also analysed by locality and to be expected, areas where more landholders were consulted presented a more extensive range of perceived social impacts, than areas where fewer landholders were engaged.

As **Figure 6.20** outlines, the issue of property was the highest concern for those in Denman (21%) and Mangoola (31%), while the impact of sense of community was the key concern for those in Wybong (19%), Manobalai (22%) and Castle Rock (15%). Property issues, however, were the second highest area of concern for Wybong (17%) and Manobalai (20%) stakeholders.

Although Denman will be further away from the MCCO Project, landholder concerns largely reflected cumulative impacts (18%) and operational impacts including blasting, dust, noise and secondary traffic impacts.

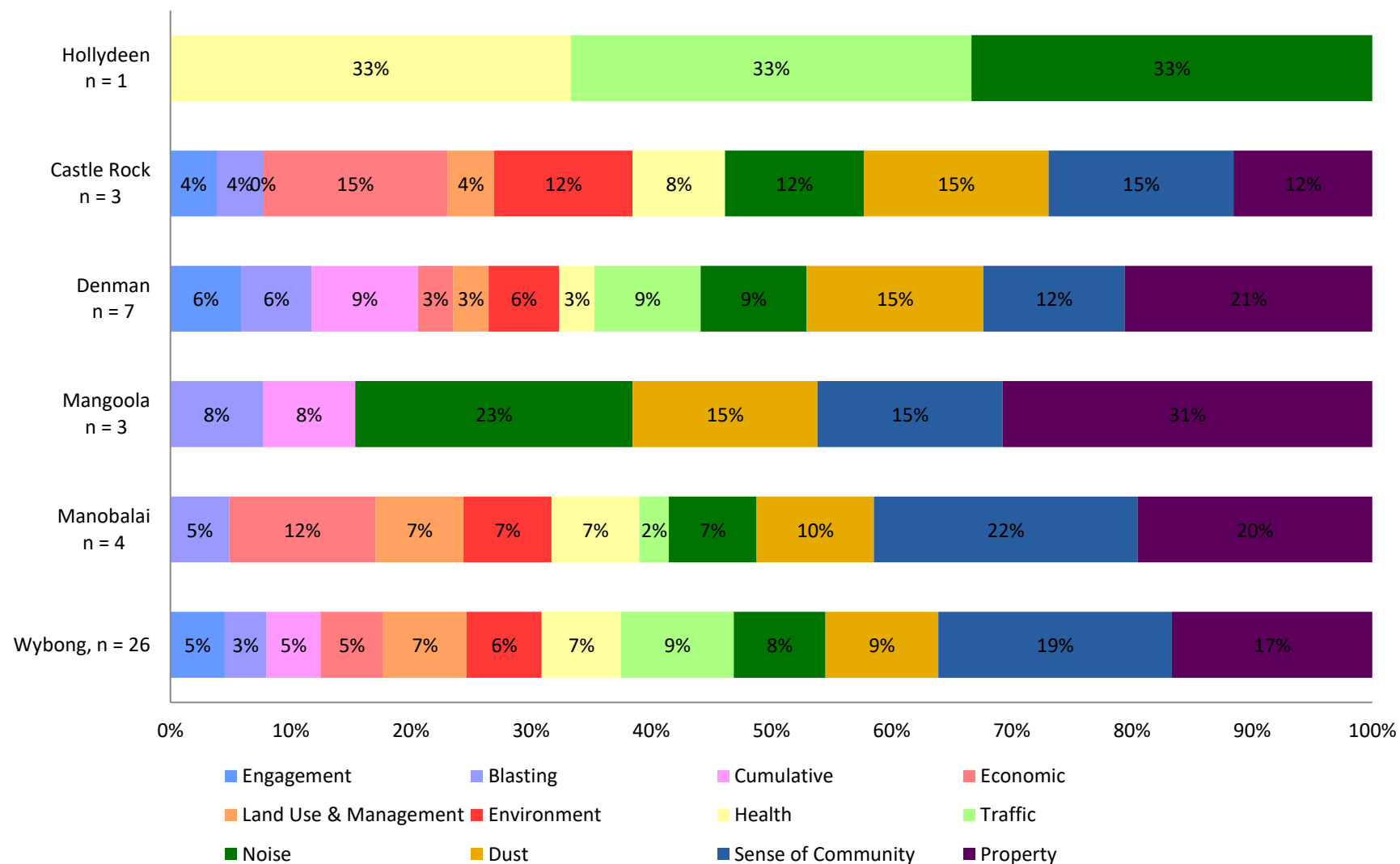


Figure 6.20 Impacts Specific to Each Locality

6.3 Broader Stakeholders within the Hunter Valley

As has been highlighted earlier in this section, consultation was also undertaken with a range of stakeholders across the Hunter Valley as part of the Glencore's community perceptions survey. Although not conducted specifically as a part of the engagement program for the MCCO Project, the survey has identified community perceptions of Glencore operations in the wider Hunter, affording input from a wider range of stakeholders than only those proximal to the existing operation and MCCO Project.

Glencore undertakes a regular community perception survey every three years involving stakeholders relevant to their NSW and QLD operations. In general, the survey affords the tracking of a number of key indicators relating to Glencore's social and environmental performance and provides an evaluation of the approach the operations have adopted in relation to stakeholder engagement and consultation.

The most recent survey was carried out in 2018 and included 133 local landholders and 54 stakeholders across local businesses, community groups, Indigenous groups, local and state government and NGOs, relevant to Glencore's operations in the Hunter Valley. In addition, a total of 196 community members were also randomly sampled from across the Hunter Valley.

In relation to stakeholder perceptions of Glencore's operations in the Hunter Valley the survey results indicated the following:

Care for the Community

When asked if: *Glencore cares about local communities in the region* with a sample size of landholders (n=126), opinion leaders (n=43), broader community (n=199). 65% of broader community respondents, 62% of opinion leaders and 77% of landholders either agreed or strongly agreed with this statement.

Opportunity to present stakeholder views

When asked if: *I feel that I have ample opportunity to present my views about Glencore's activities in the area* with a sample size of landholders (n=120), opinion leaders (n=41), broader community (n=190). 63% of broader community, 71% of opinion leaders and 65% of landholders either agreed or strongly agreed with this statement.

Contribution to the Community

When asked if: *Glencore makes an important contribution to the local economy in the region* with a sample size of landholders (n=121), opinion leaders (n=42), broader community (n=199) 82% community, 86% of opinion leaders and 81% of landholders either agreed or strongly agreed with this statement.

Environmental Performance

When asked: *In my opinion Glencore's environmental performance is an example of good practice* with a sample size of landholders (n=118), opinion leaders (n=40), broader community (n=189). 53% of community, 66% of opinion leaders and 60% of landholders either agreed or strongly this statement.

When asked: *I think Glencore is taking measures to address environmental issues*, with a sample size of landholders (n=122), opinion leaders (n=41), broader community (n=193). 64% of community, 80% of opinion leaders and 66% of landholders either agreed or strongly this statement.

Ongoing consultation has also been undertaken with business and industry groups through the Muswellbrook Chamber of Commerce and Industry. Representatives from the project team have attended Chamber breakfasts and have presented information on the MCCO Project on two occasions. The Chamber is largely supportive of the MCCO Project due to the potential positive economic benefits at a local and regional level; and have expressed concerns that the existing operations may be exhausted in

approximately 2025 should the MCCO Project not be approved, resulting in significant negative social and economic impacts to the Muswellbrook LGA.

6.4 Indigenous Groups Including RAPs, Local Service Providers and Community Groups

To further inform the SIA, interviews were also undertaken with local Indigenous groups and services providers in the Muswellbrook LGA. A total of 15 Indigenous stakeholders participated in the interview process that held representative roles in Aboriginal service provision in government, NGOs and the private sector. This included representatives from Hunter New England Health, Hunter Valley Aboriginal Corporation, the Wanaruah Local Aboriginal Land Council and the NSW Indigenous Chamber of Commerce.

It should be noted that the comments made by the organisations were general related to mining in the Hunter Valley in general, with some specific comments related to MCCO. When it came to contributions to the community, many stakeholders identified with contributions made by Glencore as an entity as opposed to individual mines.

The relationship structure between the Indigenous Service Providers operating in the Upper Hunter and other partner organisations, as identified by the stakeholders interviewed, is illustrated in **Figure 6.21** (Note: MSC was not consulted as a service provider in this context but was consulted regarding the MCCO Project). This network analysis gives an indication of the fractured relationships the respondents described within the local Aboriginal community, with many respondents noting poor or non-existent relationships with other surveyed organisations. It is notable that no bi-directional relationships were reported, although many nominated other surveyed organisations as partners – no two organisations identified one another as partners in service provision.

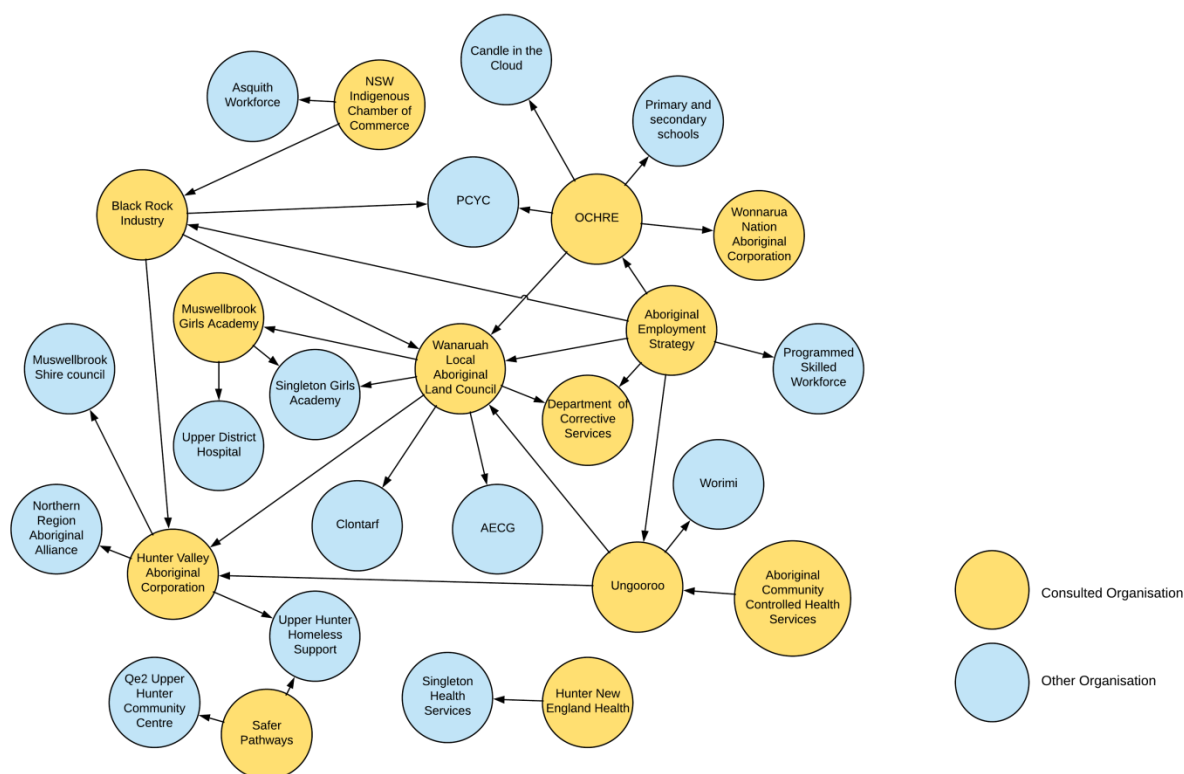


Figure 6.21 Network Map - Upper Hunter Aboriginal and Torres Strait Islander Service Providers

Many of the respondents also preferred to cite specific individuals with whom they interacted, rather than the organisation they represented. Where other organisations were representative of a different ‘mob’, this was also noted. This approach to relationships within the community may reflect a cultural divide, where organisations within the local area are interacted with on an ‘in-group’, individualistic basis, whilst representatives of external communities are dealt with collectively. The perceived divide in the Aboriginal community, and the impacts the respondents reported within the community as resulting from the presence of mining are discussed below.

Respondents were asked a number of questions about the impact of the MCCO Project and were asked to comment on the cumulative impacts of mining in the region; and to provide information on their service provision within the area. Key themes emerging from the analysis related to:

- community sustainability – cyclical nature of mining
- opportunities for mine based employment and local procurement
- community investment
- environmental impacts of mining.

In general, respondents expressed an overarching concern for the future sustainability of their communities, but also optimism for the potential of mining contributions and input to effect positive social change. Future opportunities for cooperation and engagement were also welcomed.

6.4.1 Community Sustainability – Cyclical Nature of Mining

Respondents identified the changes in population associated with mining sector booms and downturns were a key impact on the region. This impact was emphasised as a result of the high dependence of Upper Hunter communities on mining for employment and social funding, particularly the Aboriginal community.

“Mining essentially dominates the space... Employment outcomes – using local business – petrol – food – all those things get a bit of a boost. The risk is what happens when they close and major economic downturn [occurs]...during down turn you will see a pinch. Local businesses closing down.”

The impact on housing prices was a commonly noted concern for the Indigenous community. Lower rental prices during downturns were said to have temporarily afforded community members to transition from social housing into rental properties; however, in boom periods these individuals were again forced out by increased housing costs, caused by the flooding of the market by new mining employees and contractors. Respondents suggested that this in turn increased strain on social housing, leading to homelessness and movement of local Aboriginal people away from the area.

“Low income people rely on our services because of the really low level of houses available and what is available is too expensive.”

“There are contributions from the mining community, but broader issues like rent rises are not addressed. For example, there was a downturn a few years ago, so people in social housing went to private rentals because the rent had got so cheap, then the boom came, rent went up and people had to ask for social housing back.”

6.4.2 Opportunities for Mine Based Employment and Local Procurement

Perceptions of the impact of mining on local employment and procurement for the Aboriginal community were mixed. Some respondents were satisfied with the economic benefits of the presence of mining while others felt there was insufficient benefit to the Aboriginal community, given the high levels of mining activities in the area.

“Socially it has been good for the town, creating employment, contracting and economic development.”

“The Aboriginal community is disappointed, in that although there has been some employment created and some of the community are employed, it is not enough. The community hasn’t grown or benefited from mining as a whole – there has been no significant engagement for Aboriginal businesses.”

“Mining companies aren’t investing enough in local communities, there are Aboriginal people and businesses who need work, and who are not utilised by mining companies. It’s important in terms of social impacts of mining, as economic development is connected to social impacts; we need economic development to help improve social impacts.”

This dissatisfaction was commonly attributed to the lack of long-term opportunities for Aboriginal job-seekers within the mining industry and extended to field work contractual arrangements associated with community participation in cultural heritage projects.

The prevailing feeling was a desire for Aboriginal job seekers to be given greater support to access permanent employment, and encouragement to pursue higher level positions.

“It’s about being able to transition into permanent jobs (not the lower end jobs). It’s about having mentoring positions where someone can go and sit with a mining engineer and see what they do and get motivation to not only get a job, but study and become educated enough to get the engineer type jobs. It’s about progressing from basic jobs to empowering people to go further to go to Uni etc. Need to find a way to have an education without debt. Need to motivate the community to progress.”

“The need to improve people’s knowledge of how they can work. Teach people how they can apply for jobs. Teach people how they can tender.”

One Indigenous stakeholder raised the concern in regard to the way their community service has become focussed around procurement of mining contracts and the sustainability of these services in the absence of mining subsidies. In this regard, it was expressed that once mining ceases, many groups and organisations could potentially become ‘white elephants’ with no alternate sources of funding available to them.

6.4.3 Community Investment

Within the community, there was general acknowledgement of the positive contributions/investments made by the surrounding mines.

“They are pro-active in sponsoring things like NAIDOC week, also sponsored to have a new kitchen at the [Local Aboriginal Land Council] LALC, and the turf out the front, they’ve sponsored some of the programs/events at Ungooroo, Clontarf etc.”

However, service providers expressed frustration with a perceived lack of transparency and evaluation around allocation of work/funding to community groups and organisations.

"This perception that it has divided community members, in the sense of handing out money without the accountability - where it's gone."

"There is not the outcome given and it isn't an open and transparent process."

"It should be more performance based and there needs to be a model. Where is the money going?"

For some, the issue was not so much who was receiving funding, but rather for what purpose it was intended. Many felt that the focus on economic growth and employment came at the cost of important social assistance programs - that could address needs that had to be met, before lower income members of the community would be capable of accessing the employment opportunities provided by mining.

"The community is missing out in relation to the issues of domestic violence, community transport and community interaction and housing. If you look at all the reports from legal aid, NSW revenue, housing, unemployment you quite clearly see the gaps which aren't properly being delivered; and to rely on the government to do that without the assistance from the mining industry isn't sustainable."

6.4.4 Environmental Impacts of Mining

Although the focus of most respondents was on social and cultural issues associated with mining, some also spoke to the impacts of mining on the natural environment in the region more generally. Such impacts related to the impacts of air quality/dust and the corresponding health issues, potential loss of culturally important flora, fauna, and sites for which they felt a custodial duty of care, and concern for the future rehabilitation of the region.

The primary health impact was the cumulative levels of dust produced by the mines in the area.

"Dust around here is absolutely ridiculous. Health wise it has an impact on the community."

"For myself – the air. The dust. When you fly, you look down there is a distinct ring around the valley. You can't say it's from anything else. It's from the pits."

The impacts from destruction of nature were seen as damaging to the fabric of the Aboriginal population's sense of community and attachment to place.

"[Mining has] impacted on culture and heritage and the way we live. It dictates how we do things. In Muswellbrook we are now surrounded by mines. This place isn't what it used to be and when will it end and what will it look like afterwards?"

"Mining has completely impacted the area. It has brought cultural devastation in the area. There are so many people coming to the area and the mining companies still haven't got engagement with Aboriginal people right."

Discussion in this regard, highlighted a critical conflict felt by respondents – how to find a balance between protecting their cultural heritage and the environment, and servicing the needs of their communities; which they felt to be embattled and in need of the assistance that mining projects were in a position to provide.

"I don't like it [mining], but it is a necessity. The valley is rich in coal....Don't like the way it destroys things but if I can get something for my community out of it, I'll do it. People have to live whether they are rich, poor, black or white."

In light of the realities of the situation, the respondents focussed their concerns on rehabilitation and the ability of the community to access and utilise the land in the future post mining. Many were happy with how some companies were handling rehabilitation, but wanted to see more consultation with the community, so that rehabilitation could be tailored towards the preferred end-use.

“Mangoola have a great work ethic going towards rehabilitation however there needs to be more Indigenous engagement into redevelopment. How it is getting cultivated and what will the end use of mining be. Do we need more bush tucker? We need the participation in the end use.”

6.5 Issues and Opportunities Summary and Potential Mitigation/Enhancement Strategies

Engagement with neighbouring/proximal landholders and local and regional community group representatives has resulted in a number of perceived issues and opportunities in relation to the MCCO Project. Of most concern to the local communities in proximity to the MCCO Project are issues relating to property, sense of community, dust and noise. Other stakeholders, including Indigenous community service providers, were also concerned generally about the impacts of mining on the environment and the more cumulative impacts of mining in the region and the effect on community sustainability.

Having identified the perceptions of key stakeholders as part of the assessment, the proceeding sections of this SIA involve further technical assessment of these perceived issues, prediction of the likely social impacts that may occur as a result of the MCCO Project, and documentation of the strategies that may be implemented to mitigate negative impacts, and where possible enhance positive impacts to achieve improved project outcomes.

Although the engagement process, as part the SIA, has identified many potential impacts and concerns; a number of stakeholders consulted also identified opportunities to address concerns and/or enhance community sustainability and well-being.

The following tables provide a summary of the potential mitigation and enhancement measures identified by stakeholders involved in the engagement program. **Table 6.3** identifies strategies identified by landholders, with **Table 6.4** strategies raised by Indigenous and wider community stakeholders. These, and other proposed strategies, are further discussed in **Section 8.0** to address the social impacts of the MCCO Project that have been identified as having higher risk ratings.

It should be noted that some of the strategies noted in the following tables, have already been implemented or supported by Mangoola as a result of the management of the existing mining operations and current community investment initiatives.

Table 6.3 Potential Mitigation and Enhancement Measures - Identified by Stakeholders

Theme	Potential Mitigation and Enhancement Measures – Stakeholder Suggestions
Property	<p>Property Protection Plan</p> <p>Fair market valuation (prior to mine presence) when determining property value/ offering a value for property</p> <p>Property Improvement Program - to add value to properties and improve lifestyles in the district</p>

Theme	Potential Mitigation and Enhancement Measures – Stakeholder Suggestions
Sense of community	Improved maintenance of mine owned properties Management Zone Enhancement Program History Project so that local history is documented
Dust (Amenity)	Regular changing of water tank filters and cleaning Consistency of application of available mitigation measures – greater fairness/equity and transparency Improved dust monitoring Night and day dust controls
Noise	Installation of air-conditioners Wall and floor Insulation Double glazed windows or shutters Landscaping around house to provide buffer zone Limited hours of operation – daytime only Shut down activities when possible Appropriate mine design to reduce impacts Improved noise monitoring
Traffic	Improve and maintain local roads (widening and repair of shoulders of roads) SMS alerts system for road closures and blasting activity Enforce traffic speed Use of ‘Stop and Go’ personnel during construction phase, preferable to portable traffic light systems that cause long delays in travel time Road design more straight and less bends/curves in the road Flood mitigation along Wybong and Ridgeland Road Compensation for increased travel distances
Health	Improved communication of health data Investment in local health programs
Environment	Continue rehabilitation practices Dense visual screening along bunds and Ridgeland Road Dense visual screening on individual properties Subsidise cost of bore licencing Further engagement with Indigenous communities in relation to key environmental concerns
Land use and management	Pest and Weed Management (including baiting and culling programs for kangaroos, pig, wild dogs, deer, rodents and prickly pear) Further engagement with Indigenous communities in relation to land management, rehabilitation and future land use post mining

Theme	Potential Mitigation and Enhancement Measures – Stakeholder Suggestions
Economic impacts	<p>Local procurement (use of local contractors e.g. cattle sales, trucking and fencing)</p> <p>Flexible contract terms for local businesses/contractors given business scale</p> <p>Local employment for Indigenous and non-Indigenous local populations</p>
Cumulative impacts	<p>Collective development assessment of other mines - feedlot, rail</p> <p>Rail - interaction with ARTC, privacy walls and tree planting to increase privacy to properties along the rail line</p>
Blasting	<p>Multi alert systems including SMS and email to provide safety from fly rock and safety of livestock and domestic animals</p> <p>Continue road signage</p> <p>Monitors to be located close to/on individual properties</p> <p>Structural surveys completed for all properties</p>
Engagement impacts	<p>Improved engagement and communication relating to technical assessments e.g. specialists</p> <p>Early, transparent and consistent engagement</p> <p>Clarity regarding mitigation options available</p> <p>Suite of engagement tools to reach wider audience, including use of local community noticeboard e.g. Wybong area</p> <p>Community engagement sessions conducted in local area e.g. Wyong Hall</p> <p>Further targeted engagement with Indigenous communities in relation to key environmental concerns, land management, rehabilitation and post mining land uses</p>
Infrastructure and services	<p>Waste collection</p> <p>Telecommunications (mobile and television signal reception)</p> <p>Road maintenance</p> <p>Continuation of school bus run (includes the ability to be used as transport route into town for elderly)</p> <p>Solar panel cleaning to increase output efficiencies</p> <p>Maintenance of existing infrastructure (Wybong Hall, Shade sail for Wybong Hall Playground, cemetery, churches)</p> <p>Additional bus shelters along bus route</p> <p>Existing bus shelters maintained</p>

Table 6.4 Potential Mitigation and Enhancement Measures - Identified by the Wider Community and Indigenous Stakeholders

Impact/Opportunity Area	Specific Programs – Stakeholder Suggestions
Employment and business assistance	<p>Career progression, training and scholarships for school leavers (within & outside of mining)</p> <p>Indigenous inmate transition-to-work program (St Helliers)</p> <p>Aboriginal traineeships (for disadvantaged persons)</p> <p>Jobs and business information sessions and workshops (e.g. local employment/recruitment, local procurement)</p> <p>Career service provider information day</p> <p>Small business strategy forum</p> <p>Sustainable jobs in mining</p> <p>Local procurement strategy</p> <p>Strategic planning with Indigenous community in relation to land end-use post mining</p> <p>Scheme to assist youth/job seekers to obtain their license (driving hours)</p> <p>Aboriginal business strengthening and diversification program</p>
Cultural activities	<p>Culture Centre or Museum to exhibit local artwork and artefacts – link to regional tourism strategy</p> <p>Camp out at Wollombi overnight, funding for meals and resources</p> <p>Engagement around end land use of mine, e.g. rehabilitation and planting ‘bush tucker’</p>
Health	<p>Funding for healthy eating workshops, transport to and from services, social venues, workshops around family in home care</p> <p>Community programs to address heightened levels of domestic violence</p> <p>Support training and design initiatives that encourage Indigenous participation in services</p> <p>Educating Aboriginal community about existing health services</p> <p>Engage HNEH about Aboriginal health in the area</p> <p>Bring counselling services to Muswellbrook for school students experiencing difficulties/trauma</p> <p>Assist in procuring a block of land for a Men’s shed – focus area = reducing male suicide</p> <p>Create a cultural arts space for women to meet, create and socialise</p>

Impact/Opportunity Area	Specific Programs – Stakeholder Suggestions
Funding	<p>Glencore representatives could participate in MSC's reconciliation Meeting</p> <p>Forum between Indigenous community leaders, groups, LALC, etc. and all mines in the area to coordinate funding across the region</p> <p>Funding for Aboriginal Girls Academy</p>
In-kind investments	<p>Set up community committees to try to resolve factional conflicts</p> <p>Contribute to resourcing small businesses, to help them grow.</p>

7.0 Assessment and Prediction of Social Impacts

This section provides a risk ranking of the social impacts identified during the scoping phase of the SIA (as outlined in **Section 6.0**). The aim of the SIA is to assess the proposed change to the current baseline social environment (of which current Mangoola operations are a part), as a result of the MCCO Project proceeding.

The SIA has utilised data from a number of sources to develop a layered picture of the potential social impacts arising from the MCCO Project. This section further assesses the social impacts associated with the Project, providing a detailed ranking of impacts according to a number of key criteria, as defined in the SIA Guideline (DPE, 2017). These criteria relate to:

- **extent** -the geographical area affected by the impact or number of proportion or people or population groups who are affected
- **impact timing/duration** - when in the MCCO Project the potential social impacts are expected to occur e.g. Pre-construction, Construction, Operation, Closure, Post-closure and the timeframe over which the impact occurs
- **vulnerability/sensitivity** - identification of who specifically is to be affected (directly, indirectly or cumulatively), including susceptibility or vulnerability of people, receivers or the receiving environment to adverse changes caused by the impact
- **stakeholder perceived risk ranking** - the importance placed or level of concern that those potentially affected feel about the social matter
- **impact severity** - the potential level of social risk posed by the negative social impact and the scale or degree of change from the existing condition as a result of the impact.

In order to prioritise the identified social impacts, a risk-based framework has been adopted. Traditionally, the technical risk assessment process has not been greatly amenable to the inclusion of social impacts. One key adaptation of the approach is that both technical ratings and stakeholder perceptions of impacts are assessed. This approach is consistent with Sandman's risk equation ($\text{Risk} = \text{Hazard} + \text{Outrage}$) (Sandman, 1997), which acknowledges the low correlation between a risk's technical 'hazard' (how much harm it's likely to do) and its 'outrage' (how upset it's likely to make people).

Stakeholder perception of risk/impact is considered an independent and no less valid component of risk. The integration of the outcomes of technical ranking (severity) with stakeholder perceived ranking of impacts, thus affords a true integration of expert and local knowledge in SIA and enables both types of risk to be addressed in the development of impact mitigation, amelioration and enhancement strategies. Such an approach is acknowledged in the SIA Guideline in relation to estimating material effects.

Prioritising impacts in this integrated manner makes sure that appropriate assessment and mitigation strategies can be developed that not only address impacts that may require more technical management but also those impacts that are perceived by stakeholders as of high risk/importance/concern. These perceived concerns are just as important to manage as they have the potential to result in elevated levels of community concerns, complaints and grievances if not addressed appropriately.

As outlined in **Section 6.0**, a range of social impacts have been identified in relation to the MCCO Project that requires prioritisation for assessment and appropriate management/enhancement. These impacts fall within the following social impact categories as outlined in **Figure 7.1** below.

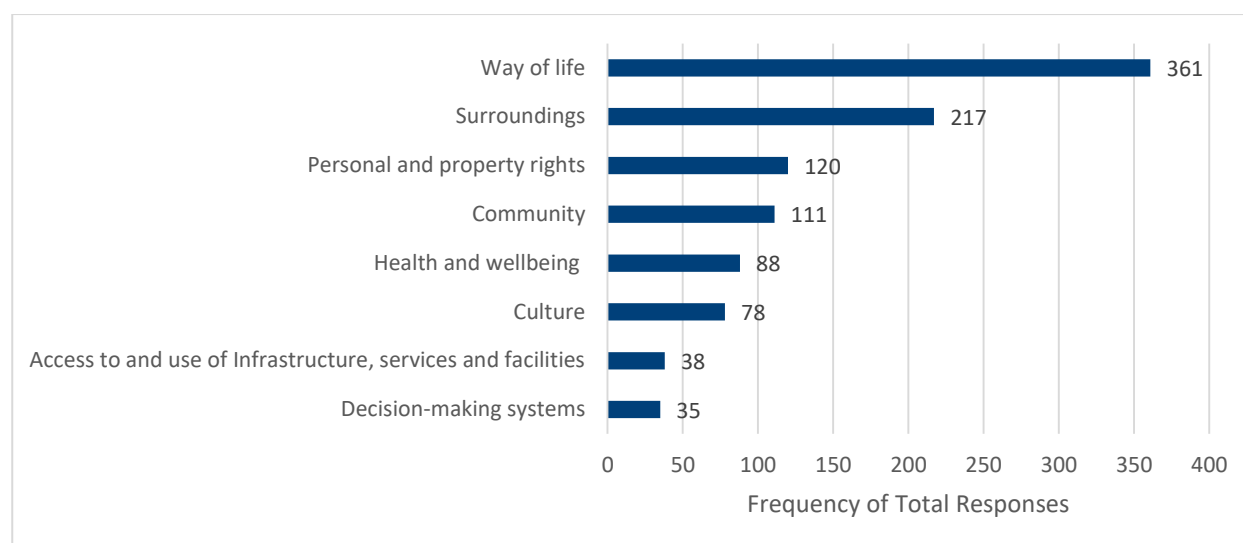


Figure 7.1 Impacts by Social Impact Category

Source: Umwelt (2019)

The impacts identified within these social impact categories are assessed in detail as part of the overarching risk-based framework in the following sub-sections. It should also be noted that social impacts are often not mutually exclusive, with higher order impacts such as population change resulting in second order impacts such as impacts on sense of community and service provision.

Consequently, **Figure 7.2** illustrates the interconnectivity of impacts across the social impact categories and themes in relation to the MCCO Project.

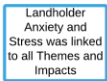


Figure 7.2 Social Impact Interconnectivity

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7.1 Assessment of Social Risks/Impacts

This section provides an evaluation of the significance of each potential negative and positive social impact without mitigation. The assessment is undertaken using the criteria noted above and through the application of a consequence and likelihood framework as identified in the SIA Guideline (DPE, 2017 p.41). The impacts are then further revisited in **Section 8.0** once mitigation and enhancement strategies are considered.

The social risk matrix (refer to **Table 7.1**), that considers both the consequences of the potential social impact (minimal, minor, moderate, major and catastrophic) and the likelihood of the impact occurring (rare, unlikely, possible, likely and almost certain) is then used to determine an overall risk assessment of the social impact as '*low*', '*moderate*', '*high*' or '*extreme*'.

Both positive and negative impacts are considered in this regard, with slight adjustments made to the approach to reflect positive impacts e.g. level of concern becomes level of interest, severity becomes scale of improvement or benefit, sensitivity becomes importance of the improvement or benefit and the equity of its distribution etc.

As noted in the SIA Guideline, the definitions and scale assigned to each of the likelihood and consequence categories need to be relevant to the impact that is being evaluated, explained and justified in the SIA and where possible the consequence scale should be based on established measures and standards. Where possible and relevant, specific definitions have been developed for the consequence categories of the identified social impacts and are guided by best practice research findings (Coakes, 2012), and relevant agency guidelines (IAIA, 2015). These definitions are outlined in **Table 7.3**.

The social risk assessment process for the current SIA, has therefore involved four main steps:

1. **Determining the consequence.** The risk approach adopted for this SIA requires the determination of the worst-case (but reasonable), consequence of a project factor. For some impacts it may be a negative consequence, while for others it may be a positive consequence (positive risk rankings are delineated in italics). These consequences are assessed against impact-specific consequences and are categorised as 'catastrophic', 'massive', 'major', 'moderate', 'minor' or 'minimal' (refer to **Table 7.1**). It is noted that the social risk matrix from the SIA Guideline provides greater emphasis on high and extreme risks, with 16 out of 25 risk rankings (64%) across the matrix being identified as high or extreme.

To provide a further cross check and alignment of consequence ratings, the Human Rights Assessment Approach (Esteves, Factor, Vanclay and Gotzmann, 2016) has also been considered (refer to **Appendix 5**)
2. **Determining the likelihood.** To understand the risks presented by a project factor, the magnitude of a consequence must be cross-referenced with the likelihood of it occurring. **Table 7.2** presents the likelihood definitions that were used to assess the likelihood of social impact consequences associated with the MCCO Project, categorised as 'almost certain', 'likely', 'possible', 'unlikely', or 'rare' (DPE, 2017).
3. **Assessing the technical risk.** To assess the overall social risk, the consequence determined in step one are cross-referenced with the likelihood determined in step two to determine an overall risk assessment rating (i.e. low, moderate, high, or extreme) (refer to **Table 7.1**). In the case of some impacts, this risk assessment has involved referencing the respective technical reports of the EIS (e.g. economic, water, blasting, and traffic); however the associated social impacts have been assessed through the social risking process. The social risk ratings are presented as unmitigated social risks in this

section (**Section 7.0**) and as mitigated social risks in **Section 8.0**, having considered proposed mitigation and enhancement strategies.

4. **Ranking the stakeholder perceived risk.** An important component of the SIA has been the integration of technical results with the perceived risk ranking of a project factor or impact by key stakeholders i.e. the sensitivity/susceptibility/vulnerability of people to adverse changes caused by the impact and/or the importance placed on the relevant social matter. Consequently, stakeholder ratings of risk were determined by assessing impacts identified through the scoping phase of the SIA. The perceived ranking (i.e. *low, moderate, high* and *extreme*) is determined by the frequency that an issue was raised by a particular stakeholder group in the engagement process. The justification for each ranking is highlighted in the discussion within each respective impact section. It should be noted that community perception rankings are not 'residual risk' rankings as they do not reflect the management measures an applicant may put in place.

Table 7.1 Social Risk Matrix

		Consequence Level				
		1	2	3	4	5
		Minimal	Minor	Moderate	Major	Catastrophic
Likelihood category	A. Almost certain	HIGH	HIGH	EXTREME	EXTREME	EXTREME
	B. Likely	MODERATE	HIGH	HIGH	EXTREME	EXTREME
	C. Possible	LOW	MODERATE	HIGH	EXTREME	EXTREME
	D. Unlikely	LOW	LOW	MODERATE	HIGH	HIGH
	E. Rare	LOW	LOW	MODERATE	HIGH	HIGH

Source: SIA Guidelines (DPE, 2017)

Table 7.2 Social Likelihood Definitions

Likelihood Category	Definition
Almost certain	Common repeating occurrence, ongoing Will occur in most circumstances
Likely	Will probably occur in most circumstances There is at least a 50% chance that it may happen
Possible	Might occur at some time Could occur but not often 5% chance it could happen
Unlikely	Unusual occurrence Unexpected
Rare	May occur only in exceptional circumstances Unheard of in the industry

In line with the process defined above, the following section assesses the technical and perceived social risk in relation to consequences that may be experienced by people due to anticipated impacts/changes associated with the MCCO Project.

These have been categorised in line with the Social Impact Categories and characteristics outlined in the SIA Guideline (DPE, 2017, p.5) and then further defined within impact themes and sub-impact issues, as noted in **Figure 7.1**.

At the conclusion of each impact theme, a table is presented which summarises the MCCO Project aspect, the social impact category and social impact, the extent of the impact, the affected stakeholders, the duration and/or timing of the impact, the sensitivity/vulnerability of potentially impacted stakeholders, the perceived social risk (from the perspectives of key stakeholders), and the severity of the impact (unmitigated). Relevant, existing and proposed management and enhancement strategies employed to manage the predicted risks are further described in **Section 9.0** with social risks then reassessed (mitigated) in light of the mitigation/enhancements proposed.

Table 7.3 Social Consequence Definitions

Social Impact Factors	Social Consequence Definitions				
	1	2	3	4	5
	Catastrophic	Major	Moderate	Minor	Minimal/ Negligible
Population change	Greater than 20% permanent population change in a <i>region or local area</i>	Greater than 10% permanent population change in a <i>local area</i>	Permanent population change in a <i>local area</i> of less than 5%	Temporary population change in a <i>local area</i> less than 5%	Nil population change in a <i>local area</i>
Community infrastructure and services	Permanent and significant reduction in the capacity of <i>regional</i> community services and infrastructure, and existing regional housing and accommodation stock	Temporary and significant reduction in the capacity of <i>local</i> community services and infrastructure, and existing local housing and accommodation stock	Temporary or permanent but marginal significant reduction in capacity of <i>local</i> community services and infrastructure, and existing local housing/accommodation stock	Temporary or permanent but insignificant reduction in the capacity of <i>local</i> community services and infrastructure, and existing local housing and accommodation stock	No measurable impacts on capacity of <i>local</i> community services and infrastructure, and existing housing and accommodation stock
Social amenity	Permanent and significant reduction in social amenity in a <i>region</i> as a result of dust/air quality, noise, visual impacts, traffic congestion	Permanent and significant reduction in social amenity in a <i>local area</i> as a result of dust/air quality, noise, visual impacts, traffic congestion	Permanent but insignificant or temporary but significant reduction in social amenity in a <i>local area</i> as a result of dust/air quality, noise, visual impacts, traffic congestion	Temporary but insignificant reduction in social amenity in a <i>local area</i> as a result of dust/air quality, noise, visual impacts, traffic congestion	No measurable impacts on social amenity in a <i>local area</i> as a result of dust/air quality, noise, visual impacts, traffic congestion

Social Impact Factors	Social Consequence Definitions				
	1	2	3	4	5
	Catastrophic	Major	Moderate	Minor	Minimal/ Negligible
Health and well-being	<p>>1 fatality <u>or</u></p> <p>2-5 permanent disabilities <u>or</u></p> <p>Non-permanent injuries requiring hospitalisation for 2-5% of population at risk <u>or</u></p> <p>Acute health effect requiring hospitalisation for >2-5% of population at risk <u>or</u></p> <p>Chronic health effect requiring medical treatment for 5-10% of population at-risk <u>or</u></p> <p>>\$5m - \$10m of health cost due to hazard <u>or</u></p> <p>Demand exceeds capacity of health services by >30-40%</p>	<p>No fatality and 1 permanent disability <u>or</u></p> <p>Non-permanent injuries requiring hospitalisation for >2-5% of population at risk <u>or</u></p> <p>Acute health effect requiring hospitalisation for >2-5% of population at risk <u>or</u></p> <p>Evacuation is necessary or chronic health effect requiring medical treatment for 2-5% of population at-risk <u>or</u></p> <p>>\$1m - \$5m of health cost due to hazard <u>or</u></p> <p>Demand exceeds capacity of health services by >20-30%</p>	<p>No fatality and no permanent disability and non-permanent injuries requiring hospitalisation for 1-2% of population at risk <u>or</u></p> <p>Acute health effect requiring hospitalisation for 1-2% of population at risk and no evacuation <u>or</u></p> <p>Chronic health effect requiring medical treatment for 1-2% of population at-risk <u>or</u></p> <p>>\$500k - \$1m of health cost due to hazard <u>or</u></p> <p>Demand exceeds capacity of health services by >10-20%</p>	<p>No fatality and no permanent disability and non-permanent injuries requiring hospitalisation for 1-5 persons <u>or</u></p> <p>No acute health effect requiring hospitalisation) and no evacuation <u>or</u></p> <p>Chronic health effect requiring medical treatment for about 0-1% of population at-risk <u>or</u></p> <p>\$100k - \$500k of health cost due to hazard <u>or</u></p> <p>Demand exceeds capacity of health services by >1-10%</p>	<p>No fatality and no permanent disability and no non-permanent injuries requiring hospitalisation and no acute health effect requiring hospitalisation and no evacuation <u>or</u></p> <p>No chronic health effect requiring medical treatment <u>or</u></p> <p>< \$100k of health cost due to hazard <u>or</u></p> <p>Demand exceeds capacity of health services by 0-1%</p>

Social Impact Factors	Social Consequence Definitions				
	1	2	3	4	5
	Catastrophic	Major	Moderate	Minor	Minimal/ Negligible
Sense of community	<p>Permanent but significant reduction in sense of community due to > 12% permanent population change in a <i>region</i> or</p> <p>Serious and/or long-term impact to items and/or places of community value or</p> <p>Serious and long-term impact on other land uses– agriculture, viticulture, tourism, residential, industry, natural or</p> <p>Community members are in serious and prolonged dispute</p>	<p>Permanent and significant reduction in sense of community due to > 5% permanent population change in a <i>local area</i> or</p> <p>Moderate and/or medium-term impact to items and/or places of community value or</p> <p>Moderate and/or medium-term impact on other land uses– agriculture, viticulture, tourism, natural or</p> <p>Community disputes occur</p>	<p>Permanent but insignificant reduction in sense of community due to <5% permanent population change in a <i>local area</i> or</p> <p>Temporary but significant reduction in sense of community due to temporary but significant population change in a local area or</p> <p>Minor and/or short-term impact to items and/or places of value or</p> <p>Moderate and/or short-term impact on other land uses – agriculture, viticulture, tourism, natural or</p> <p>Possibility for community disputes</p>	<p>Temporary but insignificant reduction in sense of community due to temporary but insignificant population change in a <i>local area</i> or</p> <p>Very minor and/or short-term impact to items and/or places of community value or</p> <p>Minor and/or short-term impact on other land uses – agriculture, viticulture, tourism, natural or</p> <p>Community disputes unlikely</p>	<p>Negligible change in sense of community due to negligible population change in a <i>local area</i> or</p> <p>Negligible /no impact on items and/or places of community value or</p> <p>Negligible /no impact on other land uses– agriculture, viticulture, tourism, natural or</p> <p>Negligible community disputes</p>

Source: Adapted from Coakes Consulting (2012)

Note: The technical assessments for economic and environmental impacts are undertaken as part of the EIS (please refer to the relevant sections of the EIS for further detail).

7.2 Evaluating Social Impacts of the MCCO Project

7.2.1 Population Change

Changes to population are fundamental impacts within SIA, given that the size, diversity and behaviours of a community are underpinned by its population and characteristics. Population change (influx and outflux) is usually described as a first order social impact which has the potential to create a number of second order social impacts, such as impacts on community infrastructure and services, changes in sense of community, social cohesion and networks etc.

This section will examine the potential impacts of population change as a result of the MCCO Project, utilising established population change characteristics adapted from Burdge (2004). Burdge suggests that population change of greater than 5% in a local area is likely to have a major consequence and as a result population change consequences have been based on Burdge's assessment (refer to **Table 7.3**).

In relation to population change, it has been determined that the MCCO Project could influence population change in a number of ways:

- as a result of an influx of construction workers (temporary impact during construction only)
- changes in operational workforce (an additional five years) or
- as a result of acquisition of residential land in proximity to the operations (permanent change).

The MCCO Project aspects that could potentially influence population change are considered further below.

7.2.1.1 Construction workforce

The presence of a construction workforce can often have different impacts on a community than a permanent, operational workforce. Usually a construction workforce is temporary and transient in nature, residing in a location in proximity to a particular project, before moving on to the next project. Because of the temporary, transient nature of construction work, families often do not accompany the worker, preferring to live in one permanent location while the construction worker travels away and resides at a location in close proximity to the MCCO Project.

The MCCO Project has been designed to maximise the use of existing infrastructure, however, as outlined in the previous sections some new or relocated infrastructure will be required to establish access to and operate within the MCCO Additional Project Area. The construction phase for the MCCO Project is planned to occur over a 16-month period and will include the following key components:

- establishment of construction access points, temporary office and equipment laydown areas within the MCCO Additional Project Area
- establishment of the proposed Wybong Road/Big Flat Creek Overpass and haul road connection to Mangoola Coal Mine
- realignment of Wybong Post Office Road
- establishment of water management infrastructure including clean water diversion drains, dams and pipelines
- relocation of 11kV transmission lines out of the proposed Additional Disturbance Area.

The key components of construction noted, with the exception of the establishment of the proposed Wybong Road/Big Flat Creek Overpass and the Wybong Post Office Road Realignment, will be conducted up to 24 hours per day, seven days a week. A construction workforce of approximately 145 people is anticipated however this may vary depending on the timing of construction of the various components of the MCCO Project. Construction laydown areas and construction workforce offices and facilities will be located within the MCCO Additional Project Area.

To understand the potential (reasonable) worst case scenario for population change associated with the construction workforce, the following assumptions have been made:

- due to the temporary nature of the construction workforce, the families of the workforce will most likely not relocate with the worker
- all construction workers will relocate into the area for the construction period (worst case population change for the construction period)
- the workforce may wish to temporarily reside as close as possible to the MCCO Project, i.e. within the Muswellbrook State Suburb (SSC), (approximately 20 km from the project site), where a range of accommodation facilities and services are available (worst case) or may live within the region more broadly and DIDO daily
- all other factors will remain proportionally the same over the construction period.

The percentage of population change that will occur as a result of the influx of the construction workforce can be estimated using the peak workforce figure of 145 persons (refer to **Table 7.4**). As shown, the estimated influx of the construction workforce for the MCCO Project in the Muswellbrook SSC would only constitute approximately a 1% temporary increase in population for the construction period.

Table 7.4 Predicted Temporary Population Change Associated with the Project Construction Workforce

Level of Analysis	Population Size	Proposed Construction Workforce	Percentage (%) Change
Muswellbrook LGA	16,080	145	0.9
Muswellbrook SSC	12,072	145	1.2

* ABS (2016)

While the influx of a construction workforce has the potential to influence population change, this change will be temporary in nature (over a 16-month period). The MCCO Project will require up to 145 contractors during its peak construction period, and it is anticipated that such a workforce will be readily available to the MCCO Project.

The social baseline profile (refer to **Section 5.6.6**) highlights some capacity in the construction sector, with 6.8% employed in this sector within the Upper Hunter Region and a further 4.9% in the Muswellbrook LGA, (ABS, 2016). The smaller SSC localities of Castle Rock (9.9%), Sandy Hollow (8.6%) and Denman (6.5%), also indicate a percentage of employment in this sector more locally; with Wybong having a total of 17.5% of the workforce employed in the construction sector.

Consequently, there may be opportunities for local residents, currently employed in this sector, to be engaged by Mangoola in the MCCO's Project construction phase.

Therefore, as outlined in **Table 7.5**, the population change, due to the influx of a Project construction workforce in both the Muswellbrook LGA and the more defined Muswellbrook SSC, are assessed as a ‘possible’ but minimal consequence (*temporary but insignificant population change*), resulting in an overall mitigated social risk ranking of ‘**low**’. The level of community concern in relation to population change associated with the presence of the Project’s construction workforce, as identified through engagement with key stakeholders, was also perceived to be ‘**low**’.

As previously noted, opportunities to maximise employment and procurement locally has been raised as a strategy by stakeholders to enhance economic impacts within their localities (as noted in **Section 6.0**). Mangoola could address this opportunity by seeking to utilise, where appropriate, locally based construction service providers. Furthermore, the presence of the construction workforce is likely to provide positive impacts to local service and business providers, and the local economy in the Muswellbrook locality, for the duration of the construction period.

Table 7.5 Predicted Social Impact - Population and Community Infrastructure and Services (Construction Workforce)

Project Aspect	SIA Category	Social Impact Theme	Extent	Duration	Affected Parties	Perceived Social Impact/ Sensitivity	Social Impact Ranking (Unmitigated)
Construction workforce	Community Access to and use of infrastructure, and services and facilities	Population change – influx of workers	Muswellbrook LGA	16 months	Muswellbrook LGA	Low	Low
					Service providers	Moderate (positive)	Moderate (positive)

7.2.1.2 Operational Workforce

As discussed in **Section 2.0**, the MCCO Project does not require any increase to the current approved employee levels at Mangoola. The MCCO Project, however, will extend the operational mine life for approximately a further five years (one year beyond what is currently approved) until its planned closure in 2030 (assuming commencement of mining occurs in 2022).

Consequently, two potentially different mine closure scenarios may be considered:

1. A no-development scenario (closure in approximately 2025)
2. Project scenario (closure in 2030).

Should the project not be approved, a ‘no-development’ scenario would see completion of the operation around 2025, with the exhaustion of approved coal resources in the existing mining area and the withdrawal of employees likely to commence around 2022/2023, as operational areas within the existing approved operation become constrained. As noted above, the second development scenario would delay this impact by approximately five years.

To understand the impacts of potential population change across these two scenarios, population modelling was undertaken. **Table 7.6** provides an analysis of the potential worst-case population change scenario, based on the following assumptions:

- each employee has a dependent or semi-dependent household, the same size as the relevant SSC or LGA household average
- as a result of losing employment at Mangoola, the employee and their family would need to relocate to another location to find gainful employment (worst case scenario)
- all other factors remain proportional to existing conditions.

Table 7.6 Estimated Workforce and Household Population Size for Mangoola Coal Mine (MCM)

Employee Location	Number of Employees	Average Household Size by Locality	Total MCM Related Population (Family #)**	Total Population of Locality	Percentage of MCM Related Population within the Locality (%)
Muswellbrook LGA (total)	204	2.5	511	16,080	3.18
Muswellbrook (SSC) *	141	2.5	353	12,072	2.92
Denman (SSC) *	44	2.4	105	1,788	5.88
Sandy Hollow (SSC) *	6	2.2	13	170	7.87
Wybong (SSC) *	4	2.8	10	127	8.04
Muswellbrook LGA (Other)	10	2.5	24	-	3.18***
Upper Hunter LGA (total)	89	2.5	222	75,531	0.29
Scone (SSC)*	41	2.4	99	2,564	3.87
Merriwa (SSC)*	24	2.4	58	1,761	3.31
Aberdeen (SSC)	18	2.5	46	2,084	2.19
Upper Hunter LGA (Other)	5	2.5	12	-	0.29***
Singleton (LGA)*	57	2.7	154	22,986	0.67
Lake Macquarie (LGA) *	10	2.5	24	197,371	0.01
Maitland (LGA)*	7	2.7	20	77,305	0.03
Port Stephens (LGA)*	7	2.5	18	69,556	0.03
Cessnock (LGA)*	5	2.6	13	55,560	0.02
Newcastle (LGA)*	5	2.4	12	155,411	0.01
Central Coast (LGA)*	4	2.5	9	327,736	0.003

Employee Location	Number of Employees	Average Household Size by Locality	Total MCM Related Population (Family #)**	Total Population of Locality	Percentage of MCM Related Population within the Locality (%)
<i>Other (includes Hunter Region (other), Sydney, Mid-Western Region, Tamworth Region, Wollongong and Brisbane)</i>	12	-	-	-	-
Total (excluding Other)	400	-	1,703	997,536	0.17

Source: ABS Community Profiles (2016), ABS QuickStats (2016), MC (2018)

* Population and average household data sourced from QuickStats

** Figures have been rounded to the nearest whole number.

***total LGA proportions are used for LGA (Other)

As highlighted in **Table 7.6**, Mangoola employees currently account for approximately 1.6% of the local population in the Muswellbrook LGA, with the localities of Wybong (6.61%), Sandy Hollow (6.47%) and Denman (4.83%) housing collectively around 18% of the existing workforce. Continuation of the MCCO Project would see continued employment for these workers for the proposed Project term and the subsequent economic flow on effects to the locality, LGA and the broader region.

Pressure on population, associated with the MCCO Project operational workforce, was not raised by stakeholders as a perceived issue and has therefore been categorised as a '**low**' perceived stakeholder risk (refer to **Table 7.7**). Furthermore, the impacts relating to pressures of population change associated with the operational workforce are also considered '**low**' (*unlikely* and *minimal*) given no additional operational workforce is proposed under the current MCCO Project.

The current Glencore policy recommends that social impact assessments be conducted as a component of closure planning five years prior to the end of the mine life. It has therefore been assumed, that Mangoola would undertake a social impact assessment to better understand and manage the impacts on the community of operational closure, further minimising population change impacts. This planning will involve consultation with local and regional stakeholders and would explore the potential for future land uses of the site. In relation to closure, MCCO Project planning indicates that employment will reduce gradually towards the end of the operation's proposed five years of additional production, thus minimising the impact on the workforce and the broader Muswellbrook population. Employees would also be supported and assisted in the transition from their current work roles into new employment opportunities, either within Glencore, other mining companies, or into other sectors.

Table 7.7 Predicted Social Impact - Population and Community Infrastructure and Services (Operational Workforce)

Project Aspect	SIA Category	Social Impact Theme	Extent	Duration	Affected Parties	Perceived Social Impact/ Sensitivity	Social Impact Ranking (Unmitigated)
Operational workforce	Community Access to and use of infrastructure, services and facilities	Population change/ pressures - no additional operational workforce	Muswellbrook LGA	Project life - additional 5 years	Proximal landholders	Low	Low
					Service providers	Low	Low

7.2.1.3 Impacts on community infrastructure and services – Construction and Operation

A project's impact on community infrastructure and services are often one of the more tangible social impacts of a project and are considered a secondary order impact largely influenced by population change and are therefore discussed in this theme category.

Project aspects or factors that can impact community services include:

- changing demand due to an increase or decrease in population
- changing behaviours of users, such as workforce rosters determining patterns of peak service utilisation
- direct impacts on physical infrastructure during project construction and/or operation.

Given there is not predicted to be any further operational workforce change, as a result of the MCCO Project, employees currently employed by Mangoola will continue to reside and utilise services as outlined in **Section 7.2.1.2**.

In relation to the construction workforce, it is also unlikely that the influx of the 145 peak construction workforce, given minimal population change as noted in **Section 7.2.1.1** above, will place any significant negative impact on community services and infrastructure within the Muswellbrook LGA.

As has been noted previously, construction will occur over a 16-month period, with construction workers likely to seek temporary accommodation during this time in short-term rental accommodation in proximity to the MCCO Project site within the Muswellbrook LGA. Such workers may also utilise particular services while in the area, such as health, emergency, recreation services and transport/road infrastructure, during this period. As noted in **Section 5.6.7**, infrastructure and services within the Muswellbrook LGA are well developed for a regional area.

With reference to housing and accommodation for the construction workforce in Muswellbrook, the current housing market in the LGA can be characterised by a relatively high rental vacancy rate, high levels of purchase stock and reasonably low levels of housing diversity. The vacancy rate in Muswellbrook (Real Estate Investor, February, 2019), estimated the vacancy rate in Muswellbrook LGA to be 2.21%, based on analysis of houses listed on 50 property sales websites; with a total of 161 rental properties found to be listed on the market. Comparatively, the vacancy rate across NSW was 1.87%.

It was also found that 152 houses and 29 apartments were listed for sale in January 2019, with 12 of the houses recorded as purchased in that time. Data from the ABS Census indicates that in 2016, 15.6% of private dwellings were unoccupied, compared to 9.9% in NSW.

The vast majority of dwellings in Muswellbrook LGA are separate houses, with 87.8% compared to the NSW average of 66.4%. Only 1% of private dwellings in Muswellbrook are made up of flats or apartments, compared to 20% in NSW, whilst the proportion of semi-detached, row or terrace house, townhouse etc. is relatively similar at 10% and 12% respectively (ABS, 2016a).

Data from PHIDU (2016) indicates that 30.2% of low income households reported experiencing rental stress, compared to 27.9% across NSW. When coupled with the low proportion of houses requiring extra bedrooms in Muswellbrook LGA (1.8%) compared to NSW (5%), this data suggests a possible over-abundance of larger multi-bedroom homes.

In terms of accommodation, data from census of Tourist Accommodation (ABS, 2016b) indicated that there were eight establishments, namely hotels, motels and serviced apartments in the Muswellbrook SSC, for the 2015-2016 financial year. The average occupancy rate for all months from July 2015 to June 2016 was 40.7%, with peak occupancy in November and lowest rates in December and January (refer to **Figure 7.3**).

In comparison, the average occupancy in the Hunter Valley Tourist area was 56%, whilst the NSW average was 68%. Whilst seasonal trends are equivalent across areas, both the Hunter Valley and NSW showed lower levels of fluctuation in occupancy rates than Muswellbrook. The Hunter Valley tourist region had a peak of 61% in October and November 2015 and a low of 49% in June of 2016, whilst NSW had a high of 72% over October and November 2015 and a low of 63% in June 2016.

The 2016 ABS Census of population and housing indicated a total of 12 hotels, motels and bed and breakfasts as of Census night (2016c) in the Muswellbrook area. Current review of advertised accommodation sites suggests that this number may be higher still, with 13 accommodation options listed in the Muswellbrook township, and a further eight within the broader Muswellbrook LGA (Google travel, 2019).

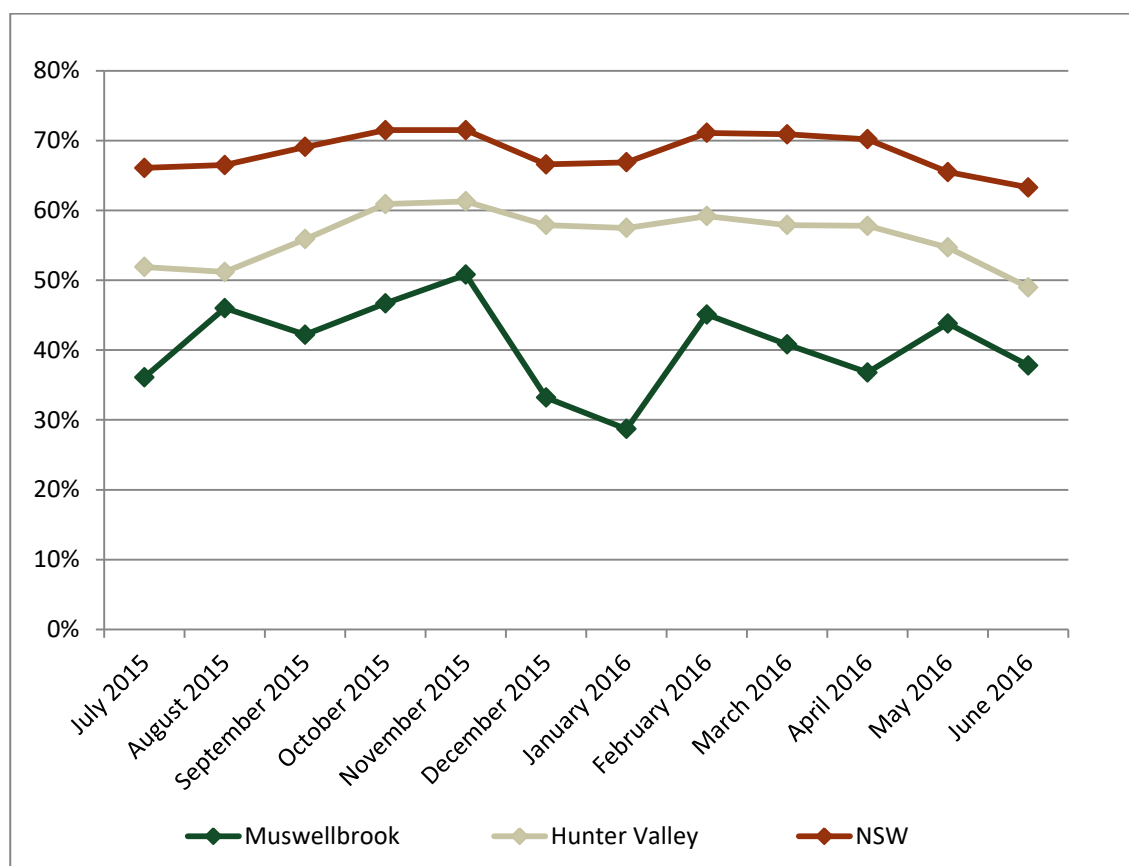


Figure 7.3 Muswellbrook Shire Accommodation Occupancy Rates

Consequently, the influx of population as a result of the construction workforce for the MCCO Project is *unlikely* to have an impact on the provision of housing and community services and infrastructure within the Muswellbrook LGA (*minimal* consequence), resulting in a '**low**' unmitigated social risk.

The stakeholder ranking for this issue was also perceived to be '**low**'. However, it should be noted that the presence of the construction workforce in the locality will provide support to local accommodation and other service providers and businesses within the Muswellbrook LGA across the construction period (refer to **Table 7.5**).

7.2.1.4 Acquisition

Consultation with local community stakeholders indicated there is a '**high**' level of perceived risk around the ongoing sustainability of small rural localities due to property purchase by mining companies and consequent population attrition. There was a perception among stakeholders that a number of properties were being purchased by mining companies, either opportunistically or as a result of properties falling within defined acquisition zones.

As a result of the MCCO Project, seven property acquisitions are anticipated in accordance with the VLAMP, as a result of predicted noise impacts relating to the MCCO Project. One property which is located in the marginal zone has existing voluntary acquisition rights under the existing Mangoola Project Approval, so these rights will be maintained under the MCCO Project.

A further 19 residences (located on 14 properties as some land contains multiple dwellings) within the marginal zone will be offered mitigation rights in relation to the MCCO Project, with a further 31 properties falling within the negligible noise impact zone. Of these properties, six have existing mitigation rights under the existing Mangoola Project Approval, and these rights will also be maintained.

Consequently, should the residents of all the seven properties identified, choose to relocate, this would result in a potential 13% decline in population in the Wybong SSC and 3.9% in the Manobalai SSC. While a 13% decline in population within the Wybong locality may be considered significant (according to Burdge's consequence definitions), residences located on Mangoola and/or mine owned lands are often leased back to the community, thus maintaining population numbers within a locality. The perceived impacts of the increase in tenants is further explored in **Section 6.2.3.1**.

Mangoola currently has approximately 44 properties in the MCCO Project area rented to the community, as outlined in **Table 7.8**. The table also indicates that Mangoola currently own around 55% of the properties in the Wybong SSC, 28% in the Mangoola SSC and 7% in the Castle Rock SSC.

Table 7.8 Number of Private Dwellings and Mine Owned Properties across Relevant SSC

	Castle Rock SSC	Wybong SSC	Mangoola SSC	Manobalai SSC	Denman SCC
Total private dwellings (ABS, 2016)	63	67	25	36	784
Mine owned properties (total/%)	7	37	7	0	5
- Excludes houses that have been demolished	(11)	(55)	(28)		(2)
Currently rented	7	30	4	0	3
Colinta Holdings Pty Limited	0	1	3	0	1
Needs repairs prior to renting	0	2	0	0	0
Not available for rent/demolition	0	4	0	0	1

Source: ABS (2016) and GIS Mangoola Property data

As also noted in **Table 7.8** above, some local properties owned by Glencore have also been maintained as agricultural properties e.g. Colinta Holding Pty Ltd, in line with pre-existing land to assist mining to co-exist with other industries and maintain local values, identity and culture. Other Glencore lands have also been set aside to maintain other values, such as for conservation purposes, as outlined in the main text of the EIS.

In addition, Glencore also owns considerable areas of land in the Hunter region and across NSW more broadly, with approximately 63,000 hectares, utilised for a range of land uses across NSW, which include olive groves, vineyards and pastoral lands. Many of these properties are managed to their pre-acquired land uses by Glencore's pastoral company, Colinta Holdings, or by former owners or local landholders, which employ a local workforce.

Consequently, population change associated with acquisition of properties in relation to the MCCO Project is categorised as a **'high'** social risk (*likely* with a *moderate* consequence) for proximal landholders and **'low'** for the wider MSC LGA. From a stakeholder perspective, this impact was also ranked as a **'high'** social risk (refer to **Table 7.9**) for proximal landholders.

Table 7.9 Predicted Social Impact - Population and Community Infrastructure and Services (Acquisition Process)

Project Aspect	SIA Category	Social Impact Theme	Extent	Duration	Affected Parties	Perceived Social Impact/Sensitivity	Social Impact Ranking (Unmitigated)
Acquisition process	Way of life Community Personal and property rights	Population change	Wybong SSC Manobalai SSC Muswellbrook LGA	Project life	Proximal landholders (7 – significant; up to possible 13% population change in Wybong SSC)	High	High
					Muswellbrook LGA residents	Low	Low

7.2.2 Property Values

The impact of the MCCO Project on property values was a key issue of concern raised by proximal landholders, with proximal landholders suggesting that the presence of the operation and the MCCO Project was driving property values down in the locality and preventing those wishing to relocate or move out of the area, to sell their properties. There was also the suggestion that a number of properties in the area had been on the market for extensive periods of time, with little or no interest in property purchase; and it was perceived that the presence of the existing operation, and discussion around the MCCO Project, was further impacting local landholders with a desire to relocate out of the area.

To address the property value issue in further detail, a more detailed property assessment has been undertaken by Tew Property Consultants (October, 2018) (refer to **Appendix 4**). To inform this assessment, secondary and primary data was sourced independently by Tew Property Consultants with key sources including:

- discussions with Local Government Authorities and local agents active in the real estate market
- investigation of commercial property sales system – Core Logic RPData (2005 – 2018)
- accessing Property NSW land values applicable to a variety of land classifications (2012 – 2018)
- investigation of statistical analysis for rural assets – Rural Bank and NSW Valuer General
- concurrent analysis of sales recorded and inspected by Tew Property Consultants for the period 2005 – 2018.

The following sections draw on the outcomes of the property assessment report (Tew, 2018) for the Singleton, Muswellbrook and Upper Hunter LGAs, with key findings from the study summarised below.

7.2.2.1 Market Analysis

- The value of rural/residential lifestyle properties of up to 5.0 ha (50,000 m²) have generally followed the movement in value as represented for residential properties (land size up to 1,500 m²) for Singleton, Muswellbrook and the Upper Hunter LGAs.
- The majority of parcels in the immediate proximity to Mangoola Coal Mine are properties are smaller holdings and are therefore not regarded as independent viable rural living units, but rather comprise sales of small, medium and large sized lifestyle parcels where the owners maintain and service such properties without off farm income, or conduct some modest farming activities with supporting ancillary off farm income.
- Comparisons have been drawn with a range of property sales which are situated in the Muswellbrook LGA and relevant surrounding LGAs. Rural lifestyle properties (those parcels which are larger than 10 ha and up to 350 ha) and rural production units can vary markedly and values are influenced by a range of factors including; location, size, topography, use, land classification, available water, services, aspect, potential and scale, type and condition of improvements. Therefore, it should be noted that:
 - Sales of varying sized rural lifestyle properties are relatively small in number in any given year and vary in type, size, use and location, and as such it is difficult to draw definitive data from the volume of sales available for investigation without also indicating the specific type of property being considered. The situation is compounded by the need to filter and exclude those sales that may have been influenced by mining acquisition (either by applied acquisition rights or acquisition off market at negotiated purchase prices, which can be influenced by the proximity of the mining company).
 - Small sample groups such as that evident for this class of property may be markedly influenced by a single sale and therefore statistical evidence of changes in median value should be treated with caution for sample groups across relatively short assessment periods. An example of that described is that over the preceding decade, the evidence suggests changes in value, ranging from a decline of up to 20% in one particular year (for small lifestyle parcels) to an increase of 100% over a decade.
- In considering properties in excess of 350 ha, in respect to grazing and those assets specifically improved for activities such as equine pursuits, fodder production and/or mixed use, or intensive agricultural uses such as dairy's, poultry farms, vineyards etc., it is assumed that these properties are potentially independent rural production units and as such are not generally impacted by the influences of proximate coal mining activities (that is, as larger agricultural properties their value resides in their agricultural productivity potential). In some cases, independent rural production lands may be positively influenced insofar as they have opportunity to lease additional lands to augment existing production purposes, from the volume of available mine buffer land which may be suitable for such purposes.

7.2.2.2 Trends in capital growth

- Growth in values for the particular range of rural assets considered as outlined above, is in the range of 25% - 50% in total across the 13 years from 2005 to 2018.
- Subject to the type of rural asset being considered – the most significant annual increases appear to have occurred in the period 2006 – 2008 (3% - 10%) and 2016 – 2018 (5% - 10%). The intervening years (the majority) are marked by little or nil growth in values on an annual basis, with a range of factors contributing to the stagnation in value growth in the intervening years.

- The most significant impacts in respect to changes in Market Value coincide with the decline in the coal industry from late 2012, represented by land values adduced at July 2013. Conversely, there is a marked increase in both volume of sales and median values cited for 2016/2017, which coincide with improved confidence in the coal sector notwithstanding that the locality (as at 2017-2018) is in the grip of a significant drought.

7.2.2.3 Movement in Land Values and Sale/Resale of local Properties

- A review of land values in the areas of Singleton, Muswellbrook and Upper Hunter LGAs assigned for rating and taxing purposes by the NSW Valuer Generals Office in the years 2013 – 2017 indicates that there is little movement in land values over this timeframe for smaller lifestyle parcels, whilst the larger rural production units indicate movement in values – most particularly from 2016/2017 and again in 2017-2018. Rural land values for rating and taxing purposes, across the Muswellbrook LGA, between 2017 and 2018, indicated a 4.0% growth in values (NSW Valuer General media release, 20 June 2018). Further analysis indicates that there is little or nil growth in values from 2013 – 2016 for small lifestyle parcels. Larger parcels indicate market movement in recent years.
- In relation to a review of the sale and resale of rural properties over the period 2005 to 2018, where sales have occurred at least twice in this period, Tew (2018) suggests that the majority of assets indicate increases in value over 13 years in the range of 25% - 50%, over the market value, as evidenced in 2005 – but this is subject to a range of influencing factors.

7.2.2.4 Property sales in the Muswellbrook LGA

Further review of property data, over the last 12 months (from 5 Feb 2018), indicates that 133 properties were sold in the Muswellbrook LGA, with 166 sold in the Upper Hunter LGA, 250 in the Singleton LGA, and 79,000 across the state of NSW.

As is illustrated in **Figure 7.4** median sale prices in the Muswellbrook LGA were lower than those in the Singleton LGA, and across NSW as a whole. This may be at least partially due to a number of external factors, such as high sale price and number of sales (in Metropolitan areas like Sydney and Newcastle driving up the state median), as well as the relative proximity of Singleton to Newcastle.

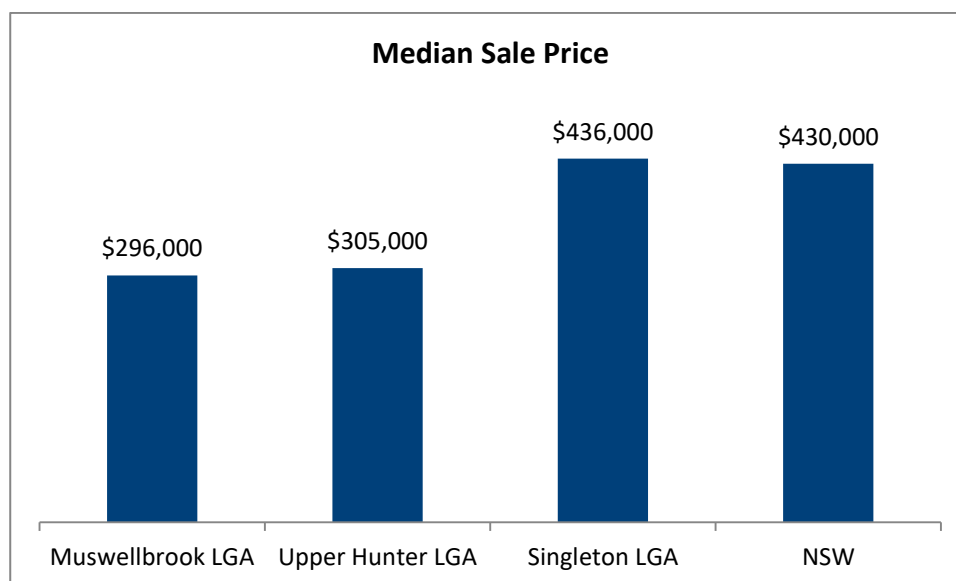


Figure 7.4 Median Sale Price by LGA

Source: Corelogic (2019)

As shown in **Figure 7.5**, the average number of days on the market for properties in the Muswellbrook, Upper Hunter and Singleton LGAs was approximately equal, with all being significantly higher than the average for NSW. As noted above, this may be due to the slower pace of rural economies compared to urban centres like Sydney and Newcastle, where the majority of sales take place.

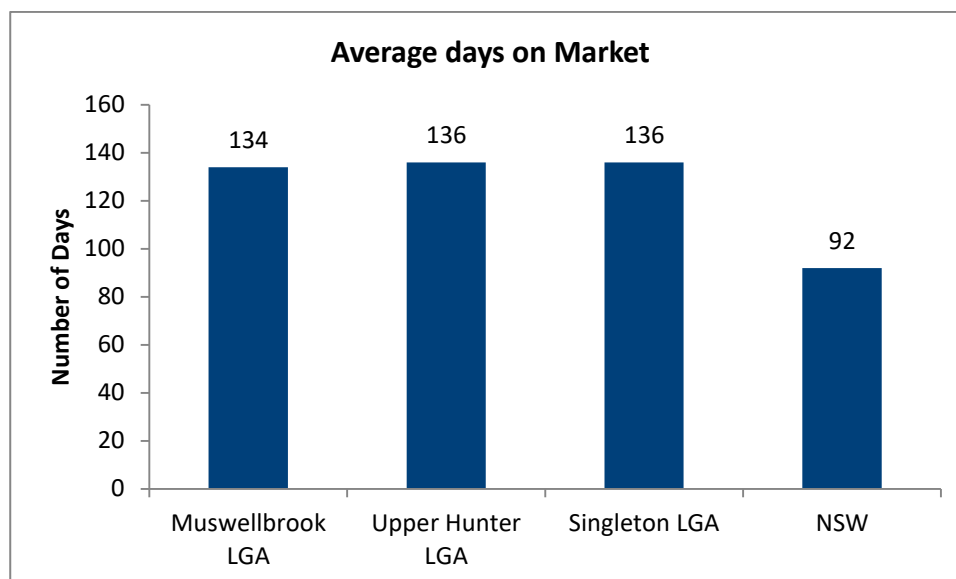


Figure 7.5 Average Days on the Market Before Sale by LGA

Source: Realestate.com.au (2019)

A review of properties currently for sale in the area was also considered in the localities proximal to the MCCO Project. Five properties were identified as listed for sale across the localities of Manobalai, Castle Rock, and Hollydeen (at the time of reporting). Across these properties, the average asking price was \$874,000, with each property featuring a moderate amount of agricultural land. The details of each listing are further described in the table below.

Table 7.10 Properties Currently on the Market in Communities Proximal to Mangoola Coal Mine

Property	Sale Price	Days On The Market	Description
31 Yarraman Road, Manobalai	Offers over \$700,000	110	<ul style="list-style-type: none"> • 55.87 ha (138 acres) of natural pasture grazing land with open valley views • 3 bedrooms with ceiling fans, ducted air conditioning, opening onto verandah • Stock water from Wybong Creek via easement to troughs. 22,000 litres freshwater storage • Double car-port + 6m x 12m steel shed with concrete floor, machinery shed, Timber stock yards with race and crush

Property	Sale Price	Days On The Market	Description
861 Ridgелands Road, Manobalai	\$570,000-590,000	914	<ul style="list-style-type: none"> • 24.41 acres of land with 380 m of frontage to Wybong Creek • Irrigation license for 73 Mega Litres of water and a diesel pump • 3 bedrooms, 2 bathrooms and 2 garage spaces, as well as 2 covered outdoor car parking • Sales history indicates that the property was sold for \$371,500 in 2004, although no data is available on the built history of the site
39 Rosemount Rd, Hollydeen	\$900,000 - 990,000	1,837	<ul style="list-style-type: none"> • 100 acres of land, part of which is used for agricultural purposes • 3 cottages currently utilised as short stay accommodation • Other features include a rocky escarpment and walking tracks • Frontage onto the Goulburn River • Irrigation license for 5 Mega Litres of water • 3e bedrooms, 3 bathrooms and a two-car garage, with an additional 5 bedrooms and 3 bathrooms located in the cabins
‘Boomery’ 20-38 Yarraman Rd, Manobalai	\$1,750,000- \$1,850,000	604	<ul style="list-style-type: none"> • Productive country lifestyle property • Rich alluvial creek flats rising to sandy loam slopes and 800 m of frontage to the Wybong Creek • 202.72 acres, across 2 separate titles • 90 Mega Litre irrigation license along with an electric pump • Modern renovated 6-bedroom home with 3 bathrooms • Double garage + double carport + lockable workshop + vermin proof store room • Hayshed/machinery shed + tack room + float annexe • Steel & timber stock yards with ramp & crush • Horse paddocks with shelters + old dairy
1216 Castle Rock Road, Castle Rock	\$895,000	394	<ul style="list-style-type: none"> • 461-acre lifestyle property located 15km from Muswellbrook • Contains 60 acres of grazing land, 2 stock dams, and a steel cattle yard • 3-bedroom home • 4-bay shed, workshop, carport & garden shed • Above ground pool and entertainment area • Additional 8 bay open shed and carport

Source: Warburton Estate Agents (2019); JTS Realty (2019) as at 15 May 2019.

The NSW Valuer Generals Office provides local councils with land valuations on which to base council rates. These valuations do not include the value of any built infrastructure on the properties but do take into account any agricultural zoning and irrigation licenses. These are updated at least every three years, with councils able to adjust them yearly. Consistent with Tew's (2018) conclusion, from 2014, land valuations of the four properties identified above, have remained fairly stable; with marginal land value increases for the Ridgeland and Castlerock Road properties (refer to **Figure 7.6**).

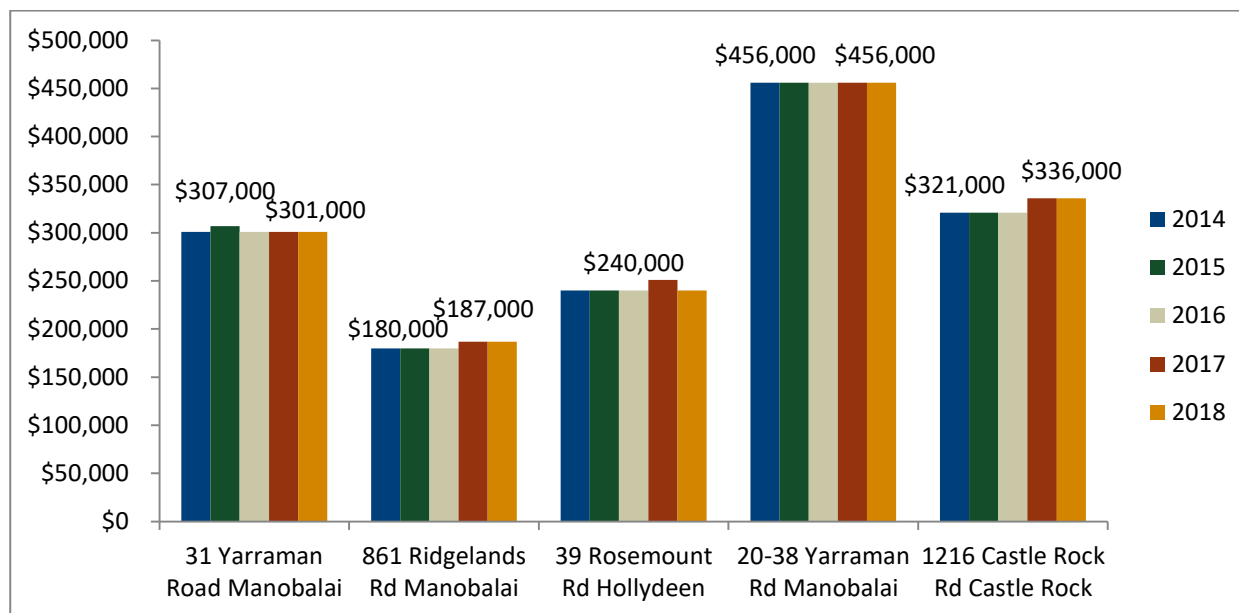


Figure 7.6 NSW Valuer General Property Values (2014-2018)

Source: NSW Government Valuer General (2018)

Therefore, the general findings from the property assessment (Tew, 2018) indicate that:

- it is difficult to accurately discern the impacts of coal mining upon individual property values as either a percentage of change in market value or a dollar equivalent
- the existence of a coal mining operation in proximity to small towns and villages can have a range of impacts upon the market value of real estate, both positive (discussed below) and negative. It is suggested that the closer the proximity of a particular property to the actual mining operation, the more direct and accentuated are the negative impacts. In this regard, processes such as the VLAMP process are in place to compensate landholders within the acquisition or mitigation zone for the MCCO Project
- any detrimental impacts of coal mining upon real estate values are more likely to be a localised or individually evident, and are a consequence of a particular property's proximity to a mining operation and the impacts it may experience e.g. noise, particulate matter (air quality); and amenity issues that arise from real or perceived impacts from aspects such as visual intrusion, increased traffic volumes and/or reduced marketability as a consequence of the stigma associated with proximate mining operations

- the positive impacts upon real estate values as a consequence of coal mining are more broadly experienced by the surrounding community due to factors that include increased employment opportunities, different/improved skill requirement, enhanced demand for accommodation in general and modern accommodation specifically, demand for improved services, increased spending generally in the community and a generally improved local economy. As a consequence, it is not easy to discern the positive impact upon a single property, but rather it is reflected by an enhancement in value generally.

From a social impact perspective, the perceived uncertainty relating to property sales, currently or in the future, for local landholders located nearby to the MCCO Project, presents a difficult issue to manage. As the property assessment has concluded, it is difficult to accurately differentiate the impacts of coal mining upon individual property values, as either a percentage of change in market value or a dollar equivalent; however, it has been outlined that the closer the proximity of a particular property to the actual mining operation, the negative impacts experienced may be more direct and heightened; whereas more generally, the impact is positive. Again this positive impact is difficult to tie back to value change in a single property.

The VLAMP provides voluntary acquisition rights for those properties identified as adversely impacted by noise or dust. Those properties that are still impacted, but to a lesser degree fall within the marginal zone, are afforded a range of mitigation rights that they can choose to receive to mitigate the impacts of a project. This may include measures such as air conditioning and electricity subsidies; double-glazing of windows and other noise mitigation measures; and dust mitigation measures such as cleaning and provision of water filters on drinking water tanks and pool cleaning. Those properties that are in the negligible impact zone are not required to be afforded these mitigation rights, however, it is noted that Mangoola currently extends some of these controls (e.g. tank cleaning) to residents outside the marginal impact zone.

Of the nine landholders who explicitly outlined the impact management afforded to their properties, five felt that while such mitigations were welcomed, they also served prevented them from living the rural lifestyle that they desired when moving into the area. Such measures were also not perceived to reduce the fear and anxiety associated with 'being trapped' within the community, should they wish to sell their properties and relocate.

Approximately one quarter of landholders consulted, that reside in proximity to the existing operation, fall in an older age group and are reaching the stage of life where downsizing from their properties and relocating into town or outside of the area, closer to key health and community services, is a short term reality. Given that property is one of their major life investments, such equity is required to fund their respective life and retirement plans. **Table 7.11** indicates the proportion of population in each of the SSC that fall within the 55 years and above age cohorts.

Table 7.11 Proportion of Identified SS Populations by Age Group (55 to 84 years)

	Castle Rock (SSC)	Sandy Hollow (SSC)	Manobalai (SSC)	Mangoola (SSC)	Wybong (SSC)	Denman (SSC)	Muswellbrook (SSC)
55-64 years	20.3%	15.3%	13.0%	18.4%	7.1%	11.1%	10.9%
65-74 years	5.1%	8.2%	10.1%	0.0%	4.7%	11.1%	7.3%
75-84 years	2.3%	2.4%	0.0%	12.2%	2.4%	5.5%	3.7%

Source: ABS (2016)

An ageing population is characteristic of the broader Muswellbrook LGA, with population projections (2012-2036) for the Shire predicting a rise in the proportion of the population aged 65+ years (5%), with those in the 75-84 year age group rising by up to 3% by 2036.

Consequently, the perceived impact of property devaluation is even more heightened for these landholders, as well as a number of other key stakeholders, where health and wellbeing issues are paramount (also refer to **Section 7.2.7** for further discussion).

Therefore, the impact of the Project on property values is categorised as an unmitigated '**high**' social risk (*possible* with a consequence of *moderate*). From a stakeholder perspective, this impact is also ranked as '**high**' (see **Table 7.12**). This unmitigated risk rating is applicable to the landholders close to the MCCO Additional Mining Area, whereas landholders that are further away from the site and that are predicted to have lower levels of impact have a lower level of risk.

Table 7.12 Predicted Social Impact - Property Values

Project Aspect	SIA Category	Social Impact Theme	Extent	Duration	Affected Parties	Perceived Social Impact/Sensitivity	Social Impact Ranking (Unmitigated)
Presence of operation	Personal and property rights Way of life Community	Property impacts: Declining property value Uncertainty and potential livelihood impact Inequity given residences fall within different zones	Wybong SSC Manobalai SSC Castle Rock SCC Mangoola SSC	Project life - additional 5 years	Proximal landholders	High	High
					Locality residents	High	High

Source: Umwelt 2019

7.2.3 Sense of Community

This section describes the potential impacts that the MCCO Project may have on sense of community and social cohesion as a result of population change and impacts on areas of community value. Determining consequence definitions for this social impact can be difficult, given that sense of community comprises a number of subfactors. However, definitions have been developed based on previous social impact assessment work for these impacts (Coakes, 2012) and further consideration of the UN Human Rights assessment significance criteria (Esteves, Factor, Vanclay and Gotzmann, 2016).

7.2.3.1 Population change impact on sense of community

The introduction of new groups of people to an area or the out flux of a proportion of the population can alter existing values and sense of community. Coakes (1995) discusses many different elements of sense of community including the need for shared value, social interaction, and connection to a common structure (e.g. geography, gender, culture). While most communities are generally resilient to natural population change, a rapid or massive change can often have adverse social impacts.

As discussed in **Section 7.2.1.1**, the MCCO Project will trigger population change through the Project's construction workforce. However, the influx of the construction workforce is only likely to make less than a 5% population change to the Muswellbrook LGA (1.2%), which has been classified as a '**low**' social risk.

Seven property acquisitions are anticipated in accordance with the VLAMP, as a result of predicted noise impacts relating to the MCCO Project resulting in a potential 13% decline in the existing population (approximately 20 community members) in the Wybong SSC and 3.9% (3 community members) in the Manobalai SSC.

This potential further 13% decline in population within the Wybong SSC specifically is considered, by landholders, to be additional to a continued decline in population experienced within the locality, which commenced when the operation was first approved. Local landholders noted frequently the loss of family histories in the area, as established families moved away, leaving homes owned by Mangoola. There was also a strong sense that the continuing decline in population within the locality, had resulted in the loss of sense of community, the erosion of local community networks and associations, and a widening social divide between established landholders and new residents/tenants.

An appropriate assessment of population change from 2006 to 2016 is problematic given recent SSC boundary changes which occurred prior to the last ABS census (2016). However a review of mobility data for the proximal communities indicates that in the Wybong SSC, 54% of the population were living at a different address five years ago, which was the highest amongst all areas and greater than the Muswellbrook LGA total of 41%. Mobility across the key proximal communities was 28% for Mangoola, 29% for Castlerock and 17% for Manobalai. The Wybong SSC also exhibited a high proportion of rental properties (51%) and unoccupied private dwellings (34%).

The perception recorded from local landholders during consultation suggested that community participation in the community of Wybong has diminished over time. The ABS data relating to volunteerism only indicates a slight decline in volunteerism from 24% in 2011 to 22% in 2016, for the SSC of Sandy Hollow, which previously included the communities of Wybong and Hollydeen.

A review of the 'Oral history of Wybong', completed in 2008 by Mangoola, and which outlined historical changes within the Wybong community, including family histories, property purchases and land use and community interactions, suggested that over the years, the Wybong Hall has been central to the social fabric of the area. Engagement with local landholders during preparation of the SIA echoed the importance of the Wybong Hall in maintaining social cohesion. However in recent years, the use of the hall and the number of community functions has been seen to diminish. In previous times, the Hall was used for dances every month, poetry nights, Christmas in July and Christmas and New Year functions. This decline is also evident in the attendance of Toy Box which is also held at the hall, with lower numbers of children recorded as attending in recent years.

While residences located on Mangoola or mine owned lands are often leased back to the community, providing opportunities for new people to move into the area, the view remained that sense of community had been significantly impacted.

However there is evidence that the Community is attempting to attract people back to the area with the "Back to Wybong Day" an annual community event, first held in 2016, that aims to bring people back into the region. There is also a privately owned museum of local memorabilia, open to the public. Admission to the museum has remained free of charge due to restrictions enforced by the MSC, despite local resident attempts to make the museum a more permanent tourist attraction.

Given the strong social networks in the community, in relation to the MCCO Project there were also high concerns held for community members considered more vulnerable within the community, including those battling illness, those with a disability and those more elderly.

As noted in **Section 5.4.3**, a number of SIA's relating to other projects in NSW, such as the Wilpingjong Coal Mine Project in Wollar and the Bylong Coal Project in the Bylong Valley, near Mudgee NSW have highlighted the impacts of project development on sense of community within their respective localities.

The Wilpinjong Coal Mine proposal, by Peabody Energy, has been a highly contested project in the Wollar area. All but four homes in the Wollar area are now owned by Peabody after the 7th expansion of the mine in 2017. Wollar was also the first Project to be conditioned to develop a Social Impact Management Plan (SIMP) associated with its operations with a reduction in private dwellings experienced within the community from 175 in 2011 to 25 in 2015. In the most recent SIA for the Wilpingjong operation (Elliot Whiteing, 2015), consulted community members reported a significant strain on those left within the community to keep the village alive, due to the loss of population, community relationships and local businesses and services.

A similar situation was seen to result in the application for the Bylong Coal Project by Kepco. Kepco bought a number of properties including heritage properties; and according to the response to submissions received from the EIS exhibition, 336 of 364 residents were opposed to the mine development; reportedly due to community concern relating to the cumulative impact of property acquisitions in the Bylong Valley by Kepco and other mining companies.

The SIA for this particular project (Hansen Bailey, 2015) reports that the main cause of negative socio-economic impacts, stems from the change from agriculture to mining and the associated property acquisition that is causing stress and family tension due to uncertainty relating to the acquisition process and the subsequent social divide and loss of community cohesion.

The recent Rocky Hill Project, near Gloucester, which was not recommended for approval by the NSW DPE and the IPC, will not proceed as a result of a judgement in the NSW Land and Environment Court; with social impacts generally and the impacts on sense of community, cited as one of several reasons for refusing consent.

Consequently, in light of the assessment above, given the possible loss of community members in the Wybong SSC (13% of the population in the immediate locality in which the MCCO Project is based), the impact on sense of community in the area is likely to have a *possible* and *moderate* impact resulting in a '**high**' social risk ranking for both proximal landholders and residents within the proximal locality of Wybong particularly. However, the MCCO Project will not impact on the sense of community of the Muswellbrook LGA more broadly.

Table 7.13 Predicted Social Impact – Sense of Community

Project Aspect	SIA Category	Social Impact Theme	Extent	Duration	Affected Parties	Perceived Social Impact/ Sensitivity	Social Impact Ranking (Unmitigated)
Presence of operation	Community Culture Way of life	Lifestyle Amenity Connection to place, membership and participation	Wybong SSC Manobalai SSC Castle Rock SCC Mangoola SSC	Project life - additional 5 years	Proximal landholders	High	High
					Locality residents	High	High

7.2.4 Dust

Dust was identified by stakeholders as one of the key issues of concern, with concerns relating to dust impacts from the existing operation, as well as fears of increased dust impacts due to the MCCO Project.

Dust is a historical environmental issue in the Muswellbrook LGA; Muswellbrook Council's Baseline Community Survey (2013) indicated that 50% of residents sampled requested reduced mining noise and dust (MSC, 2013). Dust is also identified as a key issue to be mitigated in the MSC's *Land Use Development Strategy (Coal mine land use component): A Guide for Strategic Land Use in the Muswellbrook Shire* (MSC, 2015).

The majority of concerns noted by proximal landholders in relation to dust (cumulative) refer to the impacts of dust on amenity and lifestyle. Residents expressed the need for increased cleaning of their properties – both inside (e.g. frequent cleaning required of rooms, window ledges); and outside (water tanks, pools and solar panels), suggesting that they had to shut up their houses to keep dust out, impacting on their ability to enjoy their rural lifestyle.

Given the prevalence of mining activity in the area, local landholders also noted the cumulative impacts of dust from multiple operations in the region, particularly noting the impacts of dust on air quality as a result of particular weather conditions - such as cloud cover/inversions and southerly winds (refer to **Section 7.2.13**). It should also be noted that as previously mentioned, over 90% of NSW was in drought at the time of this assessment, with dust levels considered more extreme than usual given these circumstances. Outcomes of the technical air quality assessment has suggested that with the adoption of a range of management measures, that reduce the potential for dust to leave the Project site, relevant air quality criteria are not predicted to exceed criteria contained within the VLAMP at private properties during both construction and operation phases of the MCCO Project. The EIS also outlines a proactive air quality management approach that includes:

- implementation of a system to provide environmental personnel with a daily forecast of expected dust conditions in the vicinity of the operation
- discussion of the dust forecast at daily pre-shift meetings
- modification of planned mining activities, as appropriate, to minimise or avoid potential dust impacts.

In summary, the impact of dust on amenity is considered a **'high'** perceived social risk by local landholders and has been categorised as a **'low'** unmitigated social risk (*unlikely* with a *moderate* consequence).

Table 7.14 Predicted Social Impact – Dust

Project Aspect	SIA Category	Social Impact Theme	Extent	Duration	Affected Parties	Perceived Social Impact/ Sensitivity	Social Impact Ranking (Unmitigated)
Presence of operation	Surroundings Health and wellbeing Way of life	Social amenity – dust	Wybong SSC Manobalai SSC Castle Rock SSC Mangoola SSC	Project life - additional 5 years	Proximal landholders	High	Low
					Locality residents	High	Low

Source: Umwelt 2019

7.2.5 Noise

Noise was also a key issue raised by local community stakeholders and in relation to existing operations, a number of landholders reported being able to audibly identify machinery from the operation e.g. dozers and reversing trucks, as well as a general hum, which they say disturbed their sleep.

A review of the complaints received by Mangoola illustrates that noise complaints have consistently been by far the most frequent type of complaint received (during the four year period between January 2014 to November 2018) (refer to **Figure 7.7**). However, as the figure shows, noise complaints have also reduced significantly since 2014 – from 404 complaints by 32 complainants down to 63 complaints by 31 complainants in 2018.

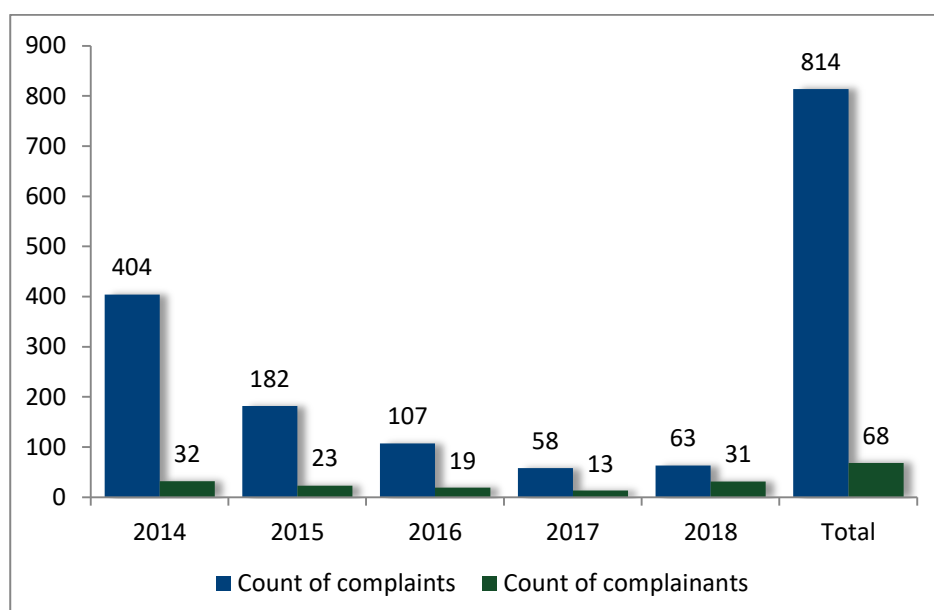


Figure 7.7 MC Complaints (n = 814) between January 2014 and November 2018

Source: Mangoola Complaints database (2018)

When considering complaints over the 2017-18 periods, noise was still the most prominent complaint with 52 and 50 noise complaints received in 2017 and 2018 respectively.

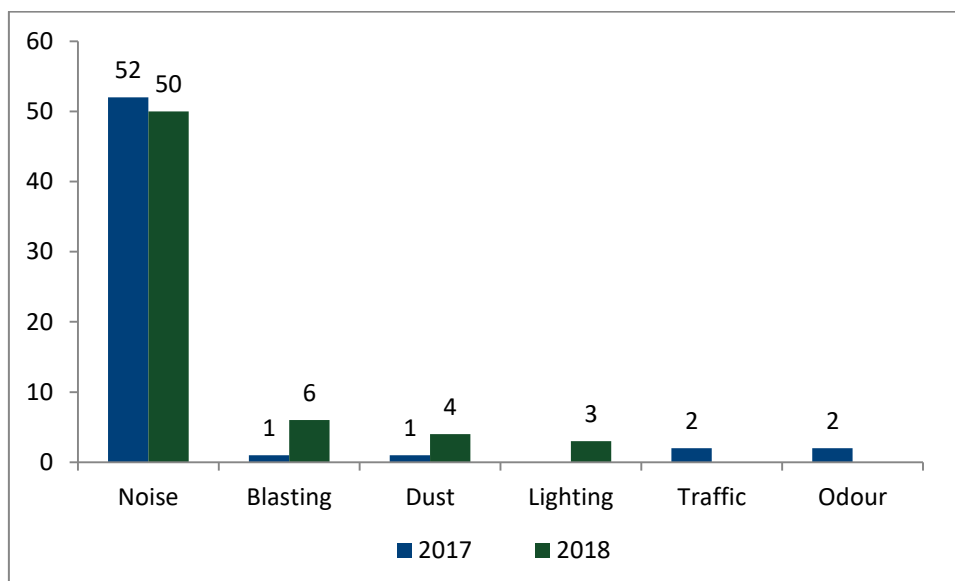


Figure 7.8 Number of Noise Complaints Received by MC in 2017-18

As a result of the MCCO Project, and as discussed in **Section 7.2.1.4**, seven property acquisitions are anticipated in accordance with the VLAMP, as a result of predicted noise impacts relating to the Project. One property which is located in the marginal zone has existing voluntary acquisition rights under the existing Mangoola Project Approval, so these rights will be maintained under the MCCO Project.

A further 19 residences (located on 14 properties as some land contains multiple dwellings) within the marginal zone will be offered mitigation rights in relation to the MCCO Project, with a further 31 properties falling within the negligible noise impact zone. Of these properties, six have existing mitigation rights under the existing Mangoola Project Approval, and these rights will also be maintained.

In order to minimise impacts to social amenity as a result of noise, a number of project design features have also been considered to reduce noise impacts over the life of the Project. These include:

- staged transition of mining equipment from the existing operation to the MCCO additional mining area
- equipment spread between the existing operations and the MCCO additional mining area through to 2026. From 2026 onwards, mining operations will be focussed in the MCCO additional mining area
- strategic location and configuration of haul roads
- shielding of emplacement areas
- continued use of sound attenuated equipment
- construction of an 8-metre high noise bund on selected haul roads to reduce noise levels
- continuation of existing noise minimisation controls.

To inform proximal landholders of the outcomes of the noise modelling and the strategies to be employed to reduce noise impacts associated with the MCCO Project, Mangoola have held individual meetings (where possible) with landholders whose properties fall within the significant and marginal zones. Two community information sessions were also held in Muswellbrook and Wybong to provide further information on the

outcomes of key environmental studies and to provide opportunities for community members to meet with the relevant study specialists.

Given that noise from the MCCO Project is *likely* to have an impact on proximal landholders, with a *‘major’* consequence *likely* to be experienced for those properties in the acquisition zone; and a *moderate* consequence for those in the marginal management zone, the unmitigated social impact noise from the MCCO Project on social amenity, as a result of noise, is ranked as *‘high’*.

Table 7.15 Predicted Social Impact - Noise

Project Aspect	SIA Category	Social Impact Theme	Extent	Duration	Affected Parties	Perceived Social Impact/ Sensitivity	Social Impact Ranking (Unmitigated)
Presence of operation	Surroundings Health and wellbeing Way of life	Social amenity - noise	Wybong SSC Manobalai SSC	Project life - additional 5 years	Proximal landholders (7 – Significant)	High	High
			Wybong SSC Manobalai SSC Castle Rock SSC Mangoola SSC	Project life - additional 5 years	Proximal landholders (19 – Marginal)	High	High

7.2.6 Traffic – Construction and Operation

During consultation with proximal landowners the increase in ‘mine vehicles’ on local roads was raised as a concern, with landholders outlining their view that existing traffic issues would be exacerbated by an increase in workforce in the construction phase of the MCCO Project.

Impacts on social amenity as a result of increased traffic were most often associated with the potential for increased travel time as a result of mine related work on the road during existing operations and/or during project construction. Road safety (including safe access in and out of properties), road maintenance and design (including inadequate drainage) were also raised by the community as areas of concern. Consequently, this issue was ranked as a *‘high’* perceived social risk by stakeholders consulted.

The MCCO Project does not propose any changes to the existing approved operational employee numbers or maximum production rates and as a result, no changes to operational traffic movements are expected. However, the construction phase will result in additional traffic movements as assessed in the Traffic and Transport Impact Assessment for the predicted 145 person (peak) workforce across the 16 month construction period, noting that the number of traffic movements due to construction will vary from a low number of movements up to a peak, over the period. The MCCO Project also includes a proposed realignment of part of Wybong Post Office Road which will have a minor effect on travel times.

For its existing mining operations, Mangoola has implemented a range of key traffic controls. This includes not using Reedy Creek Road, Mangoola Road, Roxburgh Road or Castlerock Road for access to and from the site. Ensuring that no project-related heavy vehicle traffic uses Wybong Road, west of the mine access road (to the intersection with the Golden Highway), to access the site. These key controls would continue to be implemented as part of the operational phase of the MCCO Project.

As part of the current VPA, between Mangoola and MSC, Mangoola also pay an annual development contribution towards road maintenance costs incurred by Council for the maintenance of Council roads affected by the operation of the existing mine.

The MCCO Project will extend the life of the Mangoola Coal Mine by approximately one year beyond that currently approved. Therefore, operational traffic and coal transport on trains will also extend for an additional year approximately, beyond that currently approved.

Consequently, in relation to the impact of traffic volume and access to the area, during the construction phase of the MCCO Project, the unmitigated social impact has been ranked as **‘moderate’** (possible with a *minor* consequence). In relation to the operational workforce, given there is no predicted increase in workforce, a **‘low’** social risk ranking (unlikely but *minimal*) is predicted.

Table 7.16 Predicted Social Impact - Traffic

Project Aspect	SIA Category	Social Impact Theme	Extent	Duration	Affected Parties	Perceived Social Impact/ Sensitivity	Social Impact Ranking (Unmitigated)
Construction workforce	Surroundings Access to and use of infrastructure, services and facilities Way of life	Traffic volume and access to the area	Wybong SSC Manobalai SSC Castle Rock SSC Mangoola SSC Muswellbrook LGA	16 months	Proximal landholders	High	Moderate
					Road users	High	Moderate
Operational workforce	Surroundings Access to and use of infrastructure, services and facilities Way of life	Road maintenance Safety Property damage	Wybong SSC Manobalai SSC Castle Rock SSC Mangoola SSC Muswellbrook LGA	Project life -additional 5 years	Proximal landholders	High	Low
					Road users	Moderate	Low

7.2.7 Health and Wellbeing – Physical and Mental Health

The World Health Organisation (WHO) defines health as “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity” (World Health Organisation, 2012). The health status of an individual and/or a community is therefore determined by a range of interactions between human biology and the environment. **Figure 7.9** identifies some of the many factors that act within and across these two spheres to trigger negative and positive health outcomes.

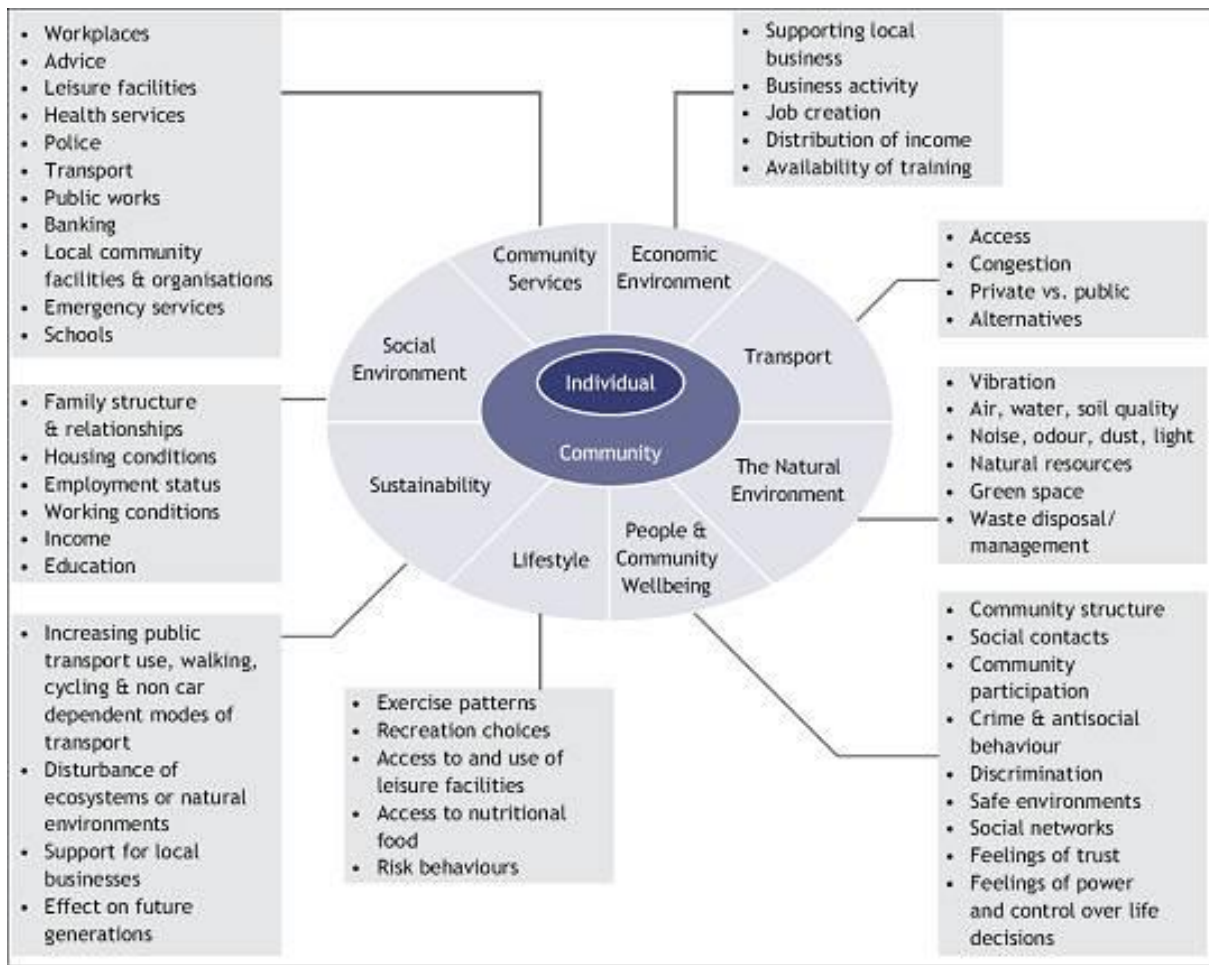


Figure 7.9 Determinants of Health

Source: (Department of Health, 2007)

WHO (2009) categorises factors into three key determinants and associated sub-issues, as outlined below:

- social and economic environment
 - income and social status
 - education
 - social support networks
 - health services
 - employment and working conditions
- physical environment
 - safe water and clean air
 - healthy workplaces
 - safe houses, communities and roads

- individual characteristics and behaviours
 - genetics
 - gender.

It is important to note that these determinants of health are interconnected. The health status of an individual and a community is typically due to the combined effect of health determinants and their composite factors. Understanding health determinants can help to identify why certain populations and environments may be healthier than others. This information can then be used to predict health trends within and across populations.

According to the Hunter Research Foundation Wellbeing Watch (2016) report, based on a cross-sectional telephone survey of 649 Hunter residents aged 18 years and over indicates that wellbeing in the Hunter has remained high in 2016 with a mean score of 4.06 out of 5 (refer to **Figure 7.10**). As the figure illustrates, there has been no significant change in the overall Hunter index since the program began in 2006 indicating a stable level of wellbeing among Hunter residents. Results also indicated that in 2016 Upper Hunter residents were slightly less positive than residents in the Lower Hunter.

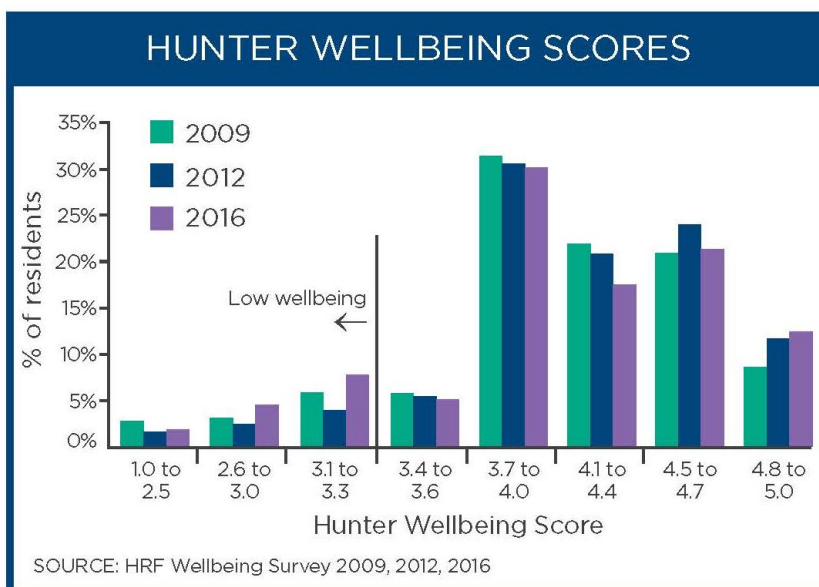


Figure 7.10 HRF Wellbeing Survey Results (2009, 2012, 2016)

In reviewing the outcomes of engagement (as documented in **Section 6.0**), there was the perception that the health and wellbeing of local landholders was being impacted by the MCCO Project in a number of different ways, including as a result of the physical environment (safe water, clean air, safe houses) and psychosocial factors e.g. stress and anxiety.

7.2.7.1 Perceived Physical Health Impacts

Landholder concerns in relation to physical health centred on respiratory concerns, specifically air quality/dust impacts and the quality of drinking water. The wider community, including Indigenous Service Providers consulted, also noted cumulative health impacts due to dust from mining as an area of concern.

In relation to the impact of air quality on health, media articles on the impact of mining in the region state that 2018 was the worst year for air-quality measurements since measuring began in 2012, this is said to be due to an increase in coarse particulate matter. The heightened measurements include a two-week period in June 2018 where four-six monitors recorded higher than national standard dust levels six times overnight in the Upper Hunter. Further articles suggest that local residents are concerned about their health and wellbeing, with an article reporting a 28.6% rise in Singleton hospital admissions coinciding with a decrease in air quality from September 2016 until September 2017 (refer to **Appendix 3**). This is not withstanding that the locality is in the grip of a significant drought and that there have been elevated dust levels during this time across the entire state, attributed to the drought conditions.

The SRLUP (2012) for the Upper Hunter also acknowledges that the impact of air pollution on health and amenity is a major community issue in the region, with a decrease in health and wellbeing perceived as a result of the presence of the mining industry.

To date there is a lack of focused and conclusive government studies on health impacts of air quality in the Hunter Valley. However, an examination of relevant health indicators suggests that:

- rates of respiratory system disease have increased in the Muswellbrook LGA from 24.5 (2008) to 27.7 per 100 (2011-12), comparable to current rates in NSW as a whole (27.4 per 100)
- in the Muswellbrook LGA (2014-15), for every 100 people over the age of 15 years, there are approximately 16 that have poor or very poor self-assessed health. While this has decreased since 2007-2008 from 17.4 per 100 to 16 per 100 (2014-15), it is still higher than the NSW average of 14.3 (2014-15)
- data relating to asthma hospitalisations (NSW Health Stats, 2018) indicates that rates of hospitalisation (per 100,000 population) in the Muswellbrook LGA are largely below NSW, however peaked in 2007, dropping back down to less than the NSW rate in 2009 (refer to **Figure 7.11**).

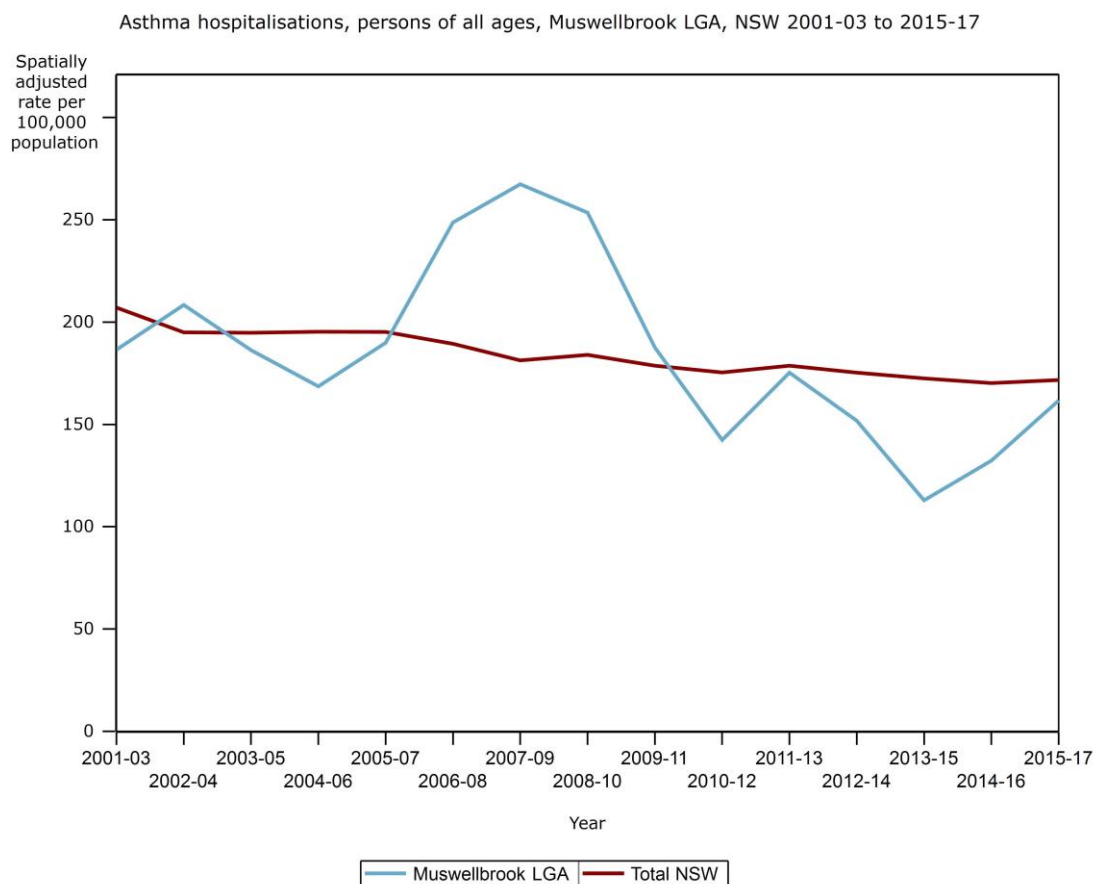


Figure 7.11 Asthma Hospitalisations for Persons of All Ages Muswellbrook LGA (2001-2017)

Source: NSW Health Stats, 2018

In relation to resident concerns about the impact of air quality/dust on drinking water, Mangoola has made available a number of mitigation measures for landholders residing in proximity to the current operation including the installation of water filters for rainwater tanks, tank cleaning. Mangoola also proposes to offer such measures to landholders within proximity to the MCCO Additional Project Area, should the MCCO Project proceed.

The EIS air quality assessment undertaken for the MCCO Project concludes that the air quality modelling does not suggest that human health will be adversely impacted by the MCCO Project for proximal neighbours or the wider Muswellbrook community.

It is therefore concluded that it is *unlikely* that the MCCO Project will contribute to existing health issues within the proximal community, with a *minimal* consequence level, resulting in a '**low**' unmitigated social risk.

7.2.7.2 Mental Health Impacts

Mental health issues were also frequently noted (11 stakeholders) in relation to the impacts of the current operation and the MCCO Project. As a result of the perceived impact of the MCCO Project on rural lifestyle amenity and the added concerns regarding financial security (concerns relating to the ability of landholders to sell their properties should they wish to relocate), a level of stress and anxiety was evident amongst some of the landholders sampled, particularly those located to the north of the MCCO Additional Mining Area.

The process of assessment was also noted by some stakeholders to have heightened their levels of stress and anxiety, given the need to digest data/information/reports e.g. noise modelling relating to the impact on their respective properties.

Consequently, it is *likely* that the discussion around the MCCO Project is contributing to mental health issues for some landholders within the proximal community, with a *moderate* consequence, resulting in a '**high**' social risk. This unmitigated risk rating is applicable to the landholders close to the north of the MCCO Additional Mining Area, whereas landholders that are further away from the site, and that are predicted to have lower levels of impact, have a lower level of risk.

Table 7.17 Predicted Social Impacts - Health and Wellbeing

Project Aspect	SIA Category	Social Impact Theme	Extent	Duration	Affected Parties	Perceived Social Impact/ Sensitivity	Social Impact Ranking (Unmitigated)
Presence of operation	Health and wellbeing Way of life	Health and wellbeing – Physical, including potential water contamination, respiratory illness	Wybong SSC Manobalai SSC Castle Rock SSC Mangoola SSC	Project life - additional 5 years	Proximal landholders	Moderate	Low
					Locality residents	Moderate	Low
Presence of operation	Health and wellbeing Way of life	Health and wellbeing - Stress and anxiety	Wybong SSC Manobalai SSC Castle Rock SSC Mangoola SSC	Project life - additional 5 years	Proximal landholders	High	High
					Locality residents	Moderate	Moderate

Source: Umwelt 2019

7.2.8 Water – Surface and Groundwater

A number of proximal landholders raised the MCCO Project's impact on both surface water and groundwater. Most of the issues raised related to impacts of mining on water availability, with some landholders raising impacts of increased salinity and bed rock displacement, as a result of current operations, and were concerned about the impact of the MCCO Project on local aquifers and private bores.

Overall, in the context of the local community, given the level of concerns raised, water was considered a '**moderate**' perceived stakeholder issue.

Technical assessments have been undertaken for both surface water and groundwater and the results are explained in detail in the respective sections of the EIS. In summary, a Water Management System (WMS) has been designed for the MCCO Project to manage water in accordance with legislative requirements and relevant guidelines. The WMS for the MCCO Project builds on the existing management system at Mangoola Coal Mine which maximises water recycling and reduces external water import.

Specifically, in regard to surface water, studies indicate that there may be potential impacts on surface water flows in the ephemeral Big Flat Creek located between the proposed additional mining area and the existing approved Mangoola Coal Mine. The creek has little or no flow during extended dry periods and baseline monitoring indicates that when flowing water quality is generally poor, with naturally occurring high salinity recorded in monitoring sites upstream. Some of the water that currently flows to the creek

during wet periods will be captured in the WMS for the Project. No significant impacts on flooding are predicted and no impacts on water quality.

A comprehensive groundwater model has also been developed for the MCCO Project and considers existing approved operations. The closest alluvial groundwater units underlie Wybong Creek and are located over 1 km to the west of the MCCO Project. There are aquifers in the bedrock and coal seams that will be intercepted however technical studies show that this water is of poorer quality.

Mangoola has adequate water licences to cater for all groundwater take from this interception and mining in the additional mining area is not expected to result in additional impacts to Wybong Creek alluvium. The MCCO Project has also conducted a search for registered bores and where bores are known, impacts have been assessed. If bores are not registered in NSW, they will not be identified in these searches.

In summary, in relation to surface water and groundwater, the unmitigated social risk is considered **'moderate'** (possible with a *minor* consequence); with the perceived impact ranked as **'moderate'**.

Table 7.18 Predicted Social Impacts - Water

Project Aspect	SIA Category	Social Impact Theme	Extent	Duration	Affected Parties	Perceived Social Impact/ Sensitivity	Social Impact Ranking (Unmitigated)
Presence of operations	Surroundings Way of life Water – surface and ground	Water - Access to surface and ground water Livelihood	Proximal landholders along Wybong Creek	Project life - additional 5 years, possibly ongoing	Proximal landholders Private bore owners	Moderate	Moderate

7.2.9 Visual Amenity

As outlined in **Section 6.0**, visual amenity and lighting impacts were raised by a small number of proximal landholders during consultation, particularly spill associated with night lighting. The most common issue identified by stakeholders was concerns about a haul road noise bund wall on Ridglands Road. It should be noted that as a direct result of community engagement, a Community Information Sheet was distributed in December 2018 that clarified that no haul road noise bunds are planned to be constructed along Ridglands Road and therefore this impact of concern raised by some members of the community will not occur.

The MCCO Project would be visible from small sections of public roads surrounding the site; however, operations are not expected to be visible from any private residence. A number of visual and lighting impact management measures are currently employed by Mangoola and are considered sufficient to minimise the potential increases to visual and lighting impacts associated with the MCCO Project.

In light of both community concern regarding visual impacts the perceived social risk is considered **'moderate'** and the unmitigated social impact is **'low'** (possible with *minimal* consequence).

Table 7.19 Predicted Social Impacts - Visual Amenity

Project Aspect	SIA Category	Social Impact Theme	Extent	Duration	Affected Parties	Perceived Social Impact/ Sensitivity	Social Impact Ranking (Unmitigated)
Presence of operation	Surroundings Way of life	Visual amenity - Visibility of the mine and overpass Lighting spill Rehabilitation	Wybong SSC Manobalai SSC Castle Rock SCC Mangoola SSC	Permanent change – reduced once rehabilitation has occurred (approx. 10 years)	Proximal landholders	Moderate	Low
					Locality residents	Moderate	Low

7.2.10 Blasting

Proximal landholders, particularly in the Wybong and Manobalai areas, raised concerns around blasting in regard to vibration, safety and cumulative impacts of blasting plumes.

Four stakeholders believe that vibrations from previous blasting have resulted in property damage and are concerned about further impacts as a result of the MCCO Project. Two stakeholders raised safety concerns surrounding the possible dislodgement of secondary debris on slopes, particularly in relation to the safety of children and livestock, with the largest concern expressed relating to property damage. One local landholder was concerned about the adverse impacts of decreased air quality from blasting and the potential for blasting plumes, and the subsequent impacts on health.

A Blast Impact Assessment has been undertaken for the MCCO Project which addresses the impacts of the MCCO Project in terms of ground vibration, overpressure and fly rock on the surrounding environment, including private residential landholders, cultural heritage sites, rock formations and infrastructure.

Blasting would continue to be managed in accordance with a Blast Management Plan consistent with the one currently implemented at the existing Mangoola Coal Mine. The assessment demonstrates that the blasting proposed for the MCCO Project can be effectively managed to meet the relevant criteria with no exceedances predicted to occur. No adverse impacts on livestock or public safety were identified.

Due to the number of landholders that reported blasting as an issue the perceived stakeholder impact has been ranked as **'moderate'**. The unmitigated social impact has been ranked as **'low'** (*possible to occur but of minor consequence*) noting that blast management plans are in place which tailor technical mitigation measures to blasting sizes.

Table 7.20 Predicted Social Impacts - Blasting

Project Aspect	SIA Category	Social Impact Theme	Extent	Duration	Affected Parties	Perceived Social Impact/ Sensitivity	Social Impact Ranking (Unmitigated)
Presence of operation	Surroundings Personal and property rights Way of life	Blasting: - Social amenity - Property damage - Safety - Noise	Wybong SSC Manobalai SSC Castle Rock SSC Mangoola SSC	Project life - additional 5 years	Proximal landholders	Moderate	Low
					Locality residents	Low	Low

7.2.11 Land Use and Management

Land use and management was primarily raised during consultation with stakeholders in the context of Pest and Weed Management, rehabilitation and concerns regarding future land use post mining.

Ten proximal landholders did acknowledge that pest and weed controls are implemented but raised issues in particular regarding kangaroo numbers.

Four landholders were also concerned as to the type of future land use proposed, with particular concerns that the land would be unfit for agricultural purposes. In this regard, Glencore currently manages a range of agricultural properties in the Hunter Valley under its Colinta agricultural enterprise. Within the communities in proximity to Mangoola Coal Mine, Colinta currently manages four properties (one in Wybong SSC and three in the Mangoola SSC) and one property in Denman.

Current rehabilitation efforts were perceived positively by a number of proximal landholders, and also in the wider community, with constructive feedback provided on the positive rehabilitation efforts made by Mangoola. This sentiment was reiterated by Indigenous stakeholders consulted.

Land Use and Management is also seen as a key issue in the Muswellbrook LGA with the MSC *Land Use Development Strategy* (MSC, 2012) noting that there is a need for a whole of life consideration for mining activities, including quality rehabilitation and restoration of mined land.

Areas disturbed as part of the MCCO Project will be progressively rehabilitated following mining activities with the objective of returning the MCCO Project Area to native woodland habitat combined with natural grassland areas. The EIS has also considered potential alternatives for final land use such as pumped storage hydro power and other industrial uses.

Based on the perceptions outlined above, the impact of continued mining activities on land management and uses in the Muswellbrook area is ranked as a '**moderate**' stakeholder perceived issue.

With regard to land use and management, it is not expected that the MCCO Project will increase land management issues in the area and consequently has been ranked as a '**moderate**' unmitigated social risk (*possible with minor consequence*).

Table 7.21 Predicted Social Impacts - Land Use and Management

Project Aspect	SIA Category	Social Impact Theme	Extent	Duration	Affected Parties	Perceived Social Impact/ Sensitivity	Social Impact Ranking (Unmitigated)
Presence of operation Offsets	Surroundings	Land use and management Increased pests and weed	Wybong SSC Manobalai SSC Castle Rock SSC Mangoola SSC	Duration of Mangoola land ownership	Proximal landholders to operation and offset areas	Moderate	Moderate

7.2.12 Economic

The positive impacts associated with the presence of Mangoola in the region i.e. local employment and workforce expenditure, local procurement and community investment, were raised by stakeholders during consultation and are further highlighted in **Section 6.0**.

The NSW Mineral Councils' latest release of its annual NSW Mining Industry Expenditure Impact Survey 2017/18 provides an overview of the impacts of mining in the region more generally. The survey indicated that the 28 surveyed mining companies in the Hunter injected around \$4.3 billion to the region's economy, equating to an estimated 18% of the Gross Regional Product. This included \$1.6 billion in the wages of 14,045 full-time employees and \$2.6 billion in purchases from local businesses.

Within the Maitland LGA, \$830M was spent in 2017-18, with \$265M in wages and \$565M in local business purchases. Singleton LGA received over \$400M in wages and \$380M in local business expenditure, with total input at nearly \$780M. In the Muswellbrook LGA, surveyed mining companies spent over \$437M, including nearly \$230M in wages, and purchases with local businesses totalling nearly \$208M. The survey found that direct mining spend in the Newcastle LGA totalled over \$1 billion in 2017-18, including \$155M in wages and \$968M in purchases with local businesses (NSW Minerals Council, 2019).

Township Resource Cluster (TRC) analysis (Fenton, Coakes and Marshall, 2003), utilising current employee and supplier data provided by Glencore (2018) for the current assessment, reveals that Mangoola's current operations specifically make a significant economic contribution to local communities through:

- employment (direct impact)
- business expenditure (direct impact)
- employee household expenditure (indirect impact).

These economic contributions are summarised below for key towns that are significantly impacted (**Table 7.22**).

Table 7.22 Summary of TRC Results for Key Locations of Interest

	Muswellbrook (SSC)	Denman (SSC)	Scone (SSC)	Cessnock (LGA)	Singleton (LGA)	Maitland (LGA)	Newcastle (LGA)
Number of Mangoola employees	141	44	41	5	57	7	5
Employees' annual household expenditure (estimated)	\$11.3M	\$3.5M	\$3.3M	\$0.39M	\$4.6M	\$0.58M	\$0.39M
Mangoola total spend on supplier contracts	\$8.83M	\$0.03M	\$0.25M	\$27.99M	\$19.55M	\$16.33M	\$4.3M

Source: Mangoola (2018)

Table 7.23 Summary of TRC Results for Muswellbrook LGA

Key Indicators	Muswellbrook LGA
Percentage of Mangoola employees	51%
Employees' annual household expenditure (estimated)	\$16.32M
Mangoola total spend on supplier contracts	\$8.86M

Source: Mangoola (2018)

Table 7.23 outlines the data obtained in relation to direct employment impacts of the existing operations, and the associated annual indirect annual household expenditure for the workforce that occurs in the Muswellbrook LGA specifically (based on estimates provided by the Mangoola workforce through the TRC-Analysis).

As noted in **Section 4.1.1**, the expenditure estimates have been based on scales derived from the ABS Household income and expenditure survey 2015-2016, which are considerably more conservative than the expenditure estimates given by employees in the Mangoola Mod-6 SIA employee survey undertaken by Coakes Consulting (2013).

Despite these limitations, these localised projections provide an indication of the contributions that Mangoola would continue to make in the region, under the ongoing operational employment and procurement projections for the MCCO Project.

Given that the MCCO Project would prolong the life of the mine for a further five years, the social and economic benefits associated with company, workforce and supplier expenditure are expected to continue for the proposed mine life and as per the existing situation it is expected that a significant proportion of employment and business opportunities will flow to the surrounding region. These benefits would not occur should the MCCO Project not proceed.

TRC is a useful technique for identifying the direct and indirect socio-economic linkages and associations that exist between a project and specific communities both in proximity to and outside the local area.

Through this method it is possible to examine the more positive social and economic impacts experienced and infer how these contributions are distributed across the region and beyond. However, the analysis is designed for general indication only, and relies on several key assumptions (for key assumptions please refer to **Section 4.1.1**).

As part of the EIS for the MCCO Project, a full Economic Impact Assessment has been undertaken by Cadence Economics. This assessment provides a detailed analysis of the economic contribution of the MCCO Project to the broader region. In the economic assessment, these are framed in terms of total contributions including royalties, levies and taxes paid to local and state governments, and the net value added in employee salaries compared to non-mining salaries, and supplier profits from sales. Furthermore, the economic assessment accounts for yearly predicted fluctuations in costs associated with the different stages of the MCCO Project and includes analysis of potential financial losses to the state in their assessment of overall contribution. As such, final figures of net contributions will vary across the two methods.

The economic assessment highlights that the MCCO Project is estimated to provide a net benefit to NSW. This net benefit is estimated to be \$409M in net present value (NPV) terms and is comprised of \$173M and \$236.6M in direct and indirect benefits respectively. Indirect costs of the project total \$0.81M.

The economic assessment also reports that the **direct benefits** of the MCCO Project are a function of its profitability which, in turn, depends on the prevailing coal price. The analysis shows that the combination of relatively low capital requirement, extraction and processing costs underpins the economic viability of the MCCO Project.

As a result, the MCCO Project is predicted to generate:

- total corporate taxes of \$135.9M in NPV terms for Australia, of which \$43.5M is attributed to NSW
- \$129.5M in other government revenue for NSW in NPV terms, the largest component of this being royalties of \$121M, with council rates and land taxes of \$2.7M and payroll taxes contributing \$5.9M.

The assessment goes further to explain that the **indirect benefits** of the MCCO Project are related to the linkages that it will have to the NSW economy, through both the labour market and suppliers. The analysis shows that there will be \$236.9M in estimated indirect benefits.

The economic assessment also considers the costs and benefits of the MCCO Project on residents of the Upper Hunter region of NSW. The analysis shows an estimated net benefit of \$92.8M to the region in NPV terms. This is driven largely by:

- benefits to local workers of \$76.8M in NPV terms based on the assumption that 73% of the mine's direct employees continue to be drawn from the region
- benefits to local suppliers of \$14.1M in NPV terms which is based on information from Mangoola that 9% of the inputs to production are supplied from the region
- the payment of local council rates totalling \$2.7M in NPV terms.

Local landholders and stakeholders consulted, acknowledged the contribution that Mangoola currently make in the Muswellbrook LGA, and in the broader State of NSW; and should the MCCO Project be approved, this contribution would continue for a longer term.

In relation to economic benefits, there was also the view, however, that many of the benefits of the mine are experienced outside of the local area in which the mine is based, even though proximal communities bear the largest brunt of the impacts of the operation. Such issues have been identified in the recent ‘Keep it in the regions’ senate inquiry report, which advocates for further focus on local contributions across industry sectors (Commonwealth of Australia, 2018).

Consequently, the social impact of the MCCO Project on the local economy of Muswellbrook and NSW more broadly (during construction and continued operation) is considered to result in a **‘high positive’** unmitigated social impact (*likely* to occur, with a *moderate* consequence). This issue was also perceived by local landholders as a **‘moderate positive’** social impact of the MCCO Project.

Table 7.24 Predicted Social Impacts - Economic

Project Aspect	SIA Category	Social Impact Theme	Extent	Duration	Affected Parties	Perceived Social Impact/ Sensitivity	Social Impact Ranking (Unmitigated)
Construction of operation	Way of Life Community Personal and property rights	Economic Employment Local procurement Indirect impacts to locality and region	Muswellbrook LGA and surrounding region	16 months	Indigenous and non-Indigenous population Local business Service providers Employees	Moderate (Positive)	High (Positive)
Presence of operation	Way of life Community Personal and property rights	Economic Sustained employment and procurement	Muswellbrook LGA and surrounding region	Project life - additional 5 years	Indigenous and non-Indigenous population Existing workforce Local business Service providers	Moderate (Positive)	High (Positive)

7.2.13 Cumulative Impacts

The cumulative concerns that were most frequently raised by landholders and key stakeholders related to the effects of dust, noise, blasting and rail movements. There are three coal mines located in the broader area surrounding Mangoola Coal Mine, within the Upper Hunter Valley. The closest mine to the MCCO Proposed Project area is the Bengalla Mine (8.5 km east), the Mount Pleasant Mine (9 km north-east) and the Mt Arthur Mine (9.5 km south-east). There are also other major projects proposed (in differing stages of assessment) within 16 km of the Mangoola Coal Mine operation, these include the Maxwell Underground Coal Project, the Ridgeland Exploration Project, the West Muswellbrook Exploration Project and the Yarraman Feedlot and Abattoir.

At a wider Muswellbrook LGA level, the cumulative impacts of mining are a key concern. As noted in **Section 5.5**, Muswellbrook has a number of mines in proximity to the town and is positioned in a key location in the Hunter Valley where the road and rail intersections of the Gunnedah, Western and Hunter coalfields meet. As noted in the Muswellbrook Council’s Community Survey (2013), half of the residents sampled within the Muswellbrook LGA requested reduced mining noise and dust (MSC, 2013).

While mining and related activities are the predominant employer, there are community concerns in relation to the cumulative impacts of continued mining expansion upon competing land uses and specifically the impacts on other rapidly expanding and more sustainable industries such as the equine industry, eco-tourism and agribusiness (Land Use Development Strategy, 2015).

In response to the demand for coal within the region, the MSC has developed, in consultation with the local community, a *Land Use Development Strategy (Coal mine land use component): A Guide for Strategic Land Use in the Muswellbrook Shire* (MSC, 2012). The purpose of the strategy is to promote intensification of existing mining projects rather than an expansion of mining footprints throughout the area. The MSC is sensitive to the impacts of mining on the community and is of the view that any intensification of existing projects needs to be closely managed to reduce cumulative impacts, such as those on accommodation, health and health services, dust and noise as well as labour supply.

The cumulative technical air quality and noise assessments have found that the cumulative impacts associated with the MCCO Project and other mines are predicted to comply with relevant criterion. This is in part due to the nearest mines and other industry being sufficiently far away from Mangoola, with limited potential for cumulative impacts.

Landholders perceived the cumulative impacts of the Project to be **'moderate'** and given the distance of the MCCO Project from other mines, it has also been categorised as a **'moderate'** unmitigated social risk (*unlikely with a moderate consequence*).

Table 7.25 Predicted Social Impacts - Cumulative Impacts

Project Aspect	SIA Category	Social Impact Theme	Extent	Duration	Affected Parties	Perceived Social Impact/ Sensitivity	Social Impact Ranking (Unmitigated)
Mining in the region	Surroundings Health and wellbeing Way of life	Cumulative: Social amenity - Dust - Water - Noise - Rail	Muswellbrook LGA	Existing and future	Muswellbrook LGA	Moderate	Moderate

Source: Umwelt 2019

7.2.14 Decision Making and Engagement

As highlighted in **Section 6.1.12** local landholders expressed concerns in relation to the government assessment and development approval process and opportunities provided for local community stakeholders to engage with companies in relation to operational activities. There was a perception that the process favoured applicants and that local government and community members were disempowered in the process. There was also the perception that the technical nature of the assessment process, required stakeholders to wade through mountains of technical data, with the onus put on the community to understand and make sense of the technical outputs.

Local landholders expressed a low average degree of satisfaction (4.9 out of 10) with Mangoola's engagement to date in relation to their existing operations. While company personnel were perceived as **'likeable'**, there was a view that information was hard to source from Mangoola and that consultation was inconsistent.

In relation to management of impacts, proximal landholders suggested that there was an inequitable application of mitigation measures. As noted in **Section 4.4**, landholders had low agreement in relation to the following attitude statements:

"I feel Mangoola Coal's activities are environmentally sustainable."

"I feel confident that Mangoola Coal would repair any damage to the environment that it caused."

"Mangoola Coal cares about the community."

"Mangoola Coal fairly considers the community when making decisions about its operations and activities in the local area."

Historically, incidences of mistrust are evident in similar development projects where local residents may feel disempowered by State significant projects that may be proposed and approved.

Consequently, the perceived inequity and lack of trust in decision making and engagement processes was ranked by proximal landholders as **'high'**, by the Indigenous community as **'moderate'** and for the Muswellbrook LGA as **'low'**; with the unmitigated social risk ranked as **'low'** (possible with a *minor* consequence).

Table 7.26 Predicted Social Impacts - Decision Making and Engagement

Project Aspect	SIA Category	Social Impact Theme	Extent	Duration	Affected Parties	Perceived Social Impact/ Sensitivity	Social Impact Ranking (Unmitigated)
Government and EIS process	Decision making systems Way of life	Distrust Lack of knowledge Engagement	Muswellbrook LGA	Existing and future	Proximal landholders	High	Low
					Indigenous community	Moderate	Low
					Muswellbrook LGA community	Low	Low

7.3 Predicted Impact Summary

The following table provides a summary of the predicted unmitigated social risks in relation to the MCCO Project. As previously mentioned, fears and aspirations relate to one or a combination of the social impact categories, and as such, for the purpose of this assessment, it is suggested that all of the identified impacts fall within the fears and aspirations category.

Table 7.27 Summary of Predicted Social Impacts (Unmitigated)

Project Aspect	SIA Category	Social Impact Theme	Extent	Duration	Affected Parties	Perceived Social Impact/ Sensitivity	Social Impact Ranking (Unmitigated)
Acquisition process	Way of Life Community Personal and property rights	Population Change	Wybong SSC Manobalai SSC Muswellbrook LGA	Project life – additional 5 years	Proximal Landholders (7 – Significant; up to possible 13% population change in Wybong SSC)	High	High
					Muswellbrook LGA	Low	Low
Construction of Operation	Way of Life Community Personal and property rights	Economic Employment Local procurement Indirect impacts to locality and region	Muswellbrook LGA and surrounding region	16 months	Indigenous and non-Indigenous population Local business Service providers Employees	Moderate (Positive)	High (Positive)
Construction workforce	Community Access to and use of infrastructure, and services and facilities	Population Change – influx of workers	Muswellbrook LGA	16 months	Muswellbrook LGA	Low	Low
					Service Providers	Moderate (positive)	Moderate (positive)
Construction workforce	Surroundings Access to and use of infrastructure, services and facilities Way of Life	Traffic volume and access to the area	Wybong SSC Manobalai SSC Castle Rock SSC Mangoola SSC Muswellbrook LGA	16 months	Proximal Landholders	High	Moderate
					Road Users	High	Moderate

Project Aspect	SIA Category	Social Impact Theme	Extent	Duration	Affected Parties	Perceived Social Impact/ Sensitivity	Social Impact Ranking (Unmitigated)
Government and EIS Process	Decision Making Systems Way of Life	Distrust Lack of knowledge Engagement	Muswellbrook LGA	Existing and future	Proximal landholders	High	Low
					Indigenous community	Moderate	Low
					Muswellbrook LGA community	Low	Low
Mining in the region	Surroundings Health and wellbeing Way of Life	Cumulative: - Social amenity - Dust - Water - Noise - Rail	Muswellbrook LGA	Existing and future	Muswellbrook LGA	Moderate	Moderate
Operational workforce	Access to and use of infrastructure, services and facilities Community infrastructure and services	Population Change - no additional operational workforce	Muswellbrook LGA	Project life - additional 5 years	Proximal Landholders	Low	Low
					Service Providers	Low	Low
Operational workforce	Surroundings Access to and use of infrastructure, services and facilities Way of Life	Road maintenance Safety Property damage	Wybong SSC Manobalai SSC Castle Rock SSC Mangoola SSC Muswellbrook LGA	Project life - additional 5 years	Proximal Landholders	High	Low
					Road Users	Moderate	Low
Presence of Operation	Personal and property Rights	Property impacts include:	Wybong SSC Manobalai SSC	Project life - additional 5 years	Proximal Landholders	High	High

Project Aspect	SIA Category	Social Impact Theme	Extent	Duration	Affected Parties	Perceived Social Impact/ Sensitivity	Social Impact Ranking (Unmitigated)
	Way of Life	Declining property value Uncertainty and potential livelihood impact Inequity given residences fall within different zones	Castle Rock SSC Mangoola SSC		Locality Residents	High	High
Presence of Operation	Community Culture Way of Life	Lifestyle Amenity Connection to place, membership and participation	Wybong SSC Manobalai SSC Castle Rock SSC Mangoola SSC	Project life - additional 5 years	Proximal Landholders	High	High
					Locality Residents	High	High
Presence of Operation	Surroundings Health and Wellbeing Way of Life	Social amenity - dust	Wybong SSC Manobalai SSC Castle Rock SSC Mangoola SSC	Project life - additional 5 years	Proximal Landholders	High	Low
					Locality Residents	High	Low
Presence of Operation	Surroundings Health and Wellbeing Way of Life	Social amenity - noise	Wybong SSC Manobalai SSC	Project life - additional 5 years	Proximal Landholders (7 – Significant)	High	High
			Wybong SSC Manobalai SSC Castle Rock SSC Mangoola SSC	Project life - additional 5 years	Proximal Landholders (19 – Marginal)	High	High

Project Aspect	SIA Category	Social Impact Theme	Extent	Duration	Affected Parties	Perceived Social Impact/ Sensitivity	Social Impact Ranking (Unmitigated)
Presence of Operation	Health and wellbeing Way of Life	Health and wellbeing – Physical, including potential water contamination, respiratory illness	Wybong SSC Manobalai SSC Castle Rock SSC Mangoola SSC	Project life - additional 5 years	Proximal Landholders	Moderate	Low
					Locality Residents	Moderate	Low
Presence of Operation	Health and wellbeing Way of Life	Health and wellbeing - Stress and anxiety	Wybong SSC Manobalai SSC Castle Rock SSC Mangoola SSC	Project life - additional 5 years	Proximal Landholders	High	High
					Locality Residents	Moderate	Moderate
Presence of Operation	Surroundings Way of Life	Water - Access to surface and ground water Livelihood	Proximal landholders along Wybong Creek	Project life - additional 5 years), possibly ongoing	Proximal Landholders Private Bore Owners	Moderate	Moderate
Presence of Operation	Surroundings Way of Life	Visual Amenity - Visibility of the mine and overpass Lighting spill Rehabilitation	Wybong SSC Manobalai SSC Castle Rock SSC Mangoola SSC	Permanent change – reduced once rehabilitation has occurred (approx. 10 years)	Proximal Landholders	Moderate	Low
					Locality Residents	Moderate	Low
Presence of Operation	Surroundings Personal and property rights Way of Life	Blasting: - Social amenity - Property damage - Safety - Noise	Wybong SSC Manobalai SSC Castle Rock SSC Mangoola SSC	Project life - additional 5 years	Proximal landholders	Moderate	Low
					Locality Residents	Low	Low

Project Aspect	SIA Category	Social Impact Theme	Extent	Duration	Affected Parties	Perceived Social Impact/ Sensitivity	Social Impact Ranking (Unmitigated)
Presence of Operation	Way of Life Community Personal and property rights	Economic Sustained employment and procurement	Muswellbrook LGA and surrounding region	Project life - additional 5 years	Indigenous and non-Indigenous population Existing workforce Local business Service providers	Moderate <i>(Positive)</i>	High <i>(Positive)</i>
Presence of Operation Offsets	Surroundings	Land Use and Management Increased pests and weed	Wybong SSC Manobalai SSC Castle Rock SSC Mangoola SSC	Duration of Mangoola land ownership	Proximal Landholders to operation and offset areas	Moderate	Moderate

8.0 Management and Enhancement of Social Impacts

This section provides a summary of the potential strategies that may be implemented in response to the predicted social impacts associated with the MCCO Project, as outlined in **Section 7.0** and relates to those impacts that have been evaluated as significant unmitigated social impacts and ranked as ***moderate and high*** as a result of their respective likelihood and consequence ratings.

While the section focuses on the mitigation of negative social impacts, strategies to enhance positive social impacts in relation to the Project, particularly in the local community and surrounding region where the project is located, are also presented. The strategies proposed also include measures to address any impacts that are of ***‘high’*** concern to potentially affected people and groups, but which are not considered significant from a technical perspective.

As noted in the SIA Guideline (DPE, 2017), strategies need to be developed showing there is a clear connection between the measure proposed and the significant social impact being mitigated or enhanced. Strategies to be implemented may differ in their effectiveness and/or ability to alleviate impacts, with some residual social impacts remaining, in the case of negative impacts. The acceptability of any residual impact remaining post implementation will also be discussed. Furthermore, certain measures may collectively address a number of different negative social impacts and potentially enhance positive impacts.

The SIA Guideline (DPE, 2017), outlines that mitigation measures may be:

- **performance-based** – identify performance criteria that must be complied with to achieve an appropriate outcome, but do not specify how the outcome is to be achieved, demonstrating why the performance criteria are appropriate
- **prescriptive** – that outlines actions that need to be taken or things that must be done, with justification as to why this approach is appropriate by providing scientific evidence, or referencing relevant guidelines or case studies
- **management-based** – where potential impacts can be satisfactorily avoided or mitigated by implementing known management approaches.

Given that the MCCO Project relates to the continuation of the existing Mangoola Coal Mine operations, Mangoola has a number of existing management-based strategies and approaches in place that would continue to be applied should the MCCO Project proceed. These approaches/strategies will be summarised below and are further defined in the EIS.

Furthermore, it should be noted that in relation to the management of impacts, significant changes have been made to the project design to minimise these impacts as much as possible as part of the assessment process. This included changes to mining areas, overburden emplacement areas, infrastructure designs including the design of the visual bunds, reductions to the proposed equipment numbers in the northern mining area, changes to the water management system design and modification of the mine design to minimise noise and other impacts. Further detail of the changes made to the MCCO Project to minimise impacts are provided in the EIS.

A number of strategies are proposed to address the significant social impacts relating to the MCCO Project. These strategies have been developed through review of:

- existing Mangoola and Glencore management approaches
- stakeholder identified strategies (as outlined in Section 5 of the EIS and identified through the SIA engagement program (Rounds one and two)
- relevant projects and studies relating to social impact management
- social team experience across other projects.

The MCCO Project has also included extensive refinements to the mine plan, to address known community issues and key concerns, and as a result of several rounds of noise and air quality constraints modelling. The significant changes that have been made to the mine plan include:

- removal of the eastern out of pit emplacement area
- changes to the extent of the proposed mining area
- changes to mining intensity (intensity of mining has been reduced for the operations planned in the north)
- changes to haul road locations and dumping schedules.

Table 8.1 identifies which specific predicted social impacts are addressed by the implementation of the particular strategies proposed, with further detail provided on the proposed strategies in the sub-sections below. As has been noted above, each of the strategies proposed may address the social risk to varying degrees.

Additional social criteria are also considered in the development of relevant strategies, including an assessment of the vulnerability of key stakeholders, particularly local landholders in close proximity to the proposed project area.

Table 8.1 Proposed Strategies by Significant (*High* and *Extreme*) Predicted Social Impacts

Strategy	Strategy Term	Strategy Type	Sense of Community	Property Value	Social Amenity	Traffic - Construction	Economic	Cumulative
Existing Strategies that will be Revised and Continued								
Environmental Management Plans - Noise, Air Quality, Blasting, Traffic	Project life	Management-based						
Existing and proposed landholder mitigation strategies	Project life	Management-based						
Employment and procurement	Project life	Performance-based						

Strategy	Strategy Term	Strategy Type	Sense of Community	Property Value	Social Amenity	Traffic - Construction	Economic	Cumulative
Voluntary Planning Agreement	Project life	Prescriptive						
Post mining land use strategy	Post closure	Prescriptive						
Glencore and Mangoola Community Investment Program	Project life	Prescriptive						
New Proposed Strategies								
Community Enhancement Fund	Project life	Prescriptive						
Property specific measures with affected local landholders	A defined period	Prescriptive						
Social Impact Management Plan	Project life	Prescriptive						

The following sections outline each of these strategies in further detail.

8.1 Existing and Proposed Mangoola Mitigation and Enhancement Strategies

Mangoola Coal Mine, as an established operation in the Wybong locality, has in place a range of existing mitigation approaches to address environmental and social impacts associated with their mining operations, including a VPA with MSC.

In relation to environmental impacts of the operations, predicted impacts are defined by performance-based criteria, as fixed by government; and applied through the VLAMP process for acquisition and mitigation in so far as noise is concerned. As noted in the EIS it is anticipated a total of seven properties will be afforded voluntary acquisition rights should the MCCO Project be approved.

To date, as part of Mangoola's existing operations, a range of management strategies have been applied to residences in the current operation's active management zone to mitigate against noise, dust and sense of community (and more broadly in the case of certain measures such as tank cleaning) to further reduce impacts of the operations. Such strategies include:

- household sealing and noise mitigation (as directed by a qualified structural engineer)
- filters for water tanks - first flush systems
- cleaning of water tanks
- cleaning of solar panels

- landscaping/tree planting (on individual properties)
- air-conditioning - provision, maintenance and electricity subsidies
- VPA contributions to community groups.

To date, implementation of some of the strategies identified above, has been undertaken as a result of previous impact assessments. For example, cleaning of water tanks has occurred within 4 km of the active mining area annually and 4 - 6 km of the active mining area biannually, with first flush systems checked quarterly. Cleaning of solar panels occurs every four months at four properties; and mitigation for noise in the noise management zone includes provision of the installation, maintenance and operating costs for air conditioning.

In addition, Mangoola has progressively updated and modified both existing operational design and the proposed MCCO project design, as a result of previous engagements with stakeholders, in order to minimise impacts on the local and regional community.

Existing management and mitigation strategies are documented in the approved management plans and these will continue to be implemented in accordance with the development consent for the MCCO Project. Further details of these strategies are also discussed within the EIS.

For consistency of strategy application moving forward, should the MCCO Project be approved, it is recommended that greater clarity be provided to proximal landholders regarding the management zones/households to which specific strategies apply. This may be communicated to proximal landholders through a dedicated community information sheet.

If the MCCO Project is granted consent, a range of environmental management plans will also be put in place to guide project activities. The following table (**Table 8.2**) outlines a number of suggestions proposed by stakeholders for consideration in the development of these dedicated management plans and enhancement strategies (includes strategies identified through the cultural heritage assessment by Aboriginal stakeholders).

Table 8.2 Stakeholder Identified Potential Mitigation and Enhancement Measures

Theme	Potential Mitigation and Enhancement Measures – Stakeholder Suggestions	Existing or Proposed Mitigation and Enhancement Measures
Dust (Amenity)	<ul style="list-style-type: none"> • Regular changing of water tank filters and water tank cleaning 	<ul style="list-style-type: none"> • Private landowners living within a 4 km radius of the active mining area will be offered an inspection and if deemed required, cleaning of residential rainwater tanks once per year, upon written request • Private landowners living within a 4 – 6 km radius of active mining operations will be offered an inspection and if deemed required, cleaning of residential rainwater tanks every two years, upon written request
	<ul style="list-style-type: none"> • Night and day dust controls and improved monitoring 	<ul style="list-style-type: none"> • Air Quality Management Plan will be implemented as part of the MCCO Project

Theme	Potential Mitigation and Enhancement Measures – Stakeholder Suggestions	Existing or Proposed Mitigation and Enhancement Measures
Noise	<ul style="list-style-type: none"> • Installation of air-conditioners, wall and floor Insulation, double glazed windows or shutters • Landscaping around house to provide further noise buffer • Shut down activities when possible, improved noise monitoring 	<ul style="list-style-type: none"> • Existing Mitigation Program involving <ul style="list-style-type: none"> ○ Air-conditioner maintenance and reimbursement: biannual and other measures as outlined above • A Noise and Vibration Management Plan will be implemented as part of the MCCO Project
Traffic (Construction)	<ul style="list-style-type: none"> • SMS alerts system for road closures and blasting activity • Use of 'Stop and Go' personnel during construction phase, preferable to portable traffic light systems that cause delays in travel time 	<ul style="list-style-type: none"> • Existing alert system already in place • A Construction Traffic Management Plan will be prepared for the MCCO Project
Environment	<ul style="list-style-type: none"> • Dense visual screening along bunds and Ridgeland Road • Dense Visual screening on individual properties, subsidise cost of bore licencing • Further engagement with Indigenous communities in relation to environmental and land management issues 	<ul style="list-style-type: none"> • Visual screening proposed as part of the MCCO Project • Considered as part of Community Enhancement Program outlined below • Considered as part of the cultural heritage assessment a process and criteria for the application of Land Management support that would be developed following approval of the MCCO Project
Land Use and Management	<ul style="list-style-type: none"> • Pest and Weed Management (including baiting and culling programs for kangaroos, pig, wild dogs, deer, rodents and prickly pear) • Further engagement with Indigenous communities in relation to land management, rehabilitation and future land use post mining 	<ul style="list-style-type: none"> • Existing strategies already in place • Considered as part of Community Enhancement Program outlined below • Employment opportunities for Aboriginal stakeholders were raised as an item that would benefit the wider community. Mangoola, in consultation or conjunction with Glencore, would consider supporting a traineeship or work experience program through a third party provider in the area of cultural heritage management, biodiversity or land management, ecology, rehabilitation or other appropriately related field
Cumulative Impacts	<ul style="list-style-type: none"> • Rail - interaction with ARTC - privacy walls and tree planting to increase privacy to properties along the rail line 	<ul style="list-style-type: none"> • Considered as part of environmental management plans and the SIMP

Theme	Potential Mitigation and Enhancement Measures – Stakeholder Suggestions	Existing or Proposed Mitigation and Enhancement Measures
Blasting	<ul style="list-style-type: none"> Multi alert systems including SMS and email to ensure safety from fly rock and to ensure safety of livestock and domestic animals Continue road signage and monitors to be located close to/on individual properties Structural surveys completed for all properties 	<ul style="list-style-type: none"> Existing alert system in place. Can be reviewed as part of Community Engagement Plan revision Blast Management Plan will be implemented for the MCCO Project Mangoola will offer all private landholders located within 2 km of the proposed MCCO Additional Mining Area, a property inspection prior to the commencement of blasting to establish the baseline condition of private structures
Economic	<ul style="list-style-type: none"> Employment opportunities for Indigenous and non-Indigenous community residents Traineeship and/or work experience programs 	<ul style="list-style-type: none"> Local employment and procurement
Sense of Community and Cultural Identity	<p>Knowledge holders and RAPs raised a range of issues and potential mitigation strategies with regards to cultural loss, these included:</p> <ul style="list-style-type: none"> A desire for community (or groups) to come together outside of development application/disturbance processes A desire for a range of cultural experiences (such as cultural camps, Elders Camps, teaching to younger generations) 	<ul style="list-style-type: none"> Program or activities to assist in promoting cultural awareness and education for young people <p>Currently Glencore through its voluntary Community Investment Program is committed to:</p> <ul style="list-style-type: none"> The Galuwa Aboriginal School scholarship program which currently supports 30 scholarships for Aboriginal students from the Upper Hunter in years 6, 7 and 8 to support their academic progress, cultural identity and career aspirations Singleton Clontarf Academy supporting 80 Aboriginal boys and 4 staff at Singleton High School to support the personal development and education of these boys <p>Glencore's approach to supporting Aboriginal education is to work closely with NSW Department of Education to provide meaningful and needed Aboriginal education support that compliments and does not duplicate existing initiatives within NSW Education and other providers who support Aboriginal Education</p> <p>Further support of Aboriginal education following approval of the MCCO Project would be considered, to align to this approach to support similar Aboriginal education initiatives where there is a substantiated gap in support or service provision</p> <p>Mangoola also acknowledge the desire for a regional Wonnarua Keeping Place. Mangoola also acknowledged the MCCO Project lies on the</p>

Theme	Potential Mitigation and Enhancement Measures – Stakeholder Suggestions	Existing or Proposed Mitigation and Enhancement Measures
		overlapping boundary to the Gomeroi Native Title Claim. However, this facility does not currently exist. Stone artefacts retrieved due to the MCCO Project salvage program will be kept on-site in an appropriate facility currently being developed as part of the existing Project Approval. Should a regional Keeping Place be developed, subject to community support, Mangoola would consider supporting the relocation of cultural heritage material to that place. Further, Mangoola will consider the repatriation of artefacts across rehabilitation areas as part of a closure planning process at the cessation of mining

Source: Umwelt (2019)

8.1.1 Community Enhancement Program

To address the issues raised by local landowners relating to the perceived impacts on property price, dwindling sense of community, and social amenity as a result of environmental impacts of noise (as outlined in **Section 7.0** and in **Figure 8.1** below), Mangoola proposes to develop a Community Enhancement Program for residents/landholders located in the defined management zones relating to the MCCO Project.

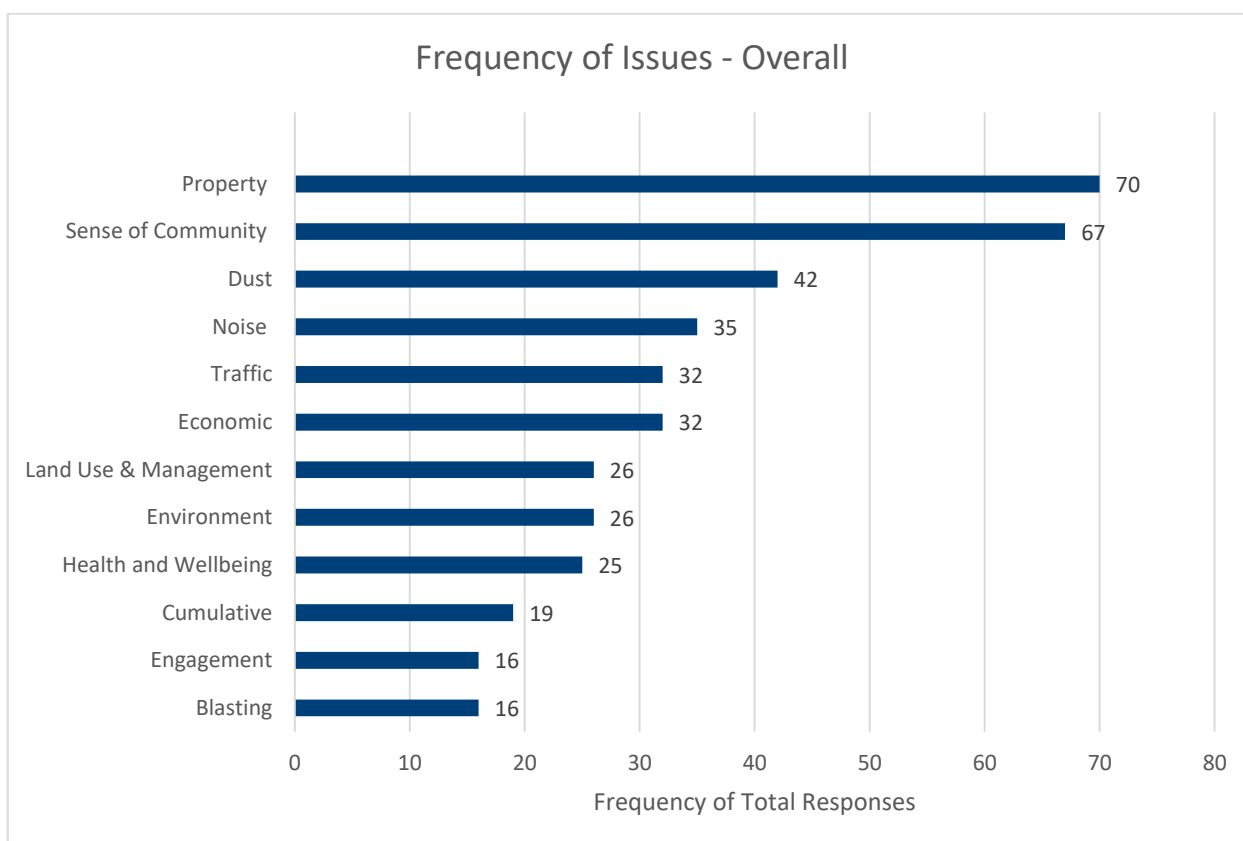


Figure 8.1 Perceived Community Impacts Relating to the MCCO Project

The proposed approach to the community enhancement program has been developed following a review of other relevant program case studies (as outlined in **Section 8.1.1.1**) with further detail on the proposed phases of program developed outlined in **Section 8.1.1.2**. The SIA Guideline (DPE, 2017) suggests in the development of more prescriptive management or enhancement measures, that justification of why this approach is appropriate, by providing scientific evidence or referencing relevant guidelines or case studies, is required.

8.1.1.1 Previous Program Case Studies

8.1.1.1.1 Cadia District Community Enhancement Program

Newcrest's Cadia Valley Operations (CVO) developed a community enhancement program in 2012 to specifically address concerns of near neighbours, identified through a community perception survey, relating to the perceived devaluation of agricultural land in the area due to the location of a major mining operation in their district (refer to: <https://www.youtube.com/watch?v=IWHH25Qfq2E>).

The goal of the Cadia District Enhancement Project (CDEP), as it is referred to, was for CVO to work with its near neighbours to create environmental and community benefits for the Cadia district which would enhance the value of the area as an agricultural, mining, or lifestyle choice because of the mining operation, not in spite of it. Some of the projects supported by CVO as part of the CDEP include:

- educational grants program – assisting residents within the district to obtain degrees
- waste project
- telecommunication project – to improve coverage for local residents

- local history project – documenting histories associated with the Cadia district
- land management and farming needs project.

Today, the CDEP has become an inclusive community partnership, with residents of the Cadia District volunteering to form a governing committee, actively driving projects and working closely with each other and CVO representatives as equal partners in a community collective. The program has won a number of awards for the initiative.

8.1.1.1.2 Bulga Optimisation Program – Our Villages, Our Vision Project

The proposed program for the MCCO Project is consistent with other community enhancement programs of its kind which aim, through effective engagement processes to enhance local community investment, consistent with stakeholder needs and aspirations for their localities. The approach proposed in the MCCO Project, is akin to the 'Our Villages Our Vision' Community Project (Coakes Consulting, 2012), which was developed by Glencore as part of the SIA for the Bulga Optimisation Project (BOP). As part of the visioning project, community residents of the villages of Broke, Millbrodale and Bulga, were invited to participate in the development of a community vision for their respective localities. The 'Our Villages, Our Vision Project' was undertaken in recognition that there needed to be more interaction between industry, community and government, greater respect for local community tradition and heritage, and improved planning, coordination and strategic direction for the respective localities.

Specifically, the objectives of the project were to:

- bring together community residents to discuss and reflect on the future of the villages and create momentum to realise a shared community vision
- support community development and future planning and
- coordinate and integrate this vision with Singleton Council's Community Strategic Plan and other regional planning efforts – e.g. the Upper Hunter Strategic Land Use Planning Process (Department of Planning, 2012) and the Upper Hunter Mining Dialogue (NSW Minerals Council, 2012).

Community village residents were invited to participate in the project along with local schools, local and state government representatives, Indigenous groups and private industry representatives, with the aim of better understanding community values and needs. Project conditions, defined by DPE as part of the BOP project, referenced the need for Glencore to utilise the Visioning report outcomes in implementing project investment activities in the locality.

8.1.1.1.3 Ridgeland Community Fund

Developed as a condition of an exploration licence, Ridgeland Coal has developed a Community Fund which has supported a range of projects, over the past two years, across three dedicated funding rounds. Given that the MCCO Project is located in the same general area, the Fund is considered a relevant case study, despite the project only being at an exploration phase of development.

A wide range of community projects have been supported in the Wybong locality, Sandy Hollow, Denman and the broader Muswellbrook Shire area, governed by the Ridgeland Community Fund Community Investment Committee (RCFCIC); which is comprised of community, local government and company/industry representatives. Such projects are summarised in **Table 8.3** below.

Table 8.3 Ridgeland Community Fund Allocated Projects

Project	Applicant
Recycling Facility fund raising (Muswellbrook Men's Shed)	Muswellbrook Men's Shed
Ridgelands Precinct road safety Improvements	MSC
Upper Hunter Innovation Hub	MSC
Sandy Hollow Masterplan	MSC
Denman Recreation Ground grandstand	Denman Sandy Hollow Junior Rugby League
Upper Hunter Education Fund Inc.	Upper Hunter Education Fund
Wybong Public Hall maintenance and improvement	Wybong Public Hall
NAIDOC 2018 "Because of her, We Can" Celebrations (HVAC)	Hunter Valley Aboriginal Corporation
Sustainability Hub, Penguins Community Garden Group (HVAC)	Hunter Valley Aboriginal Corporation
Replacement of vehicles for Children's Mobile Outreach Service	Children's Mobile Outreach Service - UHCS - Toy Box
Denman News and community Technology Centre	Denman and District Development association Inc.
Denman and District Heritage Village Inc.	Denman and District Heritage Village Inc.
Provide onsite-staff accommodation at Denman MPS	Denman Branch of the United Hospital Auxiliaries of NSW Inc.
Pony Club canteen complex	Denman Pony Club Inc.
Muswellbrook Child and Family Wellbeing Clinic	Family Action Centre, University of Newcastle
Sandy Hollow Junior Landcare and outdoor classroom	Landcare - The Hunter Region Landcare Network
Dolphin Swimming System	Muswellbrook Amateur RSL Youth Swimming Club Inc.
Glenalla Revegetation Project - Stage Two	Muswellbrook Girl Guides
Canteen kitchen upgrade	Muswellbrook High School P&C Canteen
Discus cage	Muswellbrook Little Athletics Centre Inc.
Learn to Swim Pool	MSC
'Black Box Studio' dance and flexible performance space	MSC
Expansion of Denman Children's Centre	MSC
Denman Memorial Hall	MSC
Expansion of Memorial Park (Denman)	MSC
Tertiary Education Centre (Stage 2)	MSC
Sandy Hollow Hall	Sandy Hollow Progress Association

Project	Applicant
Honey Lane	Sandy Hollow Progress Association
The Sandy Hollow Community Cattle Growing Initiative	Sandy Hollow Progress Association
TransCare Muswellbrook Seniors Expo	TransCare Hunter Ltd
Completion of Upper Hunter RDA Arena	Upper Hunter Riding for Disabled Association
Professional Certificate of Education (Positive Education)	Upper Hunter Where there's a Will Pty Ltd
Wybong mobile phone/call tower project	Wybong Brigade
Wybong Community Hall addition and refurbishment project	Wybong Public Hall
Wybong Rural Community workshops	Wybong Public Hall
Wybong Integrated Pest Control project	Wybong Wild Dog Association
2018 Zone 7 Pony Club Camp	Zone 7 Pony Club Inc.
Teacher Training (\$6342 per teacher x 4)	Upper Hunter Where there's a Will Pty Ltd
Additional application for seating/handrails.	Denman Sandy Hollow Junior Rugby League
Previously partially funded	Wybong Wild Dog Association
Vicinity of Honey Lane. Construction of public toilet amenities.	Sandy Hollow Progress Association
Equipment, apparel, etc.	Group 21 Junior Rugby League
Outdoor seating	Muswellbrook High School P&C Canteen
Communications Tower (GST component for approved Feasibility Study)	Wybong Brigade
Provide air conditioning to approved staff accommodation	Denman Branch of the United Hospital Auxiliaries of NSW Inc.

Source: Ridgeland Community Fund Report (2019)

Totalling an investment of just over \$5M dollars, the Fund has contributed to the social and economic fabric of the locality and has a specific local focus.

A number of the issues identified in the MCCO SIA Engagement process e.g. land management, telecommunications, are addressed to varying degrees through a number of the projects supported.

8.1.1.2 Developing a Community Enhancement Program for the Wybong Locality

In reviewing the program case studies noted above, and addressing issues raised as part of the SIA engagement program for the MCCO Project, **Figure 8.2** outlines the proposed process for the development of a CEP for the Wybong locality. The approach for implementing the program will continue to evolve based on community consultation and feedback through the approval process.

The program would be developed through engagement with proximal residents/landholders to the Mangoola Coal Mine operations and key stakeholders eligible to participate in the program, as defined by specified environmental management zones.

The key objectives of the CEP would include:

- working collaboratively with near neighbours/proximal landholders and key stakeholders to develop environmental and community benefits for the Wybong district that enhance local values of the area
- facilitating enhancement initiatives for those residents living in the management zone
- addressing perceived issues relating to property devaluation given close proximity to the mining operation
- contributing to the local community and better targeting community investment spend locally.

The CEP is proposed to be developed across four key phases as shown in the figure below, and will involve proximal landholders and key stakeholders in the development of program projects for implementation within the locality.

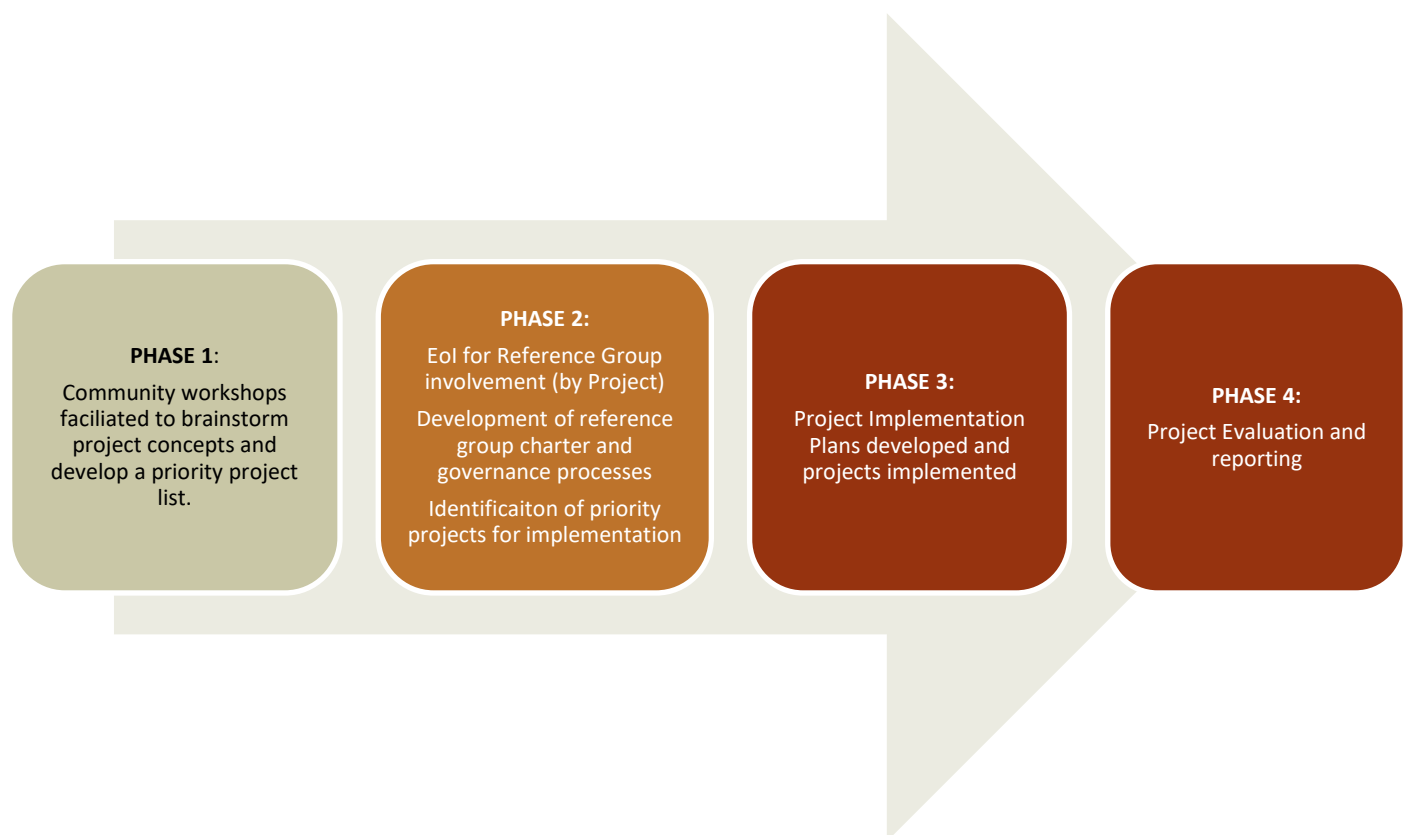


Figure 8.2 Proposed Process for Developing a Community Enhancement Program (CEP)

To confirm that the proposed program is in line with community and key stakeholder needs and aspirations, Mangoola will undertake to obtain further community feedback on the program structure during the MCCO Project's submission phase.

The proceeding sections define each of the proposed program phases in further detail.

Phase 1 – Community Workshops and Project Prioritisation

This phase would involve the participation of a range of proximal landholders and key stakeholders. Currently, in relation to the MCCO project, there are approximately 57 properties that fall within defined management zones for noise (significant, marginal and negligible), that would be invited to participate in the program along with other key stakeholders e.g. MSC, Indigenous and community groups, company representatives etc.

Workshop processes will be facilitated by independent facilitators to identify concepts for project development; with such project concepts prioritised through workshop methods.

Phase 2 – Expression of Interest (EOI) and Charter development

This phase will involve an EOI process to identify proximal landholders and key stakeholders that wish to nominate for involvement in each of the respective projects.

A core program governance committee could also be developed to prioritise projects and to oversee project implementation more broadly.

Based on project interest, small reference groups will be formed for each project with representatives representing local landholder and key stakeholder interests and/or a core program governance committee may be established to oversee project implementation more broadly.

A charter and governance processes will also be developed in this phase, to guide reference group decision making and project activities. Appropriate Project and program evaluation frameworks will also be developed to provide for relevant monitoring of the Project, and program processes and outcomes.

Phase 3 – Project Implementation

Projects identified in phase 1 will then be implemented in this phase. Through the SIA Engagement program for the MCCO Project, community residents, residing in proximal localities to Mangoola Coal Mine, have identified a number of issues and needs of relevance in their locality. Such issues are summarised in **Table 8.4**; and may form the basis for potential enhancement projects, to be implemented as part of the CEP.

Table 8.4 Potential Enhancement Projects

Potential Issue	Description
Land Management	<ul style="list-style-type: none"> • Improve maintenance and upkeep of mine-owned properties • Development of weed and pest management programs • Facilitation of field days, weed programs (prickly pear), pig/fox/deer/wild dog baiting programs, kangaroo culling etc. • Further tree planting, landscaping and visual screening on individual properties and along roadways • Greater controls on boundaries of offset areas • Engagement around post mine land use planning e.g. rehabilitation
Renewable Energy	<ul style="list-style-type: none"> • Reduce energy costs for local residents and businesses through the development of renewable energy projects e.g. solar farm
Telecommunications	<ul style="list-style-type: none"> • Improve telecommunications coverage and reliability in the local area
Waste	<ul style="list-style-type: none"> • Implement waste and recycling services for local residents

Potential Issue	Description
Water	<ul style="list-style-type: none"> • Subsidise cost of bore licencing
History and Culture	<ul style="list-style-type: none"> • Facilitate documentation of local history - consistent with Wybong history project • Investment in local community events e.g. back to Wybong, Sulkies etc. • Further develop a local museum (Fellows) or cultural centre to facilitate tourism in the area • Indigenous community and cultural heritage projects
Locality Infrastructure Maintenance and Investment	<ul style="list-style-type: none"> • Add value to existing properties • Maintain local infrastructure e.g. Wybong Hall, Cemetery, Church, Playground • Provision of Education and Training Grants • Community Workshops – farming practices, native farm trees, guest speaker programs (at the Wybong Hall) • Investment in local health programs • Maintain existing and provide additional bus shelters along bus routes
Engagement	<p>Improved community engagement program that utilises a range of mechanisms and which is transparent and consistent, for example:</p> <ul style="list-style-type: none"> • BBQ program • Use of local community noticeboard • Additional opportunities for personal contact and meetings • Communication of environmental monitoring results – dedicated information channels and mechanisms • Glencore participation in MSC reconciliation forum
Employment and Local Procurement	<ul style="list-style-type: none"> • Development of a local procurement register to facilitate use of local businesses and contractors • Flexible contract terms for local businesses given business scale • As far as practicable, a percentage of employees (Indigenous and non-Indigenous) are sourced from the locality • Career progression, training and scholarships for school leavers (mining and non-mining related) • Indigenous inmate transition to work program (St Helliars) • Aboriginal traineeships • Business information sessions e.g. local employment, procurement • Career Service Provider information day • Small business strategy forum

Following prioritisation of community programs, the relevant CEP reference groups/committees will implement their respective projects, ensuring appropriate allocation of resources and effective governance in line with project objectives.

Phase 4 – Program Evaluation and Reporting

In line with best practice, this phase will involve evaluation of program process and outcomes to confirm that ‘shared’ and ‘collective value’ is identified and documented/reported; and to confirm that projects implemented are appropriately addressing both individual project and community objectives.

CEP Funding

The CEP fund would be developed through a monetary contribution by Mangoola. It is proposed that this contribution would be part of the development contribution made to MSC under a VPA. Funds would be allocated to support improvement projects of relevance, to be implemented by the Community Committee/Reference groups.

8.1.2 Property Specific Measures

For the MCCO Project, further consideration has been given to the impact on proximal landholders in the north of the MCCO Additional Project Area project site. The SIA Guideline (DPE, 2017) outlines the need for the SIA to evaluate the negative social impacts of a project specifically addressing those who are expected to be adversely affected, including any vulnerable stakeholders.

After reviewing the results of the environmental and social assessments and the consultation undertaken to date, a strategy has been developed in relation to property specific measures with a number of proximal landholders who are outside the VLAMP voluntary acquisition area. This mitigation measure provides direct mitigation for the issues raised by these proximal landholders.

In consideration of privacy, details of these proximal landholders and the property specific measures offered to address the identified impacts will be provided separately to DPE.

8.1.3 Voluntary Planning Agreement

Mangoola currently have a VPA in place with MSC. Initiatives to be funded under this agreement include:

- \$500,000 to fund local environmental management projects
- \$600,000 to fund council's education and training strategy
- \$1,200,000 to contribute to the recreation assets renewal fund
- \$2,200,000 to fund Denman recreation area enhancements
- \$20,000/year to fund MSC environmental management and monitoring
- \$55,000/year to contribute to road maintenance costs for part of Wybong Road
- \$220,000/year to contribute to general mine affected road maintenance costs (Mod 4)
- \$235,000/year to contribute to additional environmental and community projects (Mod 4)
- \$100,000/year to contribute to additional environmental and community projects (Mod 6).

In line with Mangoola's existing VPA, Mangoola proposes to continue its existing VPA commitments for the duration of the MCCO Project, to facilitate continued and ongoing support for a range of environmental and community projects within the Muswellbrook LGA. As part of the consultation with MSC, Mangoola propose part of the local community funding component in the VPA is used in the local community enhancement funding program as discussed above.

8.1.4 Evaluation of Social Impacts

Having discussed the proposed strategies to address the more significant social impacts relating to the MCCO Project, **Table 8.5** provides an evaluation of predicted social impacts, both without and with mitigation and enhancement considered.

Table 8.5 Summary Comparison of Evaluation Results for Negative Social Impacts (With and Without Mitigation)

Impact Description				Impact Without Mitigation		Impact With Mitigation		
Project Aspect	Social Impact Theme	Duration	Affected Parties	Impact Characteristics	Social Risk Rating	Impact Characteristics	Social Risk Rating	Residual Risk Description (Low, Med, High)
Acquisition process	Population Change	Project life	Proximal Landholders (7 – Significant; up to possible 13% population change in Wybong SSC)	13% population change in Wybong SS	High	High sensitivity to loss of local population	Moderate	<i>Moderate</i> - Population loss may still be experienced until mining is complete CEF developed to enhance local area and promote greater SOC
Construction of Operation	Economic Employment Local procurement Indirect impacts to locality and region	16 months	Indigenous and non-Indigenous population Local business Service providers Employees	Opportunity to enhance locality benefits for local resident and businesses	High (Positive)	Opportunity to further enhance economic impacts within the locality and the broader region	High (Positive)	<i>High</i> - Maximising employment opportunity in line with outcomes of the Keep it in the Regions report and as an element of the SIMP for the project
Construction workforce	Traffic volume and access to the area	16 months	Proximal landholders and road users	Disruption/ inconvenience to road uses and increased travel times	Moderate	Traffic MP to consider community suggestions to reduce travel time and avoid disruption	Low	<i>Low</i> - Traffic MP designed to reduce social impacts

Impact Description				Impact Without Mitigation		Impact With Mitigation		
Project Aspect	Social Impact Theme	Duration	Affected Parties	Impact Characteristics	Social Risk Rating	Impact Characteristics	Social Risk Rating	Residual Risk Description (Low, Med, High)
Mining in the Region	Cumulative impacts on social amenity -Dust - Water - Noise - Rail	Existing and future	Muswellbrook LGA	Social amenity Dust Water Noise Rail	Moderate	Continued sensitivity given presence of multiple operations in the Muswellbrook LGA	Low	Low – continued engagement with other operations to reduce cumulative impacts
Presence of Operation	Property Impacts: <ul style="list-style-type: none"> Declining property value Uncertainty and potential livelihood impact Inequity given residences fall within different zones 	Project life - additional 5 years	Proximal Landholders and locality residents	High sensitivity to the issue Vulnerable stakeholders	High	High sensitivity to this issue and resilience of receptors to respond to change Vulnerable stakeholders addressed through mitigation	Moderate	Moderate – Property specific measures to address vulnerable/proximal landowners Uncertainty still present for landholders in active management zones CEF designed to enhance amenity in the local area
Presence of Operation	Lifestyle Amenity Connection to place, membership and participation	Project life - additional 5 years	Proximal Landholders and locality residents	Population change perceived to further impact SOC	High	Sensitivity to reduction in SOC and capacity of community to respond to change	Moderate	Moderate - CEF designed to enhance amenity in the local area

Impact Description				Impact Without Mitigation		Impact With Mitigation		
Project Aspect	Social Impact Theme	Duration	Affected Parties	Impact Characteristics	Social Risk Rating	Impact Characteristics	Social Risk Rating	Residual Risk Description (Low, Med, High)
Presence of Operation	Social amenity due to dust	Project life - additional 5 years	Proximal Landholders and locality residents	Social amenity reduced due to environmental impacts	Low	Disruption to lifestyle amenity	Low	Low - Existing and Proposed Mitigations designed to alleviate impacts for individual landowners CEF designed to further enhance amenity in the local area
Presence of Operation	Social Amenity due to noise	Project life - additional 5 years	Proximal landholders (7 – significant) Residents in this zone can elect to be acquired and move, or stay and have mitigation applied	Social amenity reduced due to environmental impacts	High	Disruption to lifestyle amenity	High	High - Existing and Proposed Mitigations designed to alleviate impacts for individual landowners CEF designed to further enhance amenity in the local area
Presence of Operation	Social Amenity due to noise	Project life - additional 5 years	Proximal landholders (19 – marginal)	Social amenity reduced due to environmental impacts	High	Disruption to lifestyle amenity	Moderate	Moderate - Existing and Proposed Mitigations designed to alleviate impacts for individual landowners CEF designed to further enhance amenity in the local area

Impact Description				Impact Without Mitigation		Impact With Mitigation		
Project Aspect	Social Impact Theme	Duration	Affected Parties	Impact Characteristics	Social Risk Rating	Impact Characteristics	Social Risk Rating	Residual Risk Description (Low, Med, High)
Presence of Operation	Health and wellbeing - Stress and anxiety	Project life - additional 5 years	Proximal landholders	Sensitivity of vulnerable stakeholders	High	Mitigation approach to assist more vulnerable stakeholders adapt to change	Low	Low - Existing and Proposed Mitigations designed to alleviate impacts for individual landowners (where possible) Property specific measures to address vulnerable landowners with higher levels of identified impact
			Locality residents	Sensitivity of vulnerable stakeholders	Moderate	Mitigation approach to assist more vulnerable stakeholders adapt to change	Low	Low - Existing and Proposed Mitigations designed to alleviate impacts for individual landowners (where possible) Property specific measures to address vulnerable landowners with higher levels of identified impact

Impact Description				Impact Without Mitigation		Impact With Mitigation		
Project Aspect	Social Impact Theme	Duration	Affected Parties	Impact Characteristics	Social Risk Rating	Impact Characteristics	Social Risk Rating	Residual Risk Description (Low, Med, High)
Presence of Operation	Water - Access to surface and ground water Livelihood	Project life - additional 5 years), possibly ongoing	Proximal Landholders Private Bore Owners	Social amenity reduced due to environmental impacts	Moderate	Disruption to lifestyle amenity or livelihood (reliance on bore)	Low	Low - Existing and Proposed Mitigations designed to alleviate impacts for individual landowners CEF designed to further enhance amenity in the local area
Presence of Operation	Economic Sustained employment and procurement	Operational phase	Indigenous and non-Indigenous population Local business Service providers Employees	Opportunity to enhance locality benefits for local resident and businesses	High (Positive)	Opportunity to further enhance economic impacts within the locality and the broader region	High (Positive)	High - Maximising employment opportunity in line with outcomes of the Keep it in the Regions report and as an element of the SIMP for the project
Presence of Operation Offsets	Land Use and Management - Increased pests and weeds	Duration of Mangoola land ownership	Proximal landholders to operation and offset areas	Sensitivity to mine ownership of land in the locality	Moderate	Improved management of mine-owned land to enhance local assets and values	Low	Low - CEF designed to enhance amenity in the local area with dedicated focus on land management and post-mining land use

Table 8.6 provides an overall summary of all social impacts associated with the MCCO Project and their corresponding strategies and rankings of unmitigated and mitigated social risk.

Table 8.6 Summary of Mitigation and Enhancement Strategies for the MCCO Project

SIA Impact Category	Social Impact Theme	Perceived Social Impact/ Sensitivity	Social Impact Ranking (Unmitigated)	Proposed Social Mitigation Strategies	Social Impact Ranking (Mitigated)
Surroundings Health and wellbeing Way of life	Social amenity-noise (Significant - noise acquisition zone). Residents in this zone can elect to be acquired and move, or stay and experience the predicted noise impacts.	High	High	<ul style="list-style-type: none"> VLAMP Existing and proposed mitigation strategies Community Enhancement Program 	High
Way of life Community Personal and property rights	Economic Employment Local procurement Indirect impacts to locality and region	Moderate (Positive)	High (Positive)	<ul style="list-style-type: none"> Local employment and procurement strategy 	High (Positive)
Way of life Community Personal and property rights	Economic Sustained employment and procurement	Moderate (Positive)	High (Positive)	<ul style="list-style-type: none"> Local employment and procurement 	High (Positive)
Way of life Community Personal and property rights	Population change (Acquisition Process)	High	High	<ul style="list-style-type: none"> Community Enhancement Program 	Moderate
Personal and property rights Way of life	Property impacts including: Declining property value Uncertainty and potential livelihood impact Inequity given residences fall within different zones	High	High	<ul style="list-style-type: none"> Community Enhancement Program Property specific measures Existing and proposed mitigation strategies 	Moderate
Community Culture Way of life	Lifestyle Amenity Connection to place, membership and participation	High	High	<ul style="list-style-type: none"> VPA contribution Community Enhancement Program 	Moderate

SIA Impact Category	Social Impact Theme	Perceived Social Impact/ Sensitivity	Social Impact Ranking (Unmitigated)	Proposed Social Mitigation Strategies	Social Impact Ranking (Mitigated)
Surroundings Health and wellbeing Way of life	Social amenity-noise Proximal landholders (19 – marginal)	High	High	<ul style="list-style-type: none"> VLAMP Existing and proposed mitigation strategies Community Enhancement Program 	Moderate
Health & wellbeing Way of life	Health and wellbeing - Stress and anxiety (proximal landholders)	High	High	<ul style="list-style-type: none"> Social Impact Management Plan (SIMP) VLAMP Existing and proposed mitigation strategies 	Low
Surroundings Access to and use of infrastructure, services and facilities Way of life	Disruption/ inconvenience to road uses and increased travel times	High	Moderate	<ul style="list-style-type: none"> Traffic Management Plan Community Enhancement Program 	Low
Surroundings Health and wellbeing Way of life	Social amenity - dust	High	Low	<ul style="list-style-type: none"> Community Enhancement Program Existing and proposed mitigation strategies Property specific measures 	Low
Surroundings Access to and use of infrastructure, services and facilities Way of life	Road maintenance Safety Property damage	High	Low	<ul style="list-style-type: none"> Traffic Management Plan Community Enhancement Program 	Low
Decision making systems Way of life	Distrust Lack of knowledge Engagement (Proximal landholders)	High	Low	<ul style="list-style-type: none"> SIMP Community Engagement Plan Community Enhancement Program 	Low

SIA Impact Category	Social Impact Theme	Perceived Social Impact/ Sensitivity	Social Impact Ranking (Unmitigated)	Proposed Social Mitigation Strategies	Social Impact Ranking (Mitigated)
Surroundings Way of life	Water - Access to surface and ground water Livelihood	Moderate	Moderate	<ul style="list-style-type: none"> Community Enhancement Program Existing and proposed mitigation strategies 	Low
Surroundings	Land Use and Management Increased pests and weed	Moderate	Moderate	<ul style="list-style-type: none"> Community Enhancement Program 	Low
Surroundings Health and wellbeing Way of life	Cumulative: - Social amenity - Dust - Water - Noise - Rail	Moderate	Moderate	<ul style="list-style-type: none"> Community Enhancement Program Continued participation in the Upper Hunter mining dialogue 	Low
Surroundings Way of life	Visual Amenity - Visibility of the mine and overpass Lighting spill Rehabilitation	Moderate	Low	<ul style="list-style-type: none"> Community Enhancement Program Existing and proposed mitigation 	Low
Surroundings Personal and property rights Way of life	Blasting: - Social amenity - Property damage - Safety - Noise	Moderate	Low	<ul style="list-style-type: none"> Existing and proposed mitigations 	Low

Source: Umwelt (2019)

9.0 Monitoring of Social Impacts

Monitoring and evaluation are key components of an SIA process to identify any unanticipated impacts that may arise as a result of a project.

The analysis and research conducted for a SIA provides a foundation for the ongoing monitoring and adaptive management of social impacts over the life of a SSD resource project.

Mangoola will develop a Social Impact Management Plan (SIMP) that defines and guides the monitoring and evaluation activities for the MCCO Project. The SIMP will be developed in accordance with the SIA Guideline and will:

- identify opportunities to enhance positive and mitigate negative social and economic impacts of the MCCO Project on communities
- detail adaptive management and mitigation strategies to address potential impacts of the MCCO Project identify appropriate stakeholder responsibilities
- identify appropriate monitoring, reporting and review mechanisms, including the purpose of monitoring and the parameters that will be monitored and how and when monitoring data will be collected
- outline a process to engage with relevant stakeholders and communities, with a focus on practical mechanisms for the community to collaborate and record their observations and experiences of social impacts and any proposed community participation in monitoring
- include an incident notification and reporting process, including providing applicable information to the community
- develop a process for reviewing the above elements to assess whether they are still appropriate, and whether any new issues have emerged that should be included in ongoing monitoring
- develop a process for making monitoring results and associated information publicly available, including any revisions to the monitoring and management framework.

9.1 Monitoring Effectiveness

This section provides a high-level overview of a framework for monitoring socio-economic change in relation to the MCCO Project, and how this relates to project-related activities. In doing so, the framework will gather data that can be used to assess the effectiveness of mitigation measures and initiatives.

It is considered best practice in social outcomes measurement to draw upon a range of methods, data sources, indicator and data types (e.g. objective vs. subjective, qualitative vs. quantitative; leading versus lagging indicators). Therefore, the proposed monitoring framework should draw upon multiple methods, which may include:

1. *Monitoring socio-economic trends* that will provide context to interpret data from other elements of the framework and provide an appreciation of community change
2. *Monitoring organisational inputs and outputs* which will provide an understanding of what Mangoola is contributing to the community e.g. in relation to employment, expenditure, local procurement

3. *Monitoring outcomes of inputs and outputs* which will provide an understanding of what impact community projects and investments are having in the community e.g. outcomes of the Community Enhancement Program
4. *Monitoring objective indicators of impact* which will seek to confirm that Mangoola is monitoring key risks and trends in relation to key impact areas identified through the SIA process e.g. monitoring of key impacts such as noise and air quality
5. *Monitoring community perceptions of impact* (e.g. feelings of trust towards Mangoola, landholder experience of social impacts), which will confirm regular engagement with the community and confirm emerging issues and impacts are identified proactively.

This five-component model is summarised in **Figure 9.1** below. In drawing upon a broad range of complementary datasets and methods, as described above, the proposed framework will be robust and balanced and will therefore provide a complete picture of change associated with the MCCO Project.

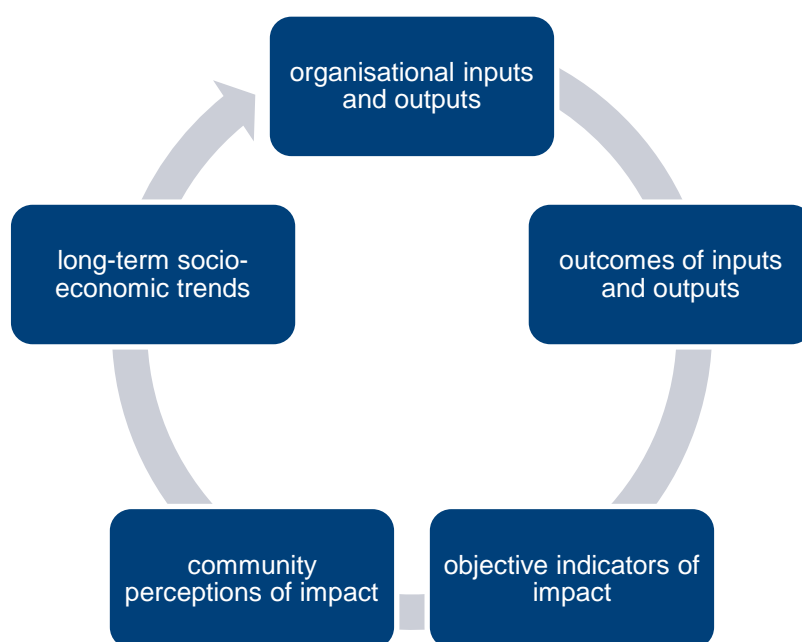


Figure 9.1 Proposed Framework for Monitoring Social Impacts and Community Change

The five components of the proposed model are all inter-related and serve to assist interpretation of the other elements. For instance, community perceptions of impact will be influenced by long-term socio-economic trends but can be verified through objective indicators of impact.

Mangoola also has a current community support program that provides contributions to local community groups and organisations. This program, at the operational level, is complemented by Glencore's broader Corporate Community Investment Program which takes a more regional focus to social involvement and investment. As previously noted, Glencore also currently undertake a community perception survey, currently every three years, to inform engagement and investment activities at the operational and corporate level. Where possible, relevant indicators developed to monitor social impacts associated with the MCCO Project, will be integrated in the broader business survey to afford meaningful measurement of community perception data at the local and regional level.

10.0 Conclusion

Many communities in the Hunter Valley have benefitted from the economic activity generated by mining, which continues to comprise a significant part of the Hunter's economy, injecting \$6 billion in wages and payments to local businesses each year. While the growth of mining in the Upper Hunter results in economic growth, it also brings with it challenges and impacts for the local community. The SIA has identified a number of social impacts and mitigation and enhancement strategies that Mangoola will need to manage and implement as a part of the MCCO Project.

Given the limited life of the additional mining (approximately five years) and Mangoola's pre-emptive mine plan design to avoid and minimise impacts, the social impacts of the MCCO Project have been minimised where possible through project design and the proposed management and enhancement approaches.

While a number of social and environmental issues have been raised by local landholders in proximity to the MCCO Project, the broader LGA community has appeared more accepting of the proposal due to the predicted positive economic benefits at a local and regional level.

Of key focus from a social impact perspective, is the impact of the MCCO Project on proximal landholders due to perceptions of impacts on property value and a dwindling sense of community, and impacts associated with being proximal neighbours to a large development. To address these issues, a number of mitigation and enhancement strategies are proposed, including:

- continued implementation of a VPA with MSC
- development of a CEP that focuses on facilitating enhancement initiatives for proximal landowners within the management zones for the MCCO Project
- continuation/implementation of a range of existing and new mitigation measures to address the identified impacts, based on community feedback
- property specific measures
- development and execution of a SIMP for the ongoing monitoring and management of social impacts.

These mitigation and enhancement measures have been specifically targeted to address the issues identified in this SIA and are based on stakeholder engagement and feedback.

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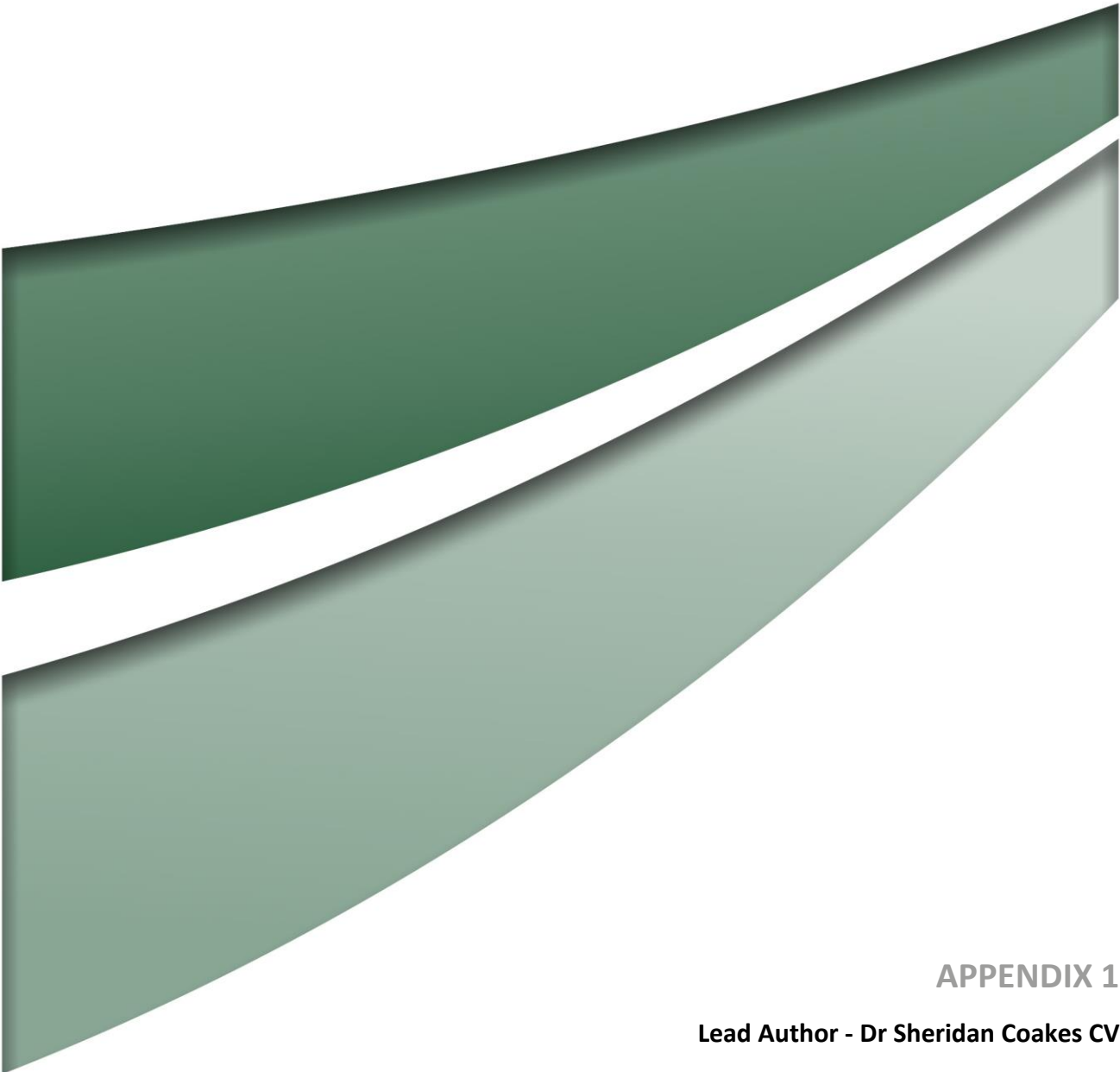
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APPENDIX 1

Lead Author - Dr Sheridan Coakes CV



Dr Sheridan Coakes

Practice Leader – Social Impact Assessment and Community Engagement Team

Dr Sheridan Coakes (Sherie) has over 25 years of research and applied experience in the areas of social impact assessment (SIA), stakeholder engagement and community involvement. A leader in her field, Sherie has developed and refined a unique approach to SIA practice that has been applied in numerous large scale and controversial public and private sector projects across Australia, in diverse sectors such as fisheries, viticulture, dairy deregulation, water resources cultural heritage, health, agriculture, biotechnology, linear infrastructure development, quarrying, oil and gas, open cut and underground mining, carbon capture, waste management and human service planning and delivery

With a strong methodological background in the social sciences – both quantitative and qualitative – Sherie has developed a range of innovative approaches that afford the effective collection, analysis, interpretation and use of social and community data to effectively inform program/project assessment and operational planning; and to involve stakeholders in decision making processes

In 1997, Sherie established Coakes Consulting, a specialist social consultancy developed to address social and community issues within a resource management context. The company was developed largely out of a need for companies and agencies to address social and economic issues and concerns in project and policy development planning, and followed on from Sherie's role with the Commonwealth Government in designing and implementing the social assessment methodology for the Australian Regional Forest Agreement Process – one of the most significant applications of SIA and community engagement by government at a national level. In late 2013, Coakes Consulting merged with Umwelt and Sherie was appointed in the role of Social Practice Lead.

As a recognised thought leader, Sherie has published and presented papers and seminars on social assessment and community engagement in a variety of different forums, contributing to four international texts on SIA and engagement practice. She is often invited to speak at key conferences in her field of expertise and has facilitated numerous specialist training courses in SIA, stakeholder and community engagement, risk communication and outrage management.

Qualifications/Affiliations:	Doctor of Philosophy – Psychology , Honours First Class – Psychology, Bachelor of Applied Science - Psychology
Years Experience:	>25
Specialisation:	Social and economic impact assessment (SEIA), Health impact assessment (HIA), Social impact management planning, Stakeholder and Community engagement, Social Research, Social performance evaluation and monitoring, Social investment planning, Outrage management, Community visioning, needs and infrastructure Assessment, Community perception and attitude assessment, Program/Project evaluation
Key Clients:	Glencore, Sydney Motorway Corporation, PWCS, Landcorp

Relevant Project Experience

Sydney Motorway Corporation | New M5 WestConnex Project | 2016-current | Project Director | Development of a Community and Social Management Plan and associated Community Cohesion Plan including consultation with internal and external stakeholders.

Landcorp | Shenton Park Hospital Site | 2017 – current | Project Director | SIA and community engagement for the redevelopment of the Shenton Park Hospital Site, Shenton Park, WA.

Port Waratah Coal Services (PWCS) | T4 Project | 2017-current | Project Director | Housing and Local Procurement Study; SIA for the T4 Project, Newcastle NSW; Community Engagement Strategy for the Carrington and Kooragang operations: Dust Profile Community Program.

BHP Billiton | Nickel West Project | 2016 | Project Director | SIA and community planning framework for operations in Kwinana, Kalgoorlie, Leinster, Leonora and Wiluna; Social monitoring framework; Community Health Partnership recommendations for the Wiluna Community.

Glencore | Various Projects | 2011-current | Project Director | SIA, community needs assessment and stakeholder engagement for a range of Glencore mines in the Hunter Valley; Community Visioning Project – ‘Our Villages - Our Vision’ Hunter Valley NSW; ‘Viewpoint Program’ assessment of community perceptions of social performance across the company’s operations in NSW; Baal Bone Closure Plan - SEIA, Western Coalfields NSW; Social Investment framework development.

Department of Regional Development and Lands (WA) | RfR Fuel Card Survey | 2016 | Project Director | Evaluation of the Royalties for Regions (RfR) Fuel Card Scheme and Housing Evaluation for RfR funded housing projects across WA.

BHP Billiton (Iron Ore) | Pilbara Growth Planning | Project Director | SIA for growth planning in the Pilbara, WA; Community Needs Assessment to guide social investment; social performance monitoring and evaluation; review of the Pilbara Community Partnership Program.

Department of State Development (WA) | Kimberley LNG Project | Project Director | Review of social impact components for the Strategic Assessment Review (SAR) of the Kimberley LNG Project, James Price Point, Broome

Macquarie Generation | Bayswater and Liddell coal fired Power Stations | Project Director | Community involvement program for the development of an industry zone associated with the Bayswater and Liddell coal fired Power Stations, Hunter Valley, NSW; Community consultation associated with potential wind farm developments in the northern tablelands and southern highlands of NSW.

BHP Billiton | Nickel West Project | Project Director | SIA and community planning framework for operations in Kwinana, Kalgoorlie, Leinster, Leonora and Wiluna; Social monitoring framework; Community Health Partnership recommendations for the Wiluna Community.

BHP Billiton (Iron Ore) | Pilbara Growth Planning | Project Director | SIA for growth planning in the Pilbara, WA; Community Needs Assessment to guide social investment; social performance monitoring and evaluation; review of the Pilbara Community Partnership Program.

BHP-Billiton | Hunter Valley Coal, Illawarra Coal, Caroon Project | Project Director | SIA and Community involvement programs for various operations in NSW; Community Needs Assessment to identify focus areas for project investment.

Department of State Development (WA) | Kimberley LNG Project | Project Director | Review of social impact components for the Strategic Assessment Review (SAR) of the Kimberley LNG Project, James Price Point, Broome.

Commonwealth Department of Climate Change | Assessment of Social and Economic Impacts of Climate Change Scenarios on the Oil and Gas Sector in WA | Project Director | Application of Social analysis and community sensitivity methodologies to demonstrate local level socio-economic flow-on of climate change impacts on the Pilbara oil and gas sector

Chevron (Australia) | Wheatstone Project | 2008-current | Project Director | Since 2008, Umwelt has undertaken some key projects for Chevron in WA in the project development and construction phases of the Wheatstone Project, located in Onslow on the north west coast of WA. Key studies have included Integrated Social, Health and Aboriginal Impact Assessment; Community Values Assessment and Visioning Project; Community Infrastructure Study; and Annual community attitude survey (6th year of administration since Project inception).

INPEX | Ichthys Project | Project Director | 2011-2013. Social Impact Management Plan (SIMP) development for the Ichthys Project, Darwin NT.

BHP-Billiton | Hunter Valley Coal, Illawarra Coal, Caroon Project | Project Director | SIA and Community involvement programs for various operations in NSW; Community Needs Assessment to identify focus areas for project investment.

Fortescue Metals Group | Solomon Hub Project | Project Director | SIA for the Solomon Hub project and expansion of the company’s Port Hedland operations.

Kimberly Diamond Company | Closure Planning Study | Project Director | Assessment of existing community needs and potential mine closure impacts in the Kimberley region, WA.

Oakajee Port and Rail (WA) | Mid-West Social Profile | Project Director | Social scan and regional profile.

Cameco | Kintyre Uranium Project | Project Director | SHIA for the Kintyre Uranium Project, Pilbara region, WA.

Department of Planning (WA) | Mid-West and Gascoyne Social Infrastructure Study | Project Director | Mid-West and Gascoyne Social Infrastructure Assessment, planning for future social infrastructure requirements.

Department of Primary Industries (VIC) | Social and Economic Impact Assessment of Changes in Forest Policy on Victorian Forest Communities | Project Director | Application of town resource cluster analysis (TRC-Analysis) in identifying potential social and economic impacts of changes in forest policy on Victoria communities.

Natural Resources Commission (NSW) | Social Assessment of the River Red Gum and Cypress Forest | Project Director | Socio-economic capacity building and advisory services to assist CMA’s in achieving better natural resource and investment decisions; Social assessment of the River Red Gum and Cypress Forest Assessments.

Office of Environment and Heritage (NSW) | Community Attitudes to Native Vegetation Act | Project Director | Analysis of community attitudes survey relating to the application of the *Native Vegetation Act* in NSW.

Zinifex/Nyrstar, DoH, EPA and PPRC | Ten by10 Community Health Study | Project Director | 10 by10 Community Health study relating to elevated blood lead levels in Port Pirie, SA.

Referee 1**Ken Reynolds**

Director New M5

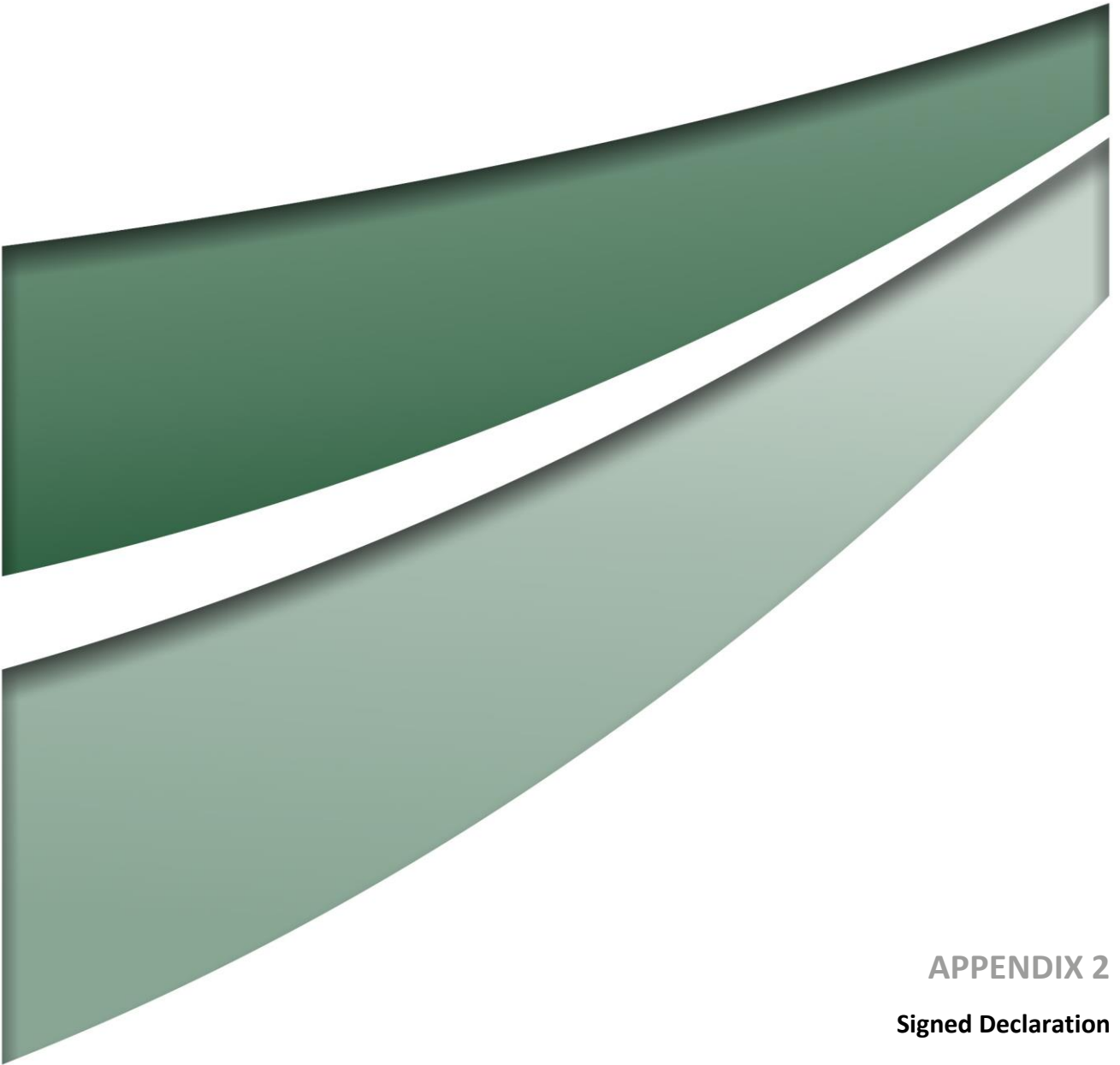
Sydney Motorway Corporation (WestConnex New M5)

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E| ken.reynolds@westconnex.com.au**Referee 2****Dr Jacquie Tracey**

Director, Agricultural Research and Partnership Programs

*NSW Department of Primary Industries*T| **0412 511 261**E| jacquie.tracey@dpi.nsw.gov.au



APPENDIX 2
Signed Declaration

Social Impact Statement Declaration

SIA Prepared by:

Name	Umwelt Australia Pty Ltd - Social Team
Project Director	Dr Sheridan Coakes Practice Lead - Social Impact Assessment & Community Engagement
Qualifications	Doctor of Philosophy – Psychology Honours First Class – Psychology Bachelor of Applied Science – Psychology

In Respect of:

Proponent Name	Mangoola Coal Operations Pty Limited (Mangoola)
Proposed Development	Mangoola Coal Continued Operations (MCCO) Project

Declaration

I, Dr Sheridan Coakes, declare that the information contained within the Social Impact Assessment for Mangoola Coal Continued Operations (MCCO) Project:

- Is in accordance with the Environmental Impact Assessment (EIA) process under the Environmental Planning and Assessment Act 1979 (EP&A Act);
- Meets the form and content requirements of the Department of Environment and Planning's Social Impact Assessment Guideline for State significant mining, petroleum production and extractive industry development (DPE, 2017);
- Is neither false nor misleading.

Signature



Dr Sheridan Coakes

Date

Tuesday, 25 June 2019

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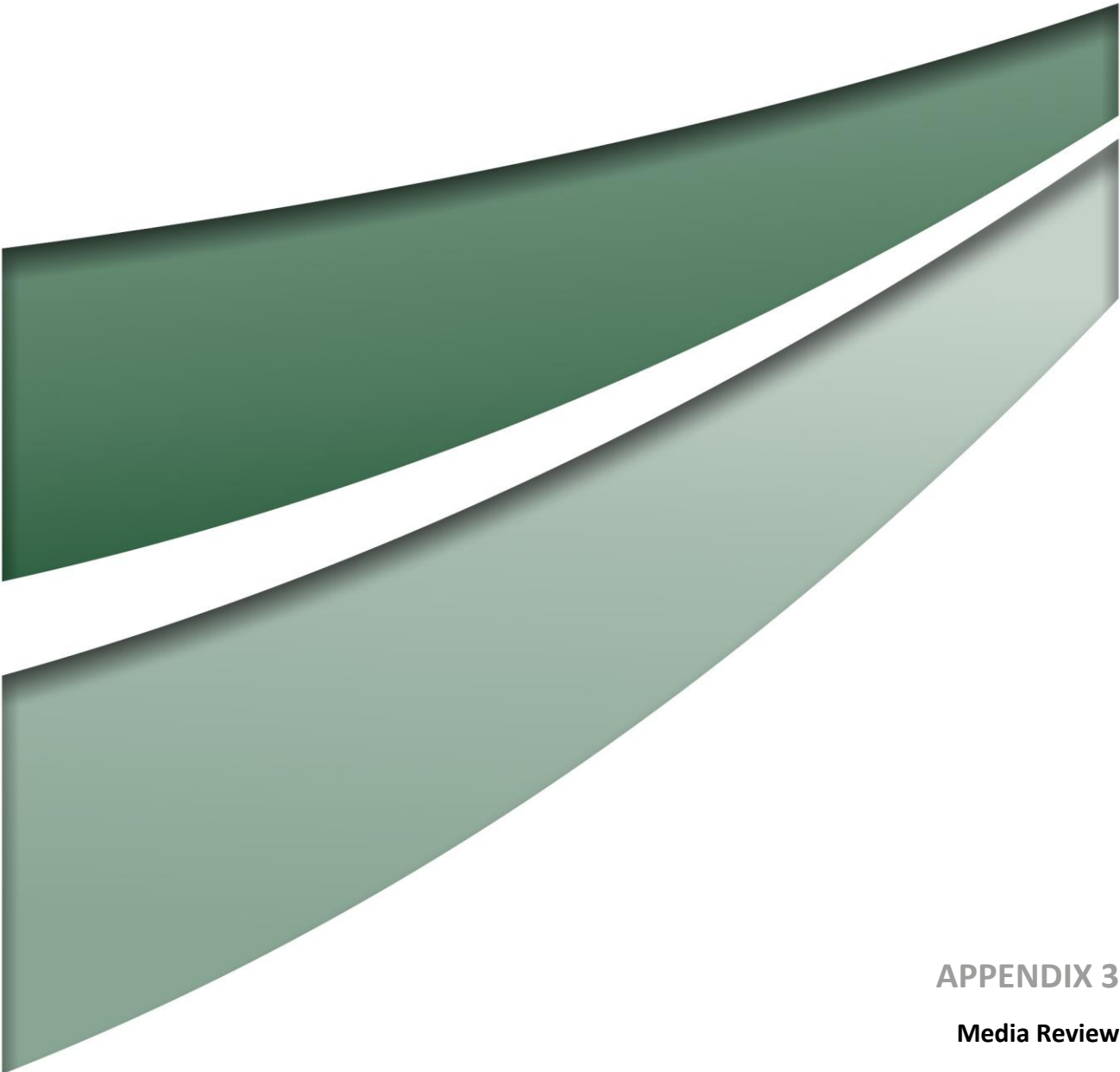
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APPENDIX 3

Media Review

Date	Headline	Brief Description/Summary of Article	Source
Economic Diversification			
18 January 2019	Muswellbrook bio-renewables research facility the first of its kind in Southern Hemisphere	<i>"Works are officially underway in Muswellbrook for the first bio-renewables research facility of its kind in the Southern Hemisphere, making the Hunter a national hub for exploration, development and commercialisation. Mr Johnsen said the electorate – and the wider Hunter – was a powerhouse for the Australian energy market, continuing to deliver visionary ways to power industry and households, while supporting new jobs in NSW. "The Hunter Pilot Biorefinery has the potential to revolutionise the way we create energy here in Australia," he explained."</i>	Muswellbrook Chronicle
2 January 2019	Mining economy	<i>"The Hunter's long-term economic fortunes remain perilously linked to the boom and bust cycle of the mining industry. Now economists have expressed concern about the ongoing effect the mining industry's infamous 'boom-bust' cycle is having on regional economic sustainability. This cycle has impacts on employment, investment and housing."</i>	Newcastle Herald
28 November 2018	Plenty of mine projects planned	<i>The NSW Minerals Council is excited to promote the fact the Hunter has nine projects in the pipeline which they claim would deliver over \$1.5 billion in investment and maintain or create over 3,400 jobs for the region</i>	Singleton Argus
7 November 2018	Coal's 'drive-in' workforce	<i>A hearing held in Singleton on Monday was told by Singleton Council's General Manger, Jason Linnane that an estimated 9000 workers drive-in each day to run the region's coal mining industry.</i>	Singleton Argus
6 August 2018	Singleton Junior Golf Open attracting players from all over the region thanks to attractive prize pool	<i>Under their junior sports development program, Glencore is on board as the major sponsor of the 2018 Singleton Junior Golf Open, with over \$3500 worth of prizes on offer.</i>	Singleton Argus
28 June 2018	Demand for Australian coal escalates, building on last year's turnaround	<i>Minerals Council of Australia predicts a 400 million tonne increase in annual demand by 2030.</i>	ABC News

Date	Headline	Brief Description/Summary of Article	Source
25 June 2018	Denman recognised as the fast-developing centre of Upper Hunter's tourism industry	<i>"The Council has allocated \$2.5 million to the Denman Town Centre Upgrade Concept in the 2018-2019 budget and \$1.94 million to the reconstruction of Denman Memorial Hall. Creating improved public spaces, enhancement of the heritage character of the town centre and construction of off-street parking are key focuses.</i> <i>Upgrades planned for Memorial Park, is critical to the concept, including improved green space for events, a new children's playground, picnic facilities, landscaping and public amenities. "Denman is recognised as the fast-developing centre of Upper Hunter's tourism industry," Muswellbrook Shire Council's director community infrastructure Derek Finnigan said. "</i>	Muswellbrook Chronicle
20 March 2018	Strong global demand delivering additional mining positions in NSW, says Coal Services data	<i>The most recent figures from Coal Services show there were just over 20,872 coal production jobs in NSW as at December 2017, nearly 2000 more than this time in 2016, helping to boost the Hunter economy, particularly in mining communities such as Singleton. This is the highest number since July 2014.</i>	Hunter Valley News
12 December 2017	Upper Hunter country tourism on track with new guide	<i>A new 2018 Upper Hunter Visitor Guide was launched yesterday, at the Upper Hunter Country Tourism (UHCT) annual general meeting which was held at the Linga Longa Inn in Gundy. The 68 page visitor guide promotes events, attractions, and activities from festivals to National Parks, in the Muswellbrook and Upper Hunter shires and also includes town maps, accommodation listings and a business directory featuring local tourism operators who are UHCT members.</i>	Upper Hunter Country
14 November 2017	NSW coal mining jobs at highest point since March 2015	<i>Figures from Coal Services show there were just over 20,600 coal production jobs in NSW as at July 2017 – over 1300 more than at the same time last year, and the highest number since March 2015. Many of the new coal mining jobs are in the Hunter Valley region, with over 1000 more positions in the region than a year earlier, helping to boost its economy, particularly in mining communities like Singleton and Muswellbrook</i>	Australian Mining
19 October 2017	Singleton Reginal Livestock Market gets \$7.73 million upgrade	<i>Funded by a \$6 million grant under the State Government's Resources for Regions program and an additional \$1.73 million from Singleton Council. "This project is a significant investment in the economic diversity of our local government area and a demonstration to the wider agricultural industry that Singleton intends to continue its long tradition of supporting primary producers," Anthony Egan, Council's Director Corporate and Community said.</i>	Singleton Argus

Date	Headline	Brief Description/Summary of Article	Source
2 Aug 2017	More than 300 jobs could be protected, as Glencore seeks extension approval at Mangoola	Glencore are seeking approval to extend their operations beyond life of the existing mine which could result in more than 300 jobs being safe-guarded for a further six years. If approved, the life of the mine would be extended until approximately 2029. All key stakeholders will be engaged to ensure their feedback on environmental and social issues, which forms part of their environmental assessment studies.	Muswellbrook Chronicle
18 June 2017	Small villages bear the brunt of mining expansions	Historic villages are being displaced by mining activities. A solution is needed to allow the two to co-exist. Dr Askland from the University of Newcastle is calling for greater emphasis to be placed on social impact assessments.	Muswellbrook Chronicle
5 January 2017	Muswellbrook Shire Council has proposed three big projects to make the town a regional centre	Muswellbrook Shire Council has proposed the first general rate special variation in 10 years to fund projects including a water park linked to replacing its 87-year-old swimming pool, a Muswellbrook regional convention and performance centre and Denman town upgrade.	Newcastle Herald
4 November 2016	Reserve Bank calls end of the mining bust	The bank observed that the recent rally in coal and iron ore prices had lifted the terms of trade for the first time in two-and-a-half years. That prompted the bank to tentatively call the bottom of Australia's commodity price bust. The bank also observed that the steep fall in mining investment over the past few years appears to be slowing and might be close to a trough.	ABC News
28 April 2014	Re-positioning Muswellbrook after the coal downturn	Muswellbrook in the heart of the NSW Hunter Valley is now feeling the after effects of a major coal mining boom that took the town and its residents to unprecedented levels of wealth and prosperity. When the party lights were dimmed in 2013 as resource related investment slowed, it sent shock waves through the community and businesses. It brought the region's vulnerability into focus underlining the lack of diversity.	ABC Rural
Drought			
7 January 2019	Drought relief milk to be extended	"A bid to help drought-stricken dairy farmers stay afloat amid crippling drought has seen \$3.1 million in relief payments split between farms. Dairy Connect CEO and Drought Relief Committee member Shaughn Morgan said farmers had used the money to help with the cost of buying in feed for their cows."	Maitland Mercury

Date	Headline	Brief Description/Summary of Article	Source
10 February 2018	'As dry as it's ever been': Upper Hunter farmers battle through testing conditions	<i>Bureau of Meteorology data shows that parts of the Upper Hunter, around the Scone area, are going through a one-in-20-year rainfall deficiency. Most of the remainder of the valley is experiencing a once in a decade deficiency. As the drought gripping the region rolls on, farmers are being forced to offload thousands of head of livestock because conditions are too harsh.</i>	Illawarra Mercury
20 April 2018	Buy A Bale Hunter hay relief on the way after \$200,000 donation	<i>The first hay trucks – paid for with Glencore's \$200,000 contribution to the Buy A Bale Hunter campaign – will arrive in the Upper Hunter this weekend.</i> <i>"This is a significant amount of money and it will provide assistance with fodder and other services Rural Aid is providing to the farmers.</i> <i>"There are still a few loads going to the Lower Hunter but the majority of the need now is in the Upper Hunter around the Scone area." Rural Aid CEO and co-founder Charles Alder.</i>	Maitland Mercury
24 August 2018	Singleton Council's drought assistance hub will be operational on Monday	<i>Singleton Council has partnered with a range of stakeholders to be a conduit between Singleton farmers and the services available to rural producers to make finding help easier. "With 100 per cent of NSW now in drought, and a range of government packages now available to farmers as well as an overwhelming response to community fundraising, the difficulty for farmers is often knowing where to start to find the help available to them," Singleton mayor Sue Moore said.</i>	Singleton Argus
Infrastructure and Services			
30 January 2019	NSW Government delays Muswellbrook Bypass by a further 6-8 years in new plans	<i>"In yet another setback for the Muswellbrook Bypass, the NSW Government has revealed the project will be delayed for at least another six-to-eight years.</i> <i>Muswellbrook Shire Council was informed last November that its timeline of having it completed by 2020 was "unrealistic", as it is currently only in the "preferred route" phase.</i>	Muswellbrook Chronicle

Date	Headline	Brief Description/Summary of Article	Source
19 December 2018	Council commits to town centre	<i>"Singleton Council has reaffirmed its commitment to Singleton's Town Centre, resolving to co-fund stage two of the revitalisation project by making provisions in its 2019/2020 loan borrowing program at its final meeting of 2018 earlier this week. ""This project will make a significant difference to the people who live and work in Singleton, including improved road safety, property appreciation and wider economic benefits that will contribute to a creative, vibrant, economically diverse and healthy community.""</i>	Singleton Argus
19 December 2018	Announcement good start to festive season	<i>"Announcement of \$2,787,000 for an arts and cultural centre in Townhead Park; talks of increased passenger trains between the Upper Hunter and Maitland. Push for mining royalties to be returned to the LGA in which the minerals were mined."</i>	Singleton Argus
18 December 2018	School grants to help early learning	<i>"A STATE government initiative to improve the environment and services at preschools will benefit 12 schools in the Upper Hunter. ""A total of \$141,387.30 has been invested in community preschools in the Upper Hunter,"" he said, with the money used to pay for improvements to grounds and buildings as well as specialised educational programs for children."</i>	Newcastle Herald
11 December 2018	Sports clubs share in \$4 million state government funding	<i>SPORT and recreation clubs across the electorate have been successful in securing \$49,960 in funding from the NSW Government for new equipment, facilities and programs through the Local Sport Grants Program.</i>	Muswellbrook Chronicle
12 October 2018	Rail noise walls for Muswellbrook lines	<i>Work on a rail noise abatement project at Muswellbrook will start in November. Muswellbrook Shire Council awarded a tender to build three walls along the shire's rail line at Simpson Park and near Campbell Corner, building on a state government grant of \$1.9 million towards designing and delivering the project.</i>	The Newcastle Herald
28 August 2018	New England Highway from Singleton to Muswellbrook enjoys million-dollar windfall	<i>The Upper Hunter electorate will benefit from the Saving Lives on Country Roads Program with nine upgrades to begin this financial year. "The Saving Lives on Country Roads Program aims to reduce the number of people killed and seriously injured on our roads by addressing high risk curves and installing safety features to prevent driver fatigue and lane departure crashes," Upper Hunter MP Michael Johnsen said.</i>	Hunter Valley News

Date	Headline	Brief Description/Summary of Article	Source
28 August 2018	Draft Plan of Management for Lake St Clair recreation ground on display	<p><i>"A new kiosk, playground and multi-purpose meeting facility are some of the possibilities included in a draft Plan of Management for the Lake St Clair recreation ground unveiled for public exhibition from Wednesday, August 29 until Friday, October 12.</i></p> <p><i>Singleton Council is encouraging feedback on the draft plan, which provides guidelines for the planning, development and care of the Lake St Clair Recreation Park. A public hearing will also be held for members of the community to find out more information on Thursday, September 13."</i></p>	Singleton Argus
4 August 2018	Plans released for New England Highway Muswellbrook Bypass	<p><i>The Roads and Maritime Services (RMS) has released its preferred plan for the New England Highway Muswellbrook Bypass.</i></p> <p><i>In its July 2018 Options Report, five routes were considered to combat the heavy influx of vehicles, which pass through the town on a daily basis.</i></p> <p><i>The RMS stated the following objectives were specific to a bypass of Muswellbrook: improve network efficiency on the New England Highway, particularly travel times for long haul freight movements; improve safety for all road users in the town centre, particularly relating to heavy and light vehicle interactions; and, improve the amenity of the Muswellbrook township.</i></p>	The Muswellbrook Chronicle
19 June 2018	Singleton Heights Pre-school expansion plans given green light	<p><i>"The Council has given the go ahead for a non-for-profit community-based centre located on Dorsman Drive which will offer 40 more places to local families, with increase access and participation for Aboriginal and Torres Strait Islander families. The program is managed by the Department of Education and is aimed at not-for-profit community based providers hoping to expand their services when there is a shortage demand. "</i></p>	Singleton Argus
19 June 2018	Clearer pathways for job hunters with a disadvantages in the Hunter	<p><i>Not-for-profit organisation Workskil Australia has formed a dedicated team of caring Disability Employment Services specialists in the Upper Hunter in NSW and on July 1 will open its doors to assist disadvantaged local job seekers. From July 1, major changes come into effect to the Australian Government's existing Disability Employment Services (DES) program aimed at helping more people with a disability, injury or mental health condition find and maintain employment.</i></p>	Singleton Argus

Date	Headline	Brief Description/Summary of Article	Source
3 May 2016	Singleton's conventional TAFE campus is undergoing a \$4.9 million dollar transformation	<i>"It will be an absolute game changer for education in our area with the new centre opening a whole new variety of opportunities for our local students; combining the very best of modern technology and the traditional face to face teaching TAFE NSW is famous for," Upper Hunter MP Michael Johnsen said.</i>	Singleton Argus
5 May 2017	PCYC Muswellbrook is calling on the community for help	<i>PCYC Muswellbrook must find \$236,000 to give its car park a complete overhaul, with work scheduled to start on June 1</i>	Muswellbrook Chronicle
17 April 2018	Singleton Council plans to spend \$27 million on capital works 2018/19	<i>There is a predicted expenditure of \$82 million for the financial year 2018/19 by the Singleton Council. As part of that expenditure Council is planning to spend \$27m on capital works with a focus on water and sewer infrastructure. Contained in the Draft are words talking about the journey in 'creating the community's vision for Singleton as vibrant, sustainable, progressive, connected and resilient'.</i>	Singleton Argus
5 March 2018	Muswellbrook bypass debate rears its head again after weekend incident at town's overhead rail bridge	<i>THE need for a Muswellbrook bypass was highlighted at the weekend when a wide-load vehicle found itself stuck under the town's overhead rail bridge. This caused the south-bound lanes to be blocked and a traffic diversion was put in place. During the reversing process, both sides of the New England Highway were stopped for about five minutes, causing further frustration among drivers.</i>	Muswellbrook Chronicle
30 August 2017	Cessnock and Singleton Councils celebrate opening of Hermitage Road and Broke Road upgrade and cycleway	<i>Opening of a multi-million dollar upgrade to Broke and Hermitage Roads. The project included improvements to Hermitage Road and Broke Roads, a 10.6 kilometre cycleway and installation of tourist facilities including an information bay. The councils combined to submit a successful funding application for \$16.7 million from the NSW Government's Resources for Regions program, which delivers improved infrastructure in mining-affected communities.</i>	The Advertiser
3 February 2017	Conservation Volunteers Australia plants an office in Muswellbrook	<i>CVA has just opened an office in Muswellbrook. And, this Sunday, February 5, at 6pm, the public is invited to join in on their volunteer session to find out more about volunteering on great projects coming up.</i>	Muswellbrook Chronicle
12 January 2017	Singleton Council investigating management options for Lake St Clair	<i>"Lake St Clair is a popular location for water-based activities, day tripping and camping. Singleton Council reviewed the current caretaker and investigated management options to improve the state of the grounds. The recent installation of a new caretaker facilities, and a boom gate at the entry to the grounds and car parking near the caretaker facility. "</i>	Singleton Argus

Date	Headline	Brief Description/Summary of Article	Source
Government Funding			
26 June 2018	First it was Resources for Regions now the state budget - why?	<i>Singleton provides millions and millions of dollars year in year out from mining royalties – we are the epitome of a mining impacted region but our requests for support appear to be falling on deaf ears. The NSW Minerals Council state that mining royalties will deliver a record \$1.8billion in this year alone, and another record \$2b next year into the state's coffers.</i>	Singleton Argus
5 June 2018	Muswellbrook and Cessnock Councils receive millions Singleton Council gets absolutely nothing	<i>"Our neighbouring councils Muswellbrook and Cessnock have just received a total of \$13.5 million in funding through the Resources for Regions Program but Singleton Council did not get one cent. At about the same time Parliamentary Secretary for the Hunter, Scot MacDonald MLC, was in the Cessnock Local Government Area (LGA) delivering the good news that the Cessnock CBD is about to undergo a huge \$3.5m revitalisation. In Singleton we waited hoping it would soon be our turn to hear some good news from a program designed specifically to assist mining affected communities."</i>	Singleton Argus
14 June 2017	Singleton Shire Council's just been upgraded, but no one knows why	<i>A NSW tribunal decision that could cost Singleton ratepayers an extra \$100,000 a year in councillor fees and more than double Mayor Sue Moore's take-home pay to nearly \$62,000 which could be challenged after questions about the council upgrade that bumped up councillor pay. The tribunal Singleton upgrade in particular, with a councillor pay boost from \$8750 to \$19,310 per year, and mayor Sue Moore's from \$27,389 to \$61,430 that has raised questions about the assessment process.</i>	Newcastle Herald
Impacts of Mining			
8 February 2019	Respected Upper Hunter doctor Robert Vickers believes Upper Hunter Air Quality Monitoring Network data 'alarming'	<i>"Any GP in town will tell you when people with chronic respiratory diseases leave the area, their symptoms improve. "It's frustrating, from my perspective, because there is so much information out there – and people choose to ignore it. "Average levels of coarse particle pollution in the Hunter Valley have increased at a rate higher than the rest of NSW, with the biggest witnessed at Muswellbrook." Dr Vickers said a total of nine sites exceeded the national standard of PM10 particle levels.</i>	Muswellbrook Chronicle

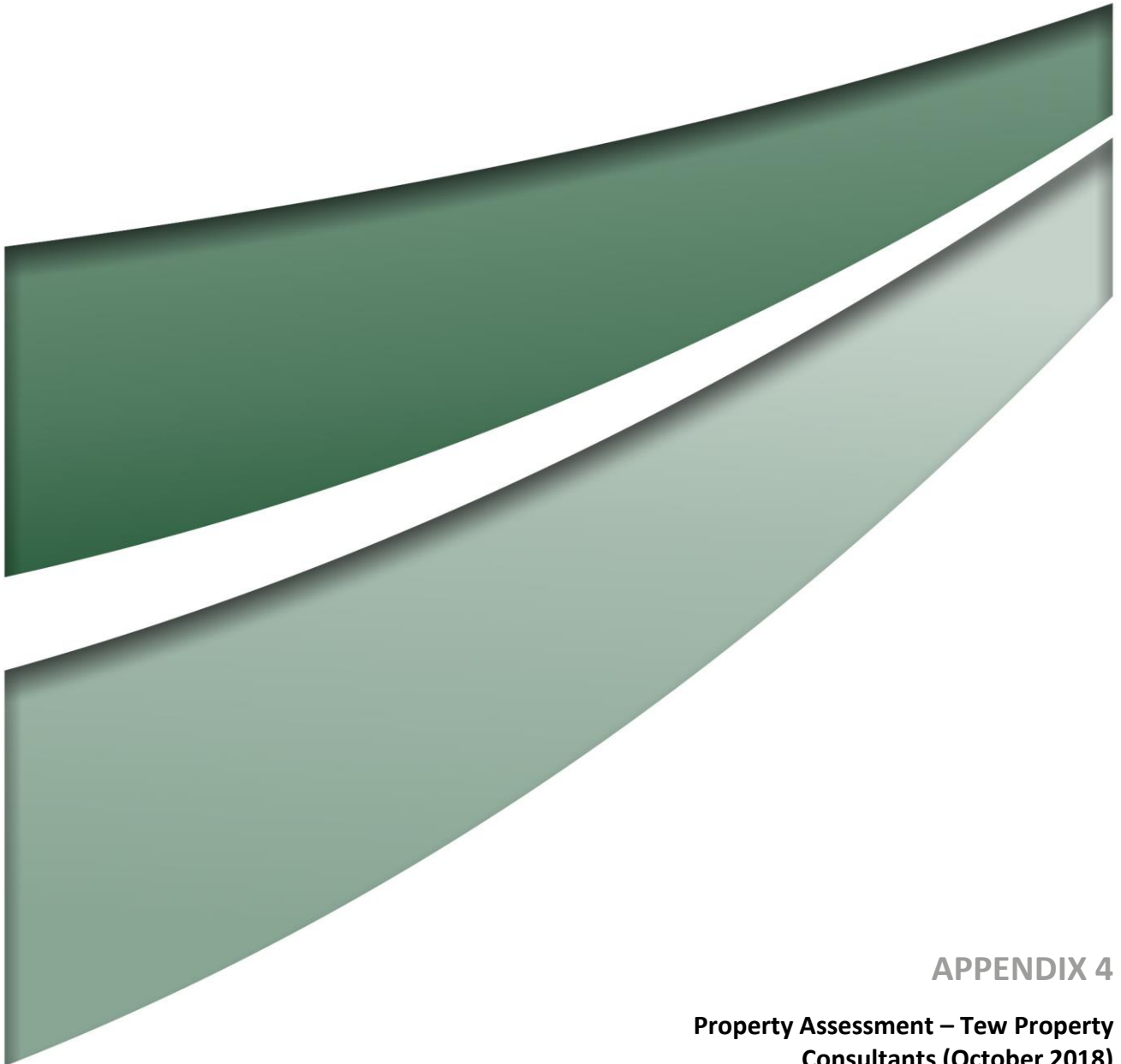
Date	Headline	Brief Description/Summary of Article	Source
		<p><i>Dr Vickers believes existing environmental and planning safeguards were not protecting the health of people living in the region.</i></p> <p><i>"The NSW and Australian economies have profited from the Hunter Valley's natural resources, but that time is coming to an end whether we like it or not.</i></p> <p><i>"If we don't plan for this transition period and continue relying on mining for local jobs, the Hunter risks being left with high rates of unemployment.</i></p> <p><i>"If we don't act on air pollution now, we are putting the Hunter region at risk of the negative health effects."</i></p>	
8 January 2019	Shooters, Fishers and Farmers Party's candidate for Upper Hunter Lee Watts meets with concerned Wybong community	<p><i>THE Shooters, Fishers and Farmers Party's candidate for Upper Hunter, Lee Watts, is calling on the Mine Subsidence Board to "move with the times".</i></p> <p><i>"It needs to incorporate all [mining] impacts and administer compensation with greater flexibility to buy out neighbours who feel stuck," she said.</i></p> <p><i>"When a mine like Mangoola expands, there are some properties the company must legally offer to purchase because of their impacts.</i></p> <p><i>"However, there is the next line of properties they don't have to buy.</i></p> <p><i>"The property value then falls, there are no buyers and the owners have to live with increasing dust and noise.</i></p> <p><i>"When I met with some of the Wybong community, they weren't angry, they were just disillusioned, trying to find a way for their families to live the lifestyle they have planned and worked so hard for."</i></p>	Hunter Valley News
12 December 2018	Upper Hunter records worst ever air quality	<p><i>"The Hunter Valley is on track to record its worst air quality since monitoring began due to increasing levels of coarse particulate matter (PM10).</i></p> <p><i>Five Hunter towns and villages are tracking to record PM10 levels that exceed national standards, according to data from the Office of Environment and Heritage.</i></p> <p><i>So far, 2018 has been the worst recorded year for air quality since the Upper Hunter air quality monitoring network started measurements in 2012."</i></p>	Newcastle Herald

Date	Headline	Brief Description/Summary of Article	Source
19 October 2018	Horses, vineyards should be off-limits to coal: poll	NEARLY two-thirds of people polled in the mining areas of Singleton and Muswellbrook say critical horse-breeding and wine growing areas of the Hunter should be off limits to coal mining. The ReachTEL poll of 253 people was commissioned by Lock the Gate as it campaigns to stop three greenfield mines in the Hunter and Central Coast areas, including the KEPCO Bylong mine between Denman and Mudgee.	Newcastle Herald
17 October 2018	Information day on wild dog control	Hunter Local Land Services is calling on local landholders interested in wild dog control to attend a free information day at Mount Olive Community Hall near Singleton, on Saturday, November 3. The information day is being run in conjunction with North East Singleton Wild Dog Association.	Singleton Argus
11 September 2018	Hunter Valley coal miners targeted during drought	"In particular, mines must take extra care during harsh dry weather conditions to prevent dust affecting the surrounding communities," Upton said. "The current dry drought conditions, especially on windy days, mean that mines should be taking extra precautions to control the amount of dust generated on site. "People living near mines should be protected by tough regulations and mine operators have a duty at law to improve their environmental performance."	Mining Monthly
30 July 2018	Air quality alerts night after night as PM 10 levels exceed national standards	"Upper Hunter air quality network monitors around Singleton are issuing warnings night after night as PM10 levels in the district exceed national air quality standards. The night time, in particular after midnight, appears to be the worse time for air quality in the local area as six times in the two weeks between four and six monitors have recorded concerning levels of dust pollution. "A couple of days later the setting was covered in the dust which I know comes from the surrounding mines and the two powered electricity generators Bayswater and Liddell just up the road. "There is a terrible drought throughout the state but the dust is not red or brown dirt from the bush its black and its hurting everyone who breathes it." Mrs Bowman said authorities will say it is wood smoke or due to the drought which she described as absolute rubbish."	Singleton Argus

Date	Headline	Brief Description/Summary of Article	Source
27 July 2018	Singleton community demands answers from Defence over the use of PFAS at Singleton Army Base	<i>"I've been raising this (concerns about contamination) for few years now. It just falls on deaf ears; they just ignore you," Singleton horse breeder Brad McNamara said. Health officials maintain there is no consistent evidence between PFAS, classified as an emerging contaminant, and adverse health impacts in humans.</i>	Singleton Argus
6 June 2018	Massive impact: Coal mining's effects on the Hunter water tallied	<i>"A federal government study found the existing 40-plus open-cut and underground coal mines had affected an area of 4307 square kilometres, or about a quarter of the overall Hunter region. The 22 new projects would expand that impact – assessed as at least of a 5 per cent chance of groundwater levels dropping 0.2 metres – out to about 30 per cent. Surface water impacts from the additional projects had the potential to affect 1228 kilometres of streams. Water losses included a 50 per chance of a 4.5 gigalitre per year loss of flow at Singleton, the report said. A spokesman for the Department of Planning and Environment reported "All new mine proposals are subject to rigorous assessment and approval processes under the EP&A Act"</i>	Sydney Morning Herald
6 April 2018	Glencore's Global Head of Coal engages with protesters outside of Hunter Coal Festival Mining Leaders Lunch	<i>A small group of passionate protesters gathered outside of Club Singleton prior to the Hunter Coal Festival Mining Leaders Lunch. The protestors voiced their concerns about what they perceive to be the government's reluctance to initiate the transition from fossil fuels to renewable energy in Australia. They called for "no new coal" and "clean air, soil and water for the children."</i>	Singleton Argus
4 April 2018	Advertising feature: Hunter Coal Festival Community	<i>Celebrating the co-existence between community and mining from April 6-15, the festival has a packed line-up, including the likes of a mining leader's lunch, singleton community day and parade and community updates meetings. The festival is supported by Muswellbrook Chamber of Commerce and Industry, Muswellbrook Shire Council and Singleton Shire Council.</i>	Singleton Argus
21 February 2018	Singleton Hospital emergency admissions jump as air quality falls in the upper hunter	<i>"Upper Hunter residents have sought an urgent meeting with the NSW Environment Protection Authority after data showing a dramatic spike in Singleton emergency department admissions in 2017 coinciding with declining air quality. Singleton hospital admissions jumped by 28.6% between July-September 2016 and July-September 2017."</i>	Newcastle Herald

Date	Headline	Brief Description/Summary of Article	Source
13 December 2017	Glencore says enterprise agreements reached at all Hunter mine sites	<i>Following six months of industrial action and negotiations, Glencore and the mine workers' union have signed off on a string of Hunter mine enterprise agreements, which have been registered with the Fair Work Commission, including Mangoola open cut, Ravensworth open cut, Ravensworth coal handling and preparation plant, Mount Owen coal handling plant, Glendell open cut, Liddell open cut, Liddell coal plant, Bulga open cut and Bulga underground mine.</i>	The Newcastle Herald
11 October 2017	Shocking' spike in Hunter Valley's coal-linked air pollution fails to prompt action	<i>Air pollution from the Hunter Valley coal mines has become increasingly worse, with Wendy Wales calling neighbors warning them of a bushfire, mistaking the dust for smoke. Pollution monitors in the area picked up readings of 103.4 PM10 (particulates of 1 micrometers or less in diameter) at Warkworth near open cut coal mines.</i>	Sydney Morning Herald
7 July 2017	Two-day strike planned for Glencore's seven Upper Hunter operations	<i>"Workers from seven Glencore operations including five open cut mines will meet at Singleton Showground on Monday morning to hear from Construction Forestry Mining and Energy Union (CFMEU) representatives on the state of negotiations between the union and the company on new Enterprise Bargaining Agreements (EBA). Voting on a new EBA was recently held at Glendell mine and Mr Jordan said 96-97 per cent voted against that EBA."</i>	Singleton Argus
16 February 2017	Mining report finds 60,000 abandoned sites, lack of rehabilitation and unreliable data	<i>"More than 60,000 mines have been abandoned across Australia, according to a report that raises concerns about how land rehabilitation is managed as the mining boom ends. Muswellbrook's Mayor Martin Rush said BHP's operations stand in stark contrast to what is happening on the other side of town at the Glencore Mangoola mine. "Best practice is really what is happening at Mangoola," he said. "It can be done. It should be done and increasingly the community will be expecting it to be done."</i>	ABC News

Date	Headline	Brief Description/Summary of Article	Source
15 February 2017	Wind farm impacts have received significant government attention, but not coal mines	<i>"Community groups in Upper Hunter mine areas say governments have spent many millions of dollars investigating the noise impacts of wind farms, but little on the impacts of open cut coal mine noise in rural areas, despite evidence of the health impacts of industrial noise and years of complaints about noise from Hunter mines. In 2015 Glencore barred a Muswellbrook couple from making verbal complaints and put them on a "complaints only in writing" basis, after years of complaints about noise from Mangoola mine led them to call a Glencore community manager a "bastard", and 10 months later an "idiot"."</i>	Newcastle Herald
Community Investment			
16 May 2018	Muswellbrook Shire Council allocates more than \$3 million towards projects in Denman	<i>Mangoola Coal contributed \$500,000 to Muswellbrook Shire Council for community improvement strategies. The council will allocate funds to improving Denman Main street, the Denman Memorial Hall, the Denman Geothermal baths and an RV dump point.</i>	Muswellbrook Chronicle
8 May 2018	Muswellbrook residents embrace Coffee with a Cop concept	<i>Mangoola Coal funded a community initiative to encourage residents to get to know their on-the-ground police officers to improve interactions between police and locals – fostering stronger community engagement and understanding.</i>	Muswellbrook Chronicle
6 March 2018	Muswellbrook, Denman volunteers roll up their sleeves	<i>Mangoola Coal provided helpers and resources in Denman for Clean Up Australia Day. Community volunteers and local businesses collected 60 bags of rubbish and removed a range of larger items from the environment to show support for a cleaner environment.</i>	Muswellbrook Chronicle
11 July 2017	Mangoola CHPP tops up Where There's A Will's funding basket	<i>The Mangoola CHPP team presented Upper Hunter-based support group, Where There's A Will, with a cheque for \$6500, the proceeds of a "fire sale" with a difference. Used centrifuge baskets and conveyor belting from the CHPP were for sale offered to employees and contractors working across the open cut operation. Glencore has provided \$100,000 for the WTAW organisation to undertake mental health first aid training across the Upper Hunter</i>	Muswellbrook Chronicle



APPENDIX 4

**Property Assessment – Tew Property
Consultants (October 2018)**

Our Ref: FR3135B

29 October 2018

Mr Jason Martin
Project Approvals Manager
Mangoola Coal Operations Pty Limited
C/- Pit Express
17 Enterprise Crescent
SINGLETON NSW 2330

Dear Jason,

RE: MANGOOLA COAL CONTINUED OPERATIONS PROJECT – PROPERTY DATA

In accordance with your instructions we provide the following recordings and analysis of rural property sales for the period 2005 – 2018 for various locations relevant to the Mangoola locality in the Hunter Valley.

We understand the data provided in this advice is to be utilised by Glencore in conjunction with its primary consultants in respect to the above described project.

We have investigated and sourced information independently, had discussions with Local Government Authorities and local agents active in the Real Estate market and, where necessary, made assumptions. The activities undertaken, information sourced and assumptions made include:

- Investigation of commercial property sales system – Core Logic RPData. 2005 - 2018.
- Accessing Property NSW land values applicable to a variety of land classifications 2012 – 2018.
- Investigation of statistical analysis for rural assets – Rural Bank and NSW Valuer General.
- Contemporaneous analysis of sales recorded and inspected by Tew Property Consultants for the period 2005 – 2018.

An objective of the report is to ascertain the movement in values for rural properties of varying scale and type over an extended period of time from 2005 – 2018.

This report is primarily concerned with changes in rural property values in and around Mangoola and other relevant localities and discerning contributing factors which may influence value.

We have considered sales evidence of rural lifestyle properties and independent rural living units within Muswellbrook Local Government Authority and other localities which are proximate to coal mining operations.

In order to maintain confidentiality of property details, for those properties where we have utilised information which is not in the public domain or which is not assessable to the general public, we have purposely not included data which could inform as to ownership of those specific properties. We have, however, retained a complete data record on our files should our client wish to discuss particular properties further.

We have also considered the matter of marketing timeframes but do not consider it to be a primary indicator of the prevailing market. A number of factors may impact directly upon the time a particular property is on the market before achieving a sale. Factors such as a rising or falling market will influence the respective vendors/purchasers perceptions of value and opportunity; opportunistic listings often occur in advance of a perceived sale opportunity (such as anticipated acquisitions by a resources company). We have relied upon analysing completed sales and consider them to be the best representation of the market and market movement.

SUMMARY

In accordance with instructions we have investigated and analysed rural property sales for the period 2005 – 2018 for various locations relevant to the Mangoola locality in the Hunter Valley.

We have relied upon a range of information from varying sources and included relevant data into this advice.

Our conclusions are as follows:

- Rural lifestyle properties and rural production units can vary markedly and values are influenced by a range of factors including; location, size, topography, use, land classification, available water, services, aspect, potential and scale, type and condition of improvements.
- Rural sales comprise a range of assets which may bear little or nil relevance to a particular asset being considered.
- Analysis of small, general data sets may be misleading and should not be utilised to indicate trends in any one type of asset without explanation of the basis of comparison and proposed use.
- If considering trends in rural real estate values, it is critical to understand the specific type, size and use of the asset being considered.
- It is our experience and supported by analysed sales evidence that there has been upward movement of rural land values over the previous 13 years to 2018. That movement however, has not been consistent, rather it has been spasmodic. Particularly, the smaller rural/residential lifestyle parcels are influenced by similar factors to that influencing the value of residential assets in comparable locations.
- Larger rural lifestyle parcels are also influenced by similar factors to those influencing residential assets but do appear to have a resilience to the more standard market forces and movement in values is at times independent of residential values - which may be as a consequence of the capability of those rural assets to also generate modest on farm income (albeit not independent of off farm income) to supplement lifestyle.
- Our analysis of the sales data indicates larger rural lifestyle assets evidenced an annual increase in value (in those strongest years) of up to 5% per annum and over the total 13 years it is our assessment of the sales evidence that rural assets indicated increases in value over that timeframe of up to 75% in one instance. The majority of assets considered for the purposes of this advice however, indicates increases in value over 13 years in the range 25% - 50% over that market value as was evidenced in 2005 - subject to a range of influencing factors as described above.

OVERVIEW

It is our experience that the existence of a coal mining operation in proximity to small towns and villages can have a range of impacts upon the market value of real estate, both positive (i.e. beneficial) and negative (i.e. detrimental). It is also our experience that the closer the proximity of a particular property to the actual mining operation, the more direct and accentuated are the negative impacts.

It is difficult, however, to accurately discern the impacts of coal mining upon individual property values as either a percentage of change in market value or a dollar equivalent.

It is our experience that the detrimental impacts of coal mining upon Real Estate values are more likely to be localised or individually evident and a consequence of a particular property's proximity to a mining operation and the detrimental impacts as a consequence of factors such as noise and particulate matter (air quality) and potential consequential health impacts resulting in an exceedance of recommended guidelines as they relate to occupation or enjoyment of the property, as well as amenity issues as arise from real or perceived detrimental impacts from aspects such as visual intrusion, increased traffic volumes and/or reduced marketability as a consequence of the stigma associated with proximate mining operations.

By comparison, the positive impacts upon Real Estate values as a consequence of coal mining are more broadly experienced by the surrounding community due to factors including; increased employment opportunities, different/improved skill requirement, enhanced demand for accommodation in general and modern accommodation specifically, demand for improved services, increased spending generally in the community and a generally improved local economy. As a consequence, it is not so easy to discern the positive impact upon a single property. Rather, it is reflected by an enhancement in value generally.

We have been specifically instructed to consider and advise in respect to the following;

1. A desktop review of comparable sales evidence over the preceding 10 – 15 years.
2. Provide context for each sale – land component, agricultural capability, improvements.
3. Comment upon market value and relevance.
4. Indicate a trend in respect to capital growth over the adopted timeframe.
5. Provide a table indicating findings.

MARKET ANALYSIS

Below is a summary of recordings and analysis.

- 1. A desktop review of comparable sales evidence over the preceding 10 – 15 years.**
- 2. Provide context for each sale – land component, agricultural capability, improvements.**
- 3. Comment upon market value and relevance.**

We have attached a representation of sales evidence considered in compiling this advice.

We are of the opinion the rural/residential lifestyle properties of up to 5.0ha (50,000m²) have generally followed the movement in value as represented for residential properties (land size up to 1,500m² - refer to our earlier advice reference FR3135A) and which is also repeated below for the purposes of this updated advice for Singleton, Muswellbrook and Upper Hunter LGA's.

In the column on the far right we have included factors which we consider may have impacted upon property values at differing times over the period investigated. These same events may have impacted upon rural lifestyle parcels as well.

MARKET ANALYSIS (Cont'd)

Median House Prices and Sales: 2006 – 2018 in Muswellbrook

Village	LGA	Year - 12 months 1/10 - 30/9	No. of Sales	Median House Price	% Increase/ Decrease	Potential Influencing Factors
Muswellbrook	Muswellbrook	2006	255	\$242,500	8.79%	High World coal prices. Coal industry is in high production mode.
		2007	272	\$247,500	4.01%	World food shortage concerns identified. Secure nations such as Australia raised as potentially servicing food supply deficiencies worldwide. Food shortages in a number of countries is unlikely to have impacts upon residential property values in Australia, however, it is considered relevant to the value of rural production units. High World coal prices. Coal industry is in high production mode.
		2008	224	\$259,000	4.76%	Global Financial Crisis crystalizes on the Australian property market.
		2009	252	\$261,500	0.87%	
		2010	274	\$287,000	9.90%	Major Exploration Drilling program commenced in the Hunter Valley for the AGL gas pipeline.
		2011	40	\$286,500	-0.28%	2011 - High World coal prices. Coal industry is in high production mode.
		2012	292	\$324,000	13.05%	Late 2012 evidenced a collapse in the world coal price and subsequent downturn in the coal industry.
		2013	214	\$329,000	1.62%	Initially contractor's and subsequently employees are laid off from a number of coal mining operations throughout the hunter Valley. High vacancies and extended marketing periods are evidence for residential and rural/residential properties.
		2014	124	\$295,000	-10.28%	Hunter Expressway opens reducing travel times from the Upper Hunter Valley to the larger population centers of the Lower Hunter Valley by 30min each direction. Reduced confidence in general and reduced employment opportunities in the Hunter Valley – increasing unemployment.
		2015	112	\$273,000	-7.52%	AGL withdraw from the Hunter Valley Gas pipeline project.
		2016	160	\$259,000	-5.06%	Markedly improved cattle prices across NSW and Queensland. Cautious confidence returning to the Coal Sector on the back of improved world coal prices.
		2017	191	\$286,913	0.65%	Drought conditions taking hold in parts of NSW and QLD. Continuing confidence returning to coal sector.
		1/6/17- 31/5/18	248	\$295,720	4.72%	NSW and Queensland officially declared as drought stricken. High World coal prices. Coal industry is in high production mode.

Source: Residex Pty Ltd, Core Logic RPData and Tew Property Consultants.

MARKET ANALYSIS (Cont'd)**Median House Prices and Sales: 2006 – 2017 in Denman**

Village	LGA	Year - 12 months 1/10 - 30/9	No. of Sales	Median House Price	% Increase/ Decrease
Denman	Muswellbrook	2006	28	\$209,500	10.25%
		2007	32	\$247,000	8.10%
		2008	30	\$262,000	6.13%
		2009	26	\$267,500	2.10%
		2010	3	\$294,000	9.79%
		2011	-		
		2012	26	\$400,000	-1.18%
		2013	26	\$337,500	6.25%
		2014	9	\$319,500	-5.28%
		2015	13	\$287,500	-10.00%
		2016	15	\$283,000	-1.61%
		2017	31	\$318,196	1.79%
		1/6/17- 31/5/18	32	\$310,610	0.81%

Source: Residex Pty Ltd, Core Logic RPData and Tew Property Consultants.

Median House Prices and Sales: 2006 – 2018 in Scone

Village	LGA	Year - 12 months 1/10 - 30/9	No. of Sales	Median House Price	% Increase/ Decrease
Scone	Upper Hunter	2006	88	\$255,500	13.26%
		2007	104	\$283,500	5.30%
		2008	86	\$278,000	-1.87%
		2009	89	\$295,500	6.17%
		2010	88	\$308,500	4.54%
		2011	116	\$311,500	0.91%
		2012	146	\$344,500	10.64%
		2013	118	\$365,500	6.08%
		2014	82	\$359,000	-1.86%
		2015	62	\$339,500	-5.39%
		2016	82	\$314,000	-7.57%
		2017	132	\$327,584	-7.43%
		1/6/17- 31/5/18	149	\$338,041	1.49%

Source: Residex Pty Ltd, Core Logic RPData and Tew Property Consultants.

MARKET ANALYSIS (Cont'd)**Median House Prices and Sales: 2006 – 2018 in Aberdeen**

Village	LGA	Year - 12 months 1/10 - 30/9	No. of Sales	Median House Price	% Increase/ Decrease
Aberdeen	Upper Hunter	2006	43	\$193,500	12.71%
		2007	45	\$203,500	6.07%
		2008	33	\$223,500	9.85%
		2009	37	\$247,500	10.81%
		2010	29	\$262,500	6.05%
		2011	41	\$265,000	0.96%
		2012	41	\$294,000	10.90%
		2013	45	\$321,500	9.44%
		2014	27	\$299,500	-6.88%
		2015	18	\$280,000	-6.52%
		2016	22	\$262,000	-6.37%
		2017	41	\$290,285	0.26%
		1/6/17- 31/5/18	44	\$275,787	-2.77%

Source: Residex Pty Ltd, Core Logic RPData and Tew Property Consultants.

Median House Prices and Sales: 2006 – 2018 in Singleton

Village	LGA	Year - 12 months 1/10 - 30/9	No. of Sales	Median House Price	% Increase/ Decrease
Singleton	Singleton	2006	126	\$300,000	14.61%
		2007	114	\$311,000	4.26%
		2008	95	\$308,000	-1.04%
		2009	106	\$326,500	6.16%
		2010	104	\$341,500	4.48%
		2011	97	\$350,500	2.74%
		2012	112	\$387,000	10.37%
		2013	88	\$391,500	1.13%
		2014	62	\$378,000	-3.48%
		2015	48	\$340,000	-10.01%
		2016	74	\$320,500	-5.80%
		2017	105	\$359,204	0.57%
		1/6/17- 31/5/18	127	\$393,800	6.77%

Source: Residex Pty Ltd, Core Logic RPData and Tew Property Consultants.

MARKET ANALYSIS (Cont'd)**Median House Prices and Sales: 2006 – 2018 in Singleton Heights**

Village	LGA	Year - 12 months 1/10 - 30/9	No. of Sales	Median House Price	% Increase/ Decrease
Singleton Heights	Singleton	2006	117	\$289,500	9.67%
		2007	117	\$307,500	7.50%
		2008	98	\$321,000	4.51%
		2009	112	\$316,000	-1.54%
		2010	95	\$348,000	10.12%
		2011	99	\$362,500	4.12%
		2012	116	\$396,500	9.39%
		2013	71	\$389,500	-1.78%
		2014	59	\$361,500	-7.24%
		2015	44	\$330,000	-8.71%
		2016	64	\$330,500	0.21%
		2017	109	\$352,532	4.78%
		1/6/17- 31/5/18	121	\$392,476	11.74%

Source: Residex Pty Ltd, Core Logic RPData and Tew Property Consultants.

MARKET ANALYSIS (Cont'd)

Rural Land

In undertaking our considerations of market value for rural lifestyle land, we have considered those parcels which are larger than 10 hectares and up to 350 hectares.

As stated supra, we are of the opinion the smaller rural/residential lifestyle allotments of up to 5.0ha in size are influenced similarly to those residential house assets.

In considering properties in excess of 350ha in respect to grazing concerns and those assets specifically improved for such as equine pursuits, fodder production and/or mixed use, or are intensive agricultural uses such as dairy's, poultry farms, vineyards etc and we have assumed they are potentially independent rural production units and as such are not generally impacted by the influences of proximate coal mining activities.

Indeed, in some cases independent rural production lands may be positively influenced insofar as having opportunity to lease additional lands to augment existing production purposes, from the volume of available mine buffer land as may be suitable for such purposes.

We have considered medium to larger scale rural lifestyle properties in the range of 10.0ha - 350ha. In our opinion, the majority of parcels in the immediate proximity to Mangoola comprises properties with few lands with a high agricultural capability and are therefore not regarded as independent viable rural living units, but rather comprise sales of small, medium and large sized lifestyle parcels where the owners are either sufficiently wealthy to maintain and service such properties without off farm income, or conduct some modest farming activities with supporting ancillary off farm income.

We have drawn comparisons with a range of property sales which are situated in the Muswellbrook LGA and relevant surrounding LGA's.

Rural lifestyle properties and rural production units can vary markedly and values are influenced by a range of factors including; location, size, topography, use, land classification, available water, services, aspect, potential and scale, type and condition of improvements.

Sales of varying sized rural lifestyle properties are relatively small in number in any given year and varied in type, size, use and location and as such it is difficult to draw definitive data from the volume of sales available for investigation without also indicating the specific type of property being considered.

The situation is compounded by the need to filter and exclude those sales as may have been influenced by mining acquisition (either by applied acquisition rights or as simply acquiring off market at negotiated purchase prices which are influenced by the proximity of the mining company).

It is noteworthy, however, that small sample groups such as that evident for this class of property may be markedly influenced by a single sale and therefore we suggest that statistical evidence of changes in median value should be treated with caution if considering small sample groups and relatively short assessment periods. An example of that described is that over the preceding decade, the evidence suggests changes in value ranging from a decline of up to 20% in one particular year (for small lifestyle parcels) to an increase of 100% over a decade between sales in circumstances where very little change was affected to the particular rural property in the intervening years.

Small sample groups and relatively narrow timeframes may prove to be unreliable in our opinion.

4. Indicate a trend in respect to capital growth over the adopted timeframe.

We have adopted to investigate sales and analyse dollar rates per hectare for vacant land as existed in 2005 and again over the intervening years to 2017/18. The resultant increase is depicted in the table below and indicates growth in values for the particular range of rural assets considered, is in the range of 25% - 50% in total across the 13 years from 2005.

Subject to the type of rural asset being considered – the most significant annual increases appear to have occurred in the period 2006 – 2008 (3% - 10.00%) and 2016 – 2018 (5% - 10.0%). The intervening years (the majority) are marked by little or nil growth in values on an annual basis. There is a range of factors as may have contributed to the stagnation in value growth in the intervening years as is described in the table above.

We have also included data for land values adduced by the NSW Valuer General for rating and taxing purposes and which indicates the movement in values over the preceding 5 years for a range of properties. The tables below are instructive in that there is little or nil growth in values between 2013 – 2016 in the majority of instances for small lifestyle parcels. Larger parcels indicate market movement in recent years.

We also draw attention to the NSW Valuer General in its media release (dated 20 June 2018) in respect to the rural land values in the Muswellbrook LGA wherein it is represented the average movement in rural land values for rating and taxing purposes across the LGA as occurred between 2017 – 2018 was 4.0% growth in values.

Property NSW (NSW Valuer General) utilises a benchmarking approach to adduce land value for rating and taxing purposes, whereby a particular property is used as a benchmark to analyse changes in market value as derived from analysis of available sales evidence. The analysed change in value is then applied as a factor of change to other properties (comparable to the benchmark property) in undertaking mass valuations across the entire Local Government Area. Various benchmark properties (various classes of property) are utilised to adduce value for comparable classes of property.

The most significant impacts in respect to changes in Market Value coincide with the decline in the coal industry as occurred from late 2012 which is represented by land values adduced as at July 2013. Conversely, there is a marked increase in both volume of sales and median values evident for 2016/2017 which coincides with improved confidence in the coal sector notwithstanding the locality (as at 2017-2018) is in the grip of a significant and devastating drought.

SALES EVIDENCE

Schedule of sales which are indicative of sales considered for rural assets of varying size, type and zoning for the period 2005 – 2018 situated in various locations within the Hunter Valley.

2017							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
< 10ha							
	4 Jillaroo Way, Muswellbrook	\$205,000	Jun 2017	0.4098	Regular shaped vacant allotment in modern rural/residential estate.	\$500,244	N/A
	574 A Glendonbrook Rd, Glendon Brook	\$580,000	May 2017	5.21ha	Provides a predominately cleared rural lifestyle lot with detached steel framed hardiplank clad dwelling on site. The dwelling appears to be in fair to good condition. A large served studio is attached to the double garage and there is mid range store shed on site with power connected. There are two x rain water tanks (totalling 90KL) dwelling appears in fair order. Fenced to 3 x paddock with stock water reticulated to each.	\$38,387	\$111,324
	20A Grey Gum Road, Denman	\$200,000	May 2017	0.7410	Battel axe shaped vacant rural/residential home site.	\$269,905	N/A
	50 Ogilvie Road, Denman	\$115,000	Apr 2017	0.0702	Vacant residential allotment.	\$1,638,176	N/A
	8569 New England Highway, Muswellbrook	\$75,000	Apr 2017	9.38	Regular shaped parcel assumed as NIL dwelling entitlements is available.	\$7,995	N/A
	160 Almond Street Denman	\$190,000	Feb 2017	3.08	Vacant irregular shaped rural/residential home site with "dog leg" shaped long access handle.	\$61,688	N/A
10ha-<60ha							
	574E Glendonbrook Rd, Glendon Brook	\$235,000	Nov 2017	16.19ha	16.19ha of rural lifestyle lot. Fenced and includes small yards. No services connected.	\$14,515	N/A
	118 Nandowra Road, Moobi	\$1,700,000	Aug 2017	53.05	Gently undulating cleared land. Comprises a substantial dwelling, modern stables, day yards, stock shelter, machinery shed and exercise yard. Fenced and planted to shade trees the property includes "K" line irrigation to some 25ha of improved pasture. We understand the subject property has a portable water entitlement (WAL36579) from the Dartbrook water source of 50ML for irrigation. Analysed as Improvements \$ 750,000 Portable Water \$ 50,000 Land value (TFW) \$ 900,000	\$16,965	\$32,045
	78 Lumby Lane, Sawyers Gully	\$975,000	May 2017	10.09ha	Provides a rural lifestyle property on a 10.09 hectare fully fenced allotment. The property has been improved with substantial residential and rural improvements specifically directed towards the equine industry as training and stabling of standard bred horses was previously undertaken on the land. The 1990's style hardiplank dwelling is of standard finish and presented in fair and tenatable order as is the more recently established granny flat adjoining. There is a dam, stables and a training track on site. The land immediately adjoins the Hunter Expressway.	\$39,643	\$96,630

2017							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
60ha-<150ha							
	"Attunga", 412 Nandowra Road, Scone	\$4,750,000	July 2017	108.1	"Attunga" is a 108.1ha property which enjoys frontage to Dartbrook and includes a 600ML irrigation licence. Residential improvements comprise three dwellings including large main residence, managers dwelling and workers cottage. Other improvements include foaling yards, 20 day yards with stock shelters, various fenced small paddocks, stables, round yard, sand roll and vet crush, hayshed, feed shed, machinery shed. We understand the subject property has a portable water entitlement (WAL17745) from the Dartbrook water source of 300ML for irrigation. Analysed as Improvements \$2,450,000 Portable Water \$ 300,000 Land value (TFW) \$2,000,000	\$18,501	\$43,940
	220-222 Middlebrook Road, Scone	\$1,475,000	Jan 2017	74.19	Irregular shaped gently undulating alluvial river flats – bisected by Kingdon Ponds. Residential improvements comprise a renovated hardiplank clad 4bed dwelling. Other improvements comprise hay and machinery shed, steel cattle yard and former dairy. The property sold with 279ML of water entitlements with 6 inch/150mm main. We are advised by the listing agent that the water entitlements were apportioned as \$850/ML as part of the sale price. Total Sale Price \$1,475,000 Less Water Entitlements - 279ML @ \$850/ML = \$237,150 Adopt \$ <u>240,000</u> Land & Improvements \$1,235,000 (\$16,646/ha) Improvements - \$385,000 Land - \$850,000 (\$11,457/ha)	\$11,457	\$16,646
150ha+							

2016							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
< 10ha							
	14 Hunter Street, Denman	\$260,000	Nov 2016	0.2023	Vacant regular shaped rural/residential home site.	\$1,285,129	N/A
	226 Glendonbrook Rd, Glendon Brook	\$625,000	May 2016	4.15	Provides a predominately cleared rural lifestyle lot with detached 2 storey brick and colorbond clad dwelling. Architect designed and featuring raked ceilings, tongue and groove flooring an ceilings and modern finish. Established landscaping and outdoor area.	\$48,192	\$150,602
	101 Carrowbrook Rd, Mount Olive	\$635,000	May 2016	5.0	Brick veneer & colorbond homestead style dwelling of approximately 250m2 with verandah to 4 sides, 4 bed, 2 bath, swimming pool, detached colorbond triple car garage and 2 x 25KL concrete water tanks. The land comprises an undulating block with a small natural water course bisecting it.	\$47,000	\$127,000
	381 Bridgeman Rd, Obanvale	\$610,000	Feb 2016	4.05	Brick veneer and concrete tile 1990's style dwelling of approximately 200m2 with detached store shed. The land comprises a timbered allotment with a cross fall along the road frontage.	\$58,024	\$150,617
10ha-<60ha							
	2913 New England Highway, Scone	\$1,157,000 (assumed as excluding water entitlements)	Nov 2016	45.83	Comprises a gently undulating parcel sloping below road frontage to frontage to Middlebrook. Comprises two dwellings and a number of outbuilding on site which are dated and appear to be presented in fair to poor condition. We understand the subject property has portable water entitlements (WAL17760 – Aquifer 494ML - Bore and Well - Dartbrook. In the absence of confirmation to the contrary we have assumed the water entitlements are not included in the real estate transaction. Imps: \$200,000 Land: \$957,000 TFW	\$20,881	\$25,245
	401 Glendonbrook Rd, Glendon Brook	\$720,000	Oct 2016	56.67	Provides a predominately cleared rural hobby lot with detached Vinyl clad/CT clad 1970's style dwelling on site. The dwelling is dated but appears to be in fair and tenantable order. Triple garaging and farm improvements including a former dairy, yards, shed and cool room. Provides 3 dams, fenced to four paddocks and some 900m of creek frontage. Approximately 8ha of alluvial flats.	\$9,175	\$12,705
	Moobi Road, Scone Lot 31 DP750950	\$199,000	Oct 2016	16.19	Vacant gently undulating to undulating semi-rural hobby block.	\$12,291	N/A
	Lot 400 DP791860, Denman Road, Muswellbrook	\$320,000	Sep 2016	40.00	Comprises cleared vacant hobby block rising up from its road frontage. Assumed as suitable for a single dwelling entitlement.	\$8,000	N/A

2016							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
10ha-<60ha							
	327 Long Point Rd, East Long Point	\$649,000	Sep 2016	40.65	40.65 hectare comprising gently undulating alluvial river flats. Improvements comprise hardiplank & colorbond clad 1970's style detached dwelling, detached metal deck clad double car garage and store. Easement to river. Water: 5ML stock & domestic Improvements: \$140,000 Land Value (TFW): \$510,000	\$12,546	\$15,965
	447 Long Point Road, Long Point	\$1,800,000	Aug 2016	55.44	River front allotment of 55.44ha comprising significant equine infrastructure including 16 x post and rail fenced paddocks, 10 x day yards, steel stock yards, vet crush and loading ramp, 14 x stables, mare and foal crush, round yard, 2 x dwellings and 171ML of general security water, 82ML of supplementary water, 5ML stock and domestic. Improvements - \$660,000 Water Value - \$393,300 (171ML @ \$2,300/ML) Water Value - \$123,000 (82ML @ \$1,500/ML) Land (TFW) - \$624,000 (including underground water infrastructure).	\$11,255	\$32,468
	322 Long Point Rd, East Long Point	Jul 2016	\$1,020,000	56	56 hectare allotment with frontage to Hunter River. Comprises of alluvial river flats – part of which may be flood liable in a 1% incidence. Improvements comprise a weatherboard & corrugated iron clad 1960's style detached dwelling; 3 bed, 1bath, 1LUG, 2 sheds. Second weatherboard & corrugated iron clad 1960's style 4 bedroom dwelling. Rural improvements comprise 2 x machinery sheds, centre pivot irrigator and travelling irrigator, cattle yards with crush & loading ramp and 7 x water tanks. Water: 236ML WAL. Improvements: \$335,000 Land Value (TFW): \$390,000	\$6,964	\$18,214
	1498 Castle Rock Rd, Castle Rock	\$700,000	Jul 2016	48.36	Comprises large dwelling and two outbuildings on a small to medium sized lifestyle parcel comprising two separate titles and undulating land evidencing approximately 35% cleared land and the balance is timbered. Improvements: \$300,000 Land: \$400,000	\$8,271	\$14,474
	279 Mareeba Rd, Parkville	\$410,000	Jul 2016	21.49	Irregular shaped gently undulating semi-rural hobby block. Improvements comprise a 200m2 shed partly converted to a 2bed residence. Other improvements comprise stables, cattle yards & loading ramp. Improvements - \$130,000 Land - \$280,000	\$13,029	\$19,078
	421 Merriwa Road, Denman	\$130,000	Jun 2016	30.45	Comprises a semi-rural bush block. Improvements comprise a one bedroom cabin – nil added value. Vacant land value only	\$4,269	N/A
	284 Scotts Flat Rd, Scotts Flat	\$625,000	May 2016	19.88	Sale to adjoining owner. Improvements include dwelling, car accommodation, 3 x sheds. Small river front allotment with 120ML of water. Sale price may not have included water entitlements. Sale to adjoining owner. Improvements - \$200,000 Water - \$276,000. (120 ML @ \$2,300/ML) Land (TFW) - \$425,000 Nil water, \$149,000 with water.	\$21,378 Nil water \$7,495 With water	\$31,439

2016							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
10ha-<60ha							
	43-45 Bureen Road, Denman	\$850,000	Apr 2016	43.92	Situated some 12km south-east of Denman. The land comprises of gently undulating, predominantly cleared alluvial flats. The land has river frontage to the Hunter River and 60Hp pump. There is a Bore on site and variable speed pump for domestic and troughs. The land is serviced by underground mains and 3 x centre pivot irrigators covering 37ha. Improvements include an older style 3 bed cottage plus recently renovated main dwelling which comprises 3 bedroom and double car port. Additional improvements include; machinery shed, store shed/workshop. Improvements: \$400,000 Land: \$450,000	\$10,245	\$19,353
	114 Hamilton Crossing Road, Reedy creek	\$570,000	Mar 2016	12.2	Provides a rural lifestyle property on a 12.2 hectare fully fenced allotment. The property has been improved with detached residential dwelling, garage and ancillary rural improvements including yards. Presented in neat and tidy repair and includes fenced residential curtilage. The 1980's style dwelling evidences established landscaping. The property is bisected by a natural drainage swale and has a dam on site.	\$26,639	\$46,721
	Lot 12 Standen Dr, Lower Belford	\$640,000	Mar 2016	23.6	Vacant battle-axe shaped allotment with direct river frontage. Sold with 50ML of water. Improvements - \$25,000 Water - \$115,000 (50 ML @\$2,300/ML) Land (TFW) - \$500,000 Sold to a proximate owner and approval for dwelling construction.	\$27,119	\$21,186
	140 Middlebrook Dr, Middlebrook	\$915,000	Mar 2016	17.3	Render/weatherboard and colourbond 1990's style detached dwelling with wrap-around screen verandah and inground swimming pool. 4bed, 3bath, 2car. Gently undulating to undulating selectively cleared semi-rural hobby block. Shared gravel sealed access road. Improvements - \$500,000 Land - \$415,000	\$23,988	\$52,890
	1010 Bylong Valley Way, Baerami	\$630,000	Mar 2016	43.35	Gently undulating cleared hobby block situated fronting Bylong Valley Way. Comprises of a dated dwelling, store shed, modern stables, second store shed and fenced to a number of paddocks and day yards. Includes large dam and some 55ML of water entitlements. Approximately 4 ha of vines. Previous sale in Nov 2011 at \$560,000. Modest fencing improvements to property since earlier sale. Improvements: \$310,000 Land: \$320,000	\$7,381	\$14,532
	1085 Bunnan Road, Scone	\$965,000	Feb 2016	21.85	Weatherboard, half log and colourbond 1990's style detached dwelling. Gently undulating to undulating cleared semi-rural hobby block. Gravel shared access road. Improvements comprise 6bed, 6bath which has previously and could be utilised as B&B accommodation. Other improvements include 3 car garage, 2 x 120KL water tanks, inground swimming pool. Improvements - \$565,000 Land - \$400,000	\$18,306	\$44,165

2016							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
60ha-<150ha							
	478 Bureen Road, Denman	\$1,650,000	Sep 2016	115.0	The sale comprises three residential dwellings, two hay sheds, former dairy and 191ML of ground water from three bores, underground infrastructure. The land comprises gently undulating alluvial river flats with river frontage and two dams, cattle yards. Improvements - \$550,000 Water - \$191,000 (191ML @ \$1,000/ML) Land (TFW) - \$909,000 including underground water infrastructure	\$7,904	\$14,348
	1490 Denman Road, Denman	\$950,000	Sep 2016	70.06	70.06 hectare gently undulating alluvial flats with Hunter River frontage. 35ha established Lucerne. DA approval for homestead. Rural improvements comprise machinery sheds, 2 x centre pivot irrigators. We are advised by selling agent that sale price included 150ML of general security water. Potential over stimulated vendor. Water: 150ML of general security water included \$300,000 Improvements: \$100,000 Land Value (TFW): \$550,000	\$7,850	\$13,560
150ha+							
	121 Wollombi Road, Broke	\$4,714,000	Mar 2016	1,063.97	Comprises of a mix of gently undulating predominantly cleared country on the immediate fringe of the village of Broke. The land rises to timbered slopes and steep timbered slopes and ridges. Substantial improvements on site including large residence, attached guest residence, cellar, inground pool, machinery shed (including residential flat), two x detached guest cottages as well as two x smaller rustic cottages. Large water storage dam, large cattle yards and three x open sided works sheds. Includes 486ML of water entitlements. Water: \$486,000 Improvements - \$750,000 Land Value (TFW) - \$3,478,000	\$3,268	\$3,973 (ex water)

2015							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
< 10ha							
	596 Milbrodale Road, Fordwich	\$1,050,000	Mar 2015	9.5	9.5ha allotment rising up from its road frontage. Elevated home site and large dam on site. Expansive rural views from dwelling. Comprises a large modern colorbond clad – 4 x bedroom dwelling constructed within the previous decade and including vaulted ceilings and superior finish. Includes 4 x car garaging and covered outdoor entertainment area. Improvements: \$650,000 Land Value (TFW): \$300,000	\$31,578	\$110,526
10ha-<60ha							
	141 Nandowra Road, Moobi	\$1,050,000	Dec 2015	50.89	Gently undulating cleared alluvial flats with frontage to Dartbrook. Comprises a part enclosed modern 3 bay colorbond shed and timber post and rail days yards. Fenced and planted to shade trees the property includes 2 x stock shelters and "K" line irrigation to some 10ha of improved pasture. We understand the subject property has portable water entitlements water sharing plan (WAL36580 – pumps 50ML & WAL36579 – bore 50ML) from water supply and use - Dartbrook. Analysed as: Improvements \$ 70,000 Portable Water \$ 75,000 Land value (TFW) \$905,000	\$17,783	\$20,632
	57 Ross Lane, Louth Park	\$760,000	Oct 2015	20.64	Comprises a small dated residence and former cow bales and 4 x large sheds, situated on predominantly cleared gently undulating Lucerne flats. The predominance of the land is subject to flooding in a 1% incidence. Evidences productive Lucerne flats and lifestyle parcel. Immediately adjoins Wallis Creek. Improvements - \$350,000 Land - \$410,000	\$19,864	\$36,821
	470 Merriwa Road, Denman	\$430,000	Jul 2015	42.60	Gently undulating to heavily undulating, selectively cleared semi-rural hobby block. Improvements comprise brick & colorbond clad 3 bed dwelling with cathedral ceilings, wrap around verandahs and an above ground pool, as well as a 3 bay shed and carport. Rural improvements comprise two stock dams and a small set of cattle yards.	\$6,572	\$10,093
	355F Redmanvale Rd, Jerrys Plains	\$450,000	Jun 2015	42.29	42.29 hectare predominantly cleared allotment. Comprises weatherboard & colorbond clad 1970's style detached dwelling; 2bed, 1bath, 2LUG, shed. Sale from mining entity. Improvements: \$100,000 Land Value (TFW): \$350,000	\$8,276	\$10,641
	"Parsons Creek Farm" North 2401 Putty Road, Milbrodale	\$1,300,000	Feb 2015	56.80	Re-Sale of Part "Parsons Creek Farm" Property provides a gently undulating to undulating selectively cleared parcel of land. Comprising creek flats and rising to more elevated land. Other improvements include a 1950's style manager's cottages (renovated in 2007) as well as a nine box stable complex (2008) with upstairs office and viewing deck, 2 x hay sheds, cattle yards, round yard, pump shed, former dairy, and equine type fencing and facilities. We understand that the property sold with water entitlements (including 182 shares in the PID) and 200ML WAL – aquifer source (Lower Wollombi Brook Water Source). Extensive post and rail fencing suitable for thoroughbred husbandry. Extensive frontage to creek and internal road infrastructure. Analysed as: Improvements \$350,000 Water \$200,000 Land (TFW) \$750,000	\$13,204 (ex water)	\$22,887 or \$21,126 (ex water)

2015							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
10ha-<60ha							
	62 Squire Close, Belford	\$1,240,000	Feb 2015	40.0	Large, two storey brick, rendered brick and timber clad home with high pitched colorbond clad roof. The residence is situated on 40ha parcel on the northern frontage of the Pokolbin vineyards and readily accessible to the Hunter Expressway. Extensive use of timber lining to interior, high pitched ceilings, elevated situation with 4beds and 3baths as well as ducted A/C. The site is landscaped and provides 3 x large dams and 2 smaller dams, tank storage and small vineyard which is productive. A large block & timber framed machinery shed/garage and PID entitlement and extensive irrigation infrastructure including underground water reticulation.	\$18,750	\$31,000
	62 Butchers Lane, Morpeth	\$473,500	Feb 2015	34.3	Triangular shaped 34.3ha rural parcel of gently undulating to low lying farming land. Rural improvements include a large store shed, cattle holding yards, loading ramp and DA for residential dwelling. Utilised as grazing land predominantly. Proximity to sewer treatment works. A proportion of the total parcel is within the flood plain. Provides town water and there is a natural watercourse bisecting the parcel. Improvements: \$100,000	\$10,889	\$13,804
	340 Thompsons Creek Road, Upper Dartbrook	\$851,000	Jan 2015	56.20	Comprises large WB/CGI clad 4 bedroom dwelling, stables, wash bay, vet crush, feed shed and dressage arena as well as demountable office/studio. Is an irregular shaped inside lot that rises above road level from an area of alluvial flats in the western portion to undulating ridge country towards the eastern boundary. Mainly cleared to western proportion with approx. 24ha of more steeply sloping timbered country to the east. Backs onto national park to the eastern boundary. Provides an elevated home site. Predominantly used for horse grazing and fenced to 16 paddocks. Located approximately 16 kilometres north-west of Scone. 3km of all weather gravel access road via Thompsons Creek Rd, bitumen on Upper Dartbrook Rd. Limited services include power & telephone. Bus services from Upper Dartbrook Rd. Improvements: \$425,000 Land: \$426,000	\$7,580	\$15,142
60ha-<150ha							
	463 Dalswinton Road, Dalswinton	\$2,260,000	Dec 2015	90.35	Sold for \$2,260,000. Comprises 90.35ha on three Titles. Sold with 260ML of water, 2 x dwellings (2008 & 1990), underground infrastructure, 2 x centre pivots, approximately 30ha of Lucerne flats, direct access to Hunter River via an easement, equine improvements comprise breeding & stabling facilities, 7 x larger horse paddocks with animal shelters, modern 8 box stable barn, vet shed, flood lit foaling paddocks, 2 x hay/machinery sheds, steel constructed cattle yards. Improvements - \$849,000 Water - \$598,000 (260 ML @ \$2,300/ML) Land (TFW) - \$813,000 including underground water reticulation infrastructure.	\$8,998	\$25,014

2015							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
150ha+							
	528 Long Point Road, Long Point	\$2,900,000	Dec 2015	105.4	Comprises 105ha of river front land approximately 3km of river frontage. Sold with 200ML of general security water, 187ML bore, irrigation infrastructure, 1 x main line, 2 x centre pivots, 3 x dwellings, car accommodation, 5 x shed including a dairy and milk shed, stock yards and chaff mill. Improvements - \$1,000,000 Water Value - \$470,000 (200 ML @\$2,300/ML) Water Value - \$187,000 (187 ML @\$1,000/ML) Advised by the selling agent apportioned as \$1,850/ML Land (TFW) - \$1,343,000 (including underground infrastructure, 2 x centre pivots)	\$11,833	\$27,514
	"Yarraman Estate" 700 Yarraman Road, Wybong	\$1,950,000	Aug 2015	361.2	Comprises of a number of independent parcels including alluvial creek flats rising to cleared grazing and timber slopes and ridges. Substantially improved specific to wine grape growing and processing including 8 x residential dwellings, 4 x machinery sheds, cellar door, laboratory, processing shed, cool room, barrel room, loading dock, storage vats, yards weighbridge and on site water storage. Includes some 756.5ML of water entitlement. Agent offered to the market by expressions of interest under instructions from receiver appointed. Purchased by proximate land owner. Improvements - \$500,000 Water: \$756,000 Land Value (TFW) - \$694,000	\$1,921	\$3,305 (ex water)
	"Tunnibuc" Chichester & Salisbury Rd, Tillegra via Dungog	\$3,750,000	Aug 2015	1,045	Comprises gently undulating to undulating land rising to timbered slopes and ridges. Part of the Hunter Water offering post State Gov. decision to cease Dam proposal. Includes 4 x dwellings and cattle yards. Double frontage to Williams River, frontage to Moolee Ck. Improvements - \$500,000 Land Value (TFW) - \$3,250,000	\$3,110	\$3,588
	"Munni South" Salisbury Rd, Tillegra via Dungog	\$2,900,000	Mid 2015 (believed to have exchange)	1,240	Comprises gently undulating to undulating land rising to timbered slopes and ridges. Part of the Hunter Water offering post State Gov. decision to cease Dam proposal. Includes 4 x dwellings, machinery shed, cattle yards and 86ML irrigation license. Double frontage to Williams River, frontage to Native Dog Creek & Sheep Station Ck. Improvements - \$300,000 Land Value (TFW) - \$2,650,000	\$2,137	\$2,338
	"Quartpot" Salisbury Rd, Tillegra via Dungog	\$5,300,000	Jul 2015	1,253	Comprises gently undulating to undulating land rising to timbered slopes and ridges. Part of the Hunter Water offering post State Gov. decision to cease Dam proposal. Includes 5 x dwellings, machinery shed and cattle yards. Frontage to Black Camp Ck and Quartpot Ck. Improvements - \$800,000 Land Value (TFW) - \$4,500,000	\$3,591	\$4,229

2015							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
150ha+							
	"Bhima", Moobi Road, Scone	\$5,180,000	Jun 2015	165.9	<p>"Bhima" comprises 165.90 hectares (79.9ha of alluvial flats and the balance is gently undulating to steeper cleared slopes). "Bhima" includes a 400ML irrigation licence assessed by 2 x wells as well as underground mains and irrigation infrastructure to approximately 65% of the property. "Bhima" features a 50ML grey water storage dam and provides frontage to 2 x water sources - Kingdon Ponds and Middle Brook. Improvements include the 1910 constructed historic "Bhima" Homestead which was originally constructed circa 1910. Other improvements within the residential curtilage include; studio, tennis court, inground swimming pool, detached laundry, stables/workshop, detached wash room, detached open sided shed, detached carport and detached single car garage. Other rural and equine improvements include an open sided machinery shed with enclosed areas on the western and eastern elevations, 18 x box stable complex, 6 x metal sand rolls, 3 x bedroom detached cottage, 4 x bedroom detached cottage (converted to office accommodation), 4 x bedroom detached cottage, open sided shed with holding pens & round yard, large open sided hay shed, 1 x 3 box stable complex, 1 x 4 box stable complex, 1 x 6 box stable complex, storage shed, open sided shed, 2 x vet buildings (with mare and foal crush) and a 6 x bay carport. The property provides a water access licence (WAL) of 400ML and accessed from 2 x wells – from Dart Brook water source.</p> <p>Analysed as Improvements \$2,030,000 Portable water \$ 400,000 Land (TFW) \$2,750,000</p>	\$16,576	\$31,223
	1820 Wybong Road, Castlerock	\$1,370,000	Jun 2015	170.1	Gently undulating, predominantly cleared land bisected by a small creek, pasture improved and well maintained hobby parcel utilised for grazing and fattening. Improvements comprise a hardiplank and metal clad 1980's constructed 3 bed dwelling with verandah, garden shed, carport, machinery shed, older hay shed, landscaping and 2 sets of cattle yards (1 x large steel framed set). Offered to the open market for sale and eventually purchased by local mining company. Suitable for subdivision under existing zoning.	\$6,500	\$8,054

2014							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
< 10ha							
	186 Phoenix Park Rd, Phoenix Park	\$390,000	Feb 2014	6.67	Near regular 6.67ha rural parcel currently utilised for Lucerne production, and evidences a farm shed and a 44ML water license and DA to build a residence. Improvements: 75,000 Water license: \$66,000	\$37,300	\$58,470
10ha-<60ha							
	130 Bylong Valley Way, Baerami	\$650,000	Dec 2014	14.30	Gently undulating river flats – some 9ha of which appear to be above the former river bed and the balance which is grassed but appears to be within the broader upper banks of the Goulburn River. Comprises of a small residential dwelling as well as two large sheds and stock shelters. Fenced to a number of paddocks – the property comprises a small rural lifestyle parcel. Land value appears to evidence a “block value” for a lifestyle parcel. Includes six water licenses with property totalling some 90units from the Lower Goulburn River including a separate 5 unit entitlements for stock and domestic. There is another entitlement of 1,453 units and a separate stock and domestic entitlement of 5 units registered to the property but which we have assumed has not been transferred with the property. Improvements: \$350,000 Water: \$180,000 Land: \$120,000 (or \$300,000 including water)	\$8,391	\$45,454
	1064F Middle Falbrook Road, Middle Falbrook	\$540,000	Nov 2014	10.25	Comprises alluvial creek flats with broad frontage to Glennies Creek, a residential dwelling and three x sizable farm sheds. The land is utilised for fodder cropping and has a shared gravel road access. Improvements: \$250,000 Land: \$190,000	\$18,536	\$52,682
	1156 Castle Rock Rd, Muswellbrook	\$405,000	Oct 2015	40.03	Undulating land rising up from frontage to Spring Creek ROW in undulations to a high point towards the north-western boundary. The land evidences a number of natural drainage lines and gullies and is approximately 10% cleared and 90% timbered. There is a small set of timber cattle yards situated at the Spring Creek ROW road frontage and a small store shed on site. The subject property provides a shared access.	\$9,492	\$10,117
	“Hunternvale” 470 Dalswinton Rd Dalswinton	\$760,000	Oct 2014	45.73	Situated some 10km south-east of Denman. The land comprises of gently undulating, predominantly cleared alluvial flats rising to lighter slopes & shoulders. The land does not have river frontage, although the sale does include some 20ML of general security Hunter River water entitlements, with an access easement to the river. The land is serviced by underground mains and has approx. 12 hectares of established vineyards which is of little added value. Large Dam on site. Improvements include an older style 4 bedroom dwelling, a second 2 bedroom dwelling on site, machinery shed, hay shed, former dairy and yards. Water: \$30,000 Vines: \$60,000 Improvements: \$310,000 Land: \$390,000	\$8,528	\$16,619
	106 Brush Farm Rd, Raworth	\$350,000	Oct 2014	13.61	Irregular shaped 13.61ha rural parcel with River frontage and held in two titles. Frontage to Brush Farm Road and utilised for rural production as alluvial river flats. Two farm sheds on site. Improvements: \$75,000	\$20,205	\$25,716

2014							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
10ha-<60ha							
	463 Milbrodale Road, Fordwich	\$400,000	Sept 2014	16.39	16.39 hectare allotment with frontage to Wollombi Brook. Includes small store. Comprises of alluvial creek flats – part of which may be flood liable in a 1% incidence. Water: Nil Improvements: \$10,000 Land Value (TFW): \$390,000 Shows: \$24,405/ha of improved site area or \$23,795/ha as vacant land.	\$23,795	\$24,405
	521 Martindale Rd Denman	\$730,000	Jun 2014	51.53	Situated approximately 8km south of Denman with dual road frontage to Martindale Road & Bureen Road. Comprising gently undulating alluvial creek flats, suitable for irrigation and serviced by a 190ML water entitlement. Property has broad frontage to Martindale Creek. Improvements comprise a renovated weather-board cottage, a modest second 3 bedroom timber cottage, a small one bedroom cottage, large machinery shed & stock yards. Water: \$95,000 Improvements: \$335,000 Land: \$395,000	\$7,665	\$14,166
	250 Blairmore Lane, Aberdeen Lot 1 DP974746	\$740,000	May 2014	16.19	Alluvial flats, Bisected by Kingdon Ponds and fronting Dartbrook. Detached dated dwelling plus modern dwelling and farm shed. Nil water entitlements recorded. Improvements: \$300,000 Shows: \$27,177/ha of vacant site area including dwelling entitlement and water entitlements.	\$45,707	\$27,177
	47 Knockfin Road, Luskintyre	\$1,470,000	Jan 2014	25.05	25.05ha rural property bordered by the Hunter River. Zoned RU1 Primary Production. Improvements comprise a substantial, two storey residential dwelling providing 5 bed, 3 bath and a detached 4 LUG. Rural improvements comprise approximately 3ha of olive trees, 2 x machinery sheds and small set of horse stables. Imps: \$545,000 Shows: \$61,122/ha of improved site area. Analysed to \$37,000/ha as vacant site area.	\$37,000	\$61,122
	1047 Castle Rock Rd, Castle Rock	\$670,000	Jan 2014	43.33	Undulating irregular shaped parcel which is selectively cleared and provides an elevated home site. Weathertex & colourbond clad transferable home with 4 bedrooms, garage, carport and inground pool. 3 x water tanks - 1x95KL, 1x22KL, 1x10KL; 2 x dams + bore with windmill. The property is run on solar power only and is not connected to the grid. Purchased by mining company after being actively marketed to open market.	\$9,500	\$15,462

2014							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
60ha-<150ha							
	"Appledell" 76 Goulburn Dr, Sandy Hollow	\$610,000	Dec 2014	66.46	The land is bisected by the main rail line and is also bisected by Peberdys Road. The land also has frontage to the Golden Highway (Merriwa Road). Improvements comprise a weather-board dwelling, large machinery shed, 2 x additional store sheds, former dairy and stock yards. The land is gently undulating to sloping and bisected by Halls Creek and irrigated in part. Predominantly alluvial creek flats. The majority of the property is suitable for cropping. Improvements: \$250,000 Land: 360,000	\$5,416	\$9,178
	1045 Castlerock Rd, Muswellbrook	\$920,000	Aug 2014	97.35	Comprises two separately titled, predominantly cleared rural hobby blocks. The site comprises: Lot 5: 57.13ha and small cattle yards, water tank and stock trough on gently undulating to undulating grazing land. Lot 42: 40.22ha of predominantly cleared, gently undulating to undulating grazing land. Each allotment has a positive prospect of achieving an independent residential building entitlement. Purchased by mining company after being actively marketed to open market. Sale apportioned as follows: Lot 5 = \$530,000 Lot 42 = \$390,000	\$9,450	N/A
	239 Allen Bridge Rd, Segenhoe	\$2,199,200	Aug 2014	98.74	Provides cleared, gently undulating alluvial river flats providing frontage to the Pages River. Improvements comprise two (2) x cottages presented in poor condition at the date of sale, as well as two (2) x machinery sheds. The property was purchased by the adjoining owner. We have adopted a 20% discount with consideration to adjoining owner sale influence. \$2,199,200 – deduct 20% - adopt say \$1,760,000. Imps: \$100,000 Land: \$1,660,000 TFW	\$16,811 (adjusted for adjoining owner influence)	\$17,824 (adjusted for adjoining owner influence)
	1064D Middle Falbrook Rd, Middle Falbrook	\$960,000	Feb 2014	79.72	Comprises approximately 15ha alluvial creek flats with frontage to Glennies Creek, a large residential dwelling and farm shed, stables and second dwelling. The land is utilised for fodder cropping and has significant additional equine specific infrastructure on site. Water entitlements to the land. Access is via a shared gravel road access. Improvements: \$450,000 Land: \$510,000	\$6,397	\$12,042

2014							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
150ha+							
	"Wingarra" 7245 Bylong Valley Way, Bylong	\$4,175,000	Sep 2014	910.31	Comprises a cattle breeding and finishing concern which previously was utilised for thoroughbred & stud purposes. Of significance locally, the property provides cleared alluvial flats, rising to gently undulating grazing - selectively cleared to shade timber and rising again to a small area of timbered slopes towards the western boundary. The property provides for a large area of arable land utilised for fodder crops as well as a large area of pasture improved grazing. The improvements include a large heritage listed sandstone homestead, manager's cottage as well as two smaller cottages. There is a hay shed, machinery shed, sandstone stables, two sets of cattle yards. The homestead has been refurbished – along with a number of other improvements - and a new set of steel cattle yards (400 head capacity) have been constructed since 2007. The residential curtilage has substantial, established landscaping. The fencing also has been renewed since 2007 and the fertiliser regime for all arable land and pasture improvement program has been coordinated over the previous 8 years. There is a 419 ML irrigation license which we have analysed at \$1,000/ML. Water: \$419,999 Improvements - \$1,000,000 Land Value (TFW) - \$2,756,000	\$3,027	\$4,586
	"Yarran View" 86 Lee Creek Road, Lee Creek (Upper Bylong)	\$925,000	Sep 2014	442.0	Comprises of two allotments – one of which has all structural improvements on site. The land comprises of a small area of arable creek flats rising to cleared grazing and selectively cleared grazing and timbered slopes and steep ridges. Some 43ha of flats, 184ha of cleared and selectively cleared grazing the balance is timbered slopes and ridges. Improvements comprise of a 4 bedroom, HP cottage, Machinery Shed, Hay Shed, significant water tank storage, 2x equipped bores (one is dysfunctional) and stock yards, and dams and creek frontage. Agent offered to the market by expressions of interest and purchased by a mining company at market value. Sold previously in July 2011 for \$1,100,000 showing \$2,488/ha improved for 442ha. Improvements - \$225,000 Land Value (TFW) - \$700,000	\$1,583	\$2,092
	3361 Bylong Valley Way, Baerami	\$2,250,000	Feb 2014	936.89	Comprises predominantly cleared, selectively cleared valley floor with a modest component of lightly timbered and timbered shoulders, slopes & ridges. Situated on site are 2 dwellings, 2 large sheds and 4 smaller sheds, a number of silos and dams. Approximately 155ha of timbered shoulders, slopes & ridges and 781.89ha of cleared grazing land and some arable land. Improvements - \$600,000 Land Value (TFW) - \$1,650,000	\$1,761	\$2,401

2013							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
< 10ha							
10ha-<60ha							
	991 Castle Rock Rd, Castle Rock	\$730,000	Dec 2013	39.44	Undulating to sloping land, bisected by a small creek. Includes 4,500 olive trees (19.44ha) which are not irrigated. Improvements include a weathertex & colourbond clad 4 bedroom house with ducted A/C; a weathertex and metal deck clad shed with amenities; 1 x dam + bore with windmill; 3 x water tanks – 1x90KL, 1x20KL, 1x5KL. Purchased by mining company after being actively marketed to open market.	\$9,500	\$18,509
	1010 Bylong Valley Way, Baerami	\$615,000	Jul 2013	43.35	Gently undulating cleared hobby block situated fronting Bylong Valley Way. Comprises of a dated dwelling, store shed, modern stables, second store shed and fenced to a number of paddocks and day yards. Includes large dam and some 55ML of water entitlements. Approximately 4 ha of vines. Previous sale in Nov 2011 at \$560,000. Modest fencing improvements to property since earlier sale. Improvements: \$310,000 Land: \$320,000	\$7,266	\$14,186
60ha-<150ha							
150ha+							
	Various Lots incl. Lot 1 DP319796 Goorangoola Rd, Greenlands	\$220,000	Nov 2013	381.51	Undulating to steep undulating land rising to timbered slopes and ridges. Water availability includes a number of dams on site, gullies and drainage lines, including Falbrook frontage. Native pastures only. The property is situated approximately 36km north of Singleton. 4 wheel drive access only to the land. No legal access to the site at the date of sale.	\$576	N/A
	3450 Wybong Road, Muswellbrook	\$700,000	Jul 2013	111.19	Gently undulating selectively cleared land and rising to timbered steep sloping ridges. The land rises up from its frontage to a small Creek which bisects the parcel. Gravel sealed entry road off Wybong Road in proximity to Jerry's Plains. Improvements comprise a dwelling and 2 outbuildings and stables and day yards. There appears to be 3 x dams on site and the land is perceived to have little agricultural value. Improvements: \$200,000 Land: \$500,000	\$4,496	\$6,295
	2660 Pages Creek Rd, Pages Creek	\$600,000	Apr 2013	819.9	Sloping to steep sloping block covered with green timber, much is regrowth (50% sloping to steep, 50% undulating). No services available to the site. Access via right of way across adjoining land and gravel road access. There is subdivision potential for some 14 x 40ha lots. DA was lodged in August 2013 for a 9 lot subdivision aimed at lifestyle/retreat type market.	\$731	N/A
	Lot 2 Martindale Road, Martindale	\$1,148,000	Feb 2013	135.2	Gently sloping predominantly cleared parcel rising up from broad Martindale Creek frontage. Land comprises some 20ha of timbered slopes and ridges and the balance of 115.2ha is cleared grazing land. Improvements comprise a dwelling; 4 x substantial sheds (including stable complex); day yards, as well as a number of outbuildings and stock shelters in various fenced paddocks. There appear to be 2 x dams on site and a number of natural drainage lines. Improvements: \$400,000 Land (TFW): \$748,000	\$5,532	\$8,491

2012							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
< 10ha							
10ha-<60ha							
	Lot 100 Wybong Rd, Wybong Lot 100 DP1118411	\$205,000	Mar 2012	45.97	Predominantly steep sloping timbered land rising up from small cleared area at road frontage (approx 7 ha) to timbered slopes and ridges. Does not appear to have structural improvements on site.	\$4,568	N/A
60ha-<150ha							
150ha+							
	Lot 3 DP1069049 Gundy Rd, Scone	\$830,000	Nov 2012	322.9	Vacant sparsely timbered, gently undulating land rising to sparsely cleared slopes and timbered ridges. Stressed vendor sale. 25 KM east of Scone. Rated to Waverley Road	\$2,570	N/A
	"Broomfield" Lot 2 DP1069049 Gundy Rd, Scone	\$562,000	Sep 2012	102.31	Vacant sparsely timbered, gently undulating land rising to sparsely cleared slopes and timbered ridges. Stressed vendor sale. 25 KM east of Scone. Rated to Waverley Road	\$5,493	N/A
	"Aston" Lot 21 DP1041938 Waverly Road, Scone	\$1,200,000	Oct 2012	191.42	Vacant rural land, predominately cleared, gently undulating land rising to selectively cleared grazing. Improvements comprise cattle yards only. Stressed vendor sale. 25 KM east of Scone. Frontage to the Isis River.	\$6,268	N/A
	1061 Goorangoola Rd, Greenlands	\$2,450,000	Aug 2012	764.3	Comprises undulating to steep undulating country rising to timbered slopes and ridges. Predominantly cleared land with scattered timber throughout, particularly along creek lines and gullies. Comprises 2 x cottages (main and 2 nd cottage) Stables, machinery shed and workshop as well as ancillary improvements. Frontage to 2 x creeks and a number of earth dams on site. Provides predominantly native pasture. Improvements comprise a dated dwelling (which has been renovated since purchase). Situated some 27km north of Singleton. Improvements: \$300,000 Land: \$2,150,000	\$2,813	\$3,205

2011							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
< 10ha							
	111 Glendon Lane, Glendon	\$510,000	Oct 2011	4.32	Large metal clad shed with 'Dutch barn' style upper level. Utilized as large modern residential fit out as well as substantial storage. Large tank and dam on site. Small, cleared hobby block. Improvements = \$250,000 Land = \$260,000	\$60,185	\$118,055
	593 Redmanvale Rd, Jerry Plains	\$372,000	Apr 2011	4.05	Small hobby block approximately 60% cleared and providing a small WB cottage with covered deck, carport and garage. All appear in good condition. Improvements = \$190,000 Land = \$182,000	\$44,938	\$91,851
	694 Muscle Creek Rd, Muswellbrook Lot 21 DP733930	\$750,000	Mar 2011	7.25	Substantial brick veneer & colourbond 2000's style dwelling with double carport and 2 x detached colourbond sheds. Near level small triangular shaped parcel. Improvements = \$400,000 Land = \$350,000	\$48,275	\$103,448
	110 Dalswinton Road, Dalswinton	\$645,000	Mar 2011	8.00	Cleared gently sloping corner allotment. Elevated with rural aspect. Substantial residence on site with garage and in ground pool. Two outbuildings on site and a number of water tanks. Improvements = \$350,000 Land = \$295,000	\$36,875	\$80,625
10ha-<60ha							
	Lot 52 and Lots 1-6 Rosemount Road, Denman	\$250,000	Dec 2011	17.43	Predominantly timbered regrowth vegetation on small hobby block. Was recently part of larger holding and subdivided for sale purposes. Bisected by Rosemount Road and the rail corridor the block has a small part parcel situated on the western side of Rosemount Road and which has frontage to the Goulburn River. Vacant land.	\$14,343	N/A
	316 Redmonvale Rd Jerrys Plains	\$670,000	Nov 2011	64.25 (32.85+ 31.47)	2 x independently titled cleared allotments each with an independent residential building entitlement. Vacant land with direct road frontage. Close proximity to Jerrys Plains village. Purchased by mining company – modest premium only.	\$10,428	N/A
	390 Redmonvale Rd, Jerrys Plains	\$1,090,000	Nov 2011	57.3	Cleared gently undulating parcel with easement for water from the Hunter River. Substantial BV/CT homestead style 4 bedroom dwelling with verandah to three sides. 2 x farm sheds, 28ML water entitlement from the Hunter River and 19ML entitlement from Appletree Creek. Cattle yards and modest landscaping. Significant area planted to grapes and whilst maintained not productive for 2 years prior to sale. Close proximity to Jerrys Plains village. Water = \$70,000 Improvements = \$450,000 Land = \$570,000 Purchased by mining company – modest premium only.	\$10,000	\$19,022
	193 Gresford Road, Sedgefield	\$550,000	Sep 2011	18.67	Predominantly cleared hobby block with large 324m2 colorbond shed converted to residential accommodation. Two dams on site as well as timber yards. Improvements = \$150,000 Land = \$400,000	\$21,424	\$29,459
	690 Martindale Rd, Martindale	\$605,000	Sep 2011	16.51	Triangular shaped parcel with dual road frontage. Cleared gently undulating hobby block with light loam soils and in proximity to alluvial flats. Equipped well on site. BV/C'bond clad modern dwelling. Ancillary improvements include hay shed; machinery shed and cattle yards. Improvements = \$325,000 Land = \$280,000	\$16,959	\$36,644

2011							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
10ha-<60ha							
	355F Redmonvale Rd, Jerrys Plains	\$616,000	Sep 2011	42.29	Predominantly cleared hobby block with modest residence and outbuilding on site. Residence is in good condition. Close proximity to Jerrys Plains village. Purchased by mining company – modest premium only. Improvements = \$170,000 Land = \$446,000	\$10,546	\$14,566
	255 Rosemount Rd, Denman	\$870,000	Aug 2011	45.66	Large modern residence and detached ancillary storage and garaging al of modern design and construction. Improvements include substantial fencing suitable for equine pursuits. Predominantly cleared hobby parcel bisected by a small creek and also bisected by Rail line. Small area of land is situated on the south side of rail corridor. Water entitlement from the Goulburn River = 40ML. Water = \$80,000 Improvements = \$400,000 Land = \$390,000	\$8,541	\$19,053
	30 Holz Close, Mitchells Flat	\$415,000	May 2011	30.96	Vacant gently undulating 50% timbered semi rural 30.96ha allotment.	\$13,404	N/A
	29 Holz Close, Mitchells Flat	\$335,000	Feb 2011	21.63	Vacant gently undulating 50% timbered semi rural 21.63ha allotment. Bisected by a natural watercourse – south-west corner.	\$15,487	N/A
	498 Wollombi Road, Broke	\$550,000	Feb 2011	14.90	Comprising of "Robiana" a gently undulating to low lying parcel including brick and colourbond cottage, olive grove and small area of vines. Substantial area of the site is low lying land inundated by water as a low lying catchment lagoon for Wollombi Brook. The land has frontage to Wollombi Brook.	\$16,778	\$36,912
60ha-<150ha							
	316 Redmonvale Rd, Jerrys Plains	\$670,000	Nov 2011	64.25 (32.85+ 31.47)	2 x independently titled cleared allotments each with an independent residential building entitlement. Vacant land with direct road frontage. Close proximity to Jerrys Plains village. Purchased by mining company – modest premium only.	\$10,428	N/A
	2237 Jerrys Plains Rd, Jerrys Plains	\$625,000	Jul 2011	66.28	Large irregular shaped hobby block with 4bed HP clad dwelling and large feed storage shed and outbuildings. Stressed vendor sale at auction. Purchased by mining company. Improvements = \$200,000 Land = 425,000	\$6,412	\$9,429
150ha+							
	Marquee Stud formerly known as Kulani Park Warrah Ridge Rd, Willow Tree	\$2,050,000	Sep 2011	468	Gently undulating to undulating selectively cleared grazing land. Rural improvements comprise a number of post & rail fencing which is presented in good condition, 15 box stable barn, wash bay and tack room, undercover vet area, mare & foal crush, 10 flood lit foaling down yards. Residential improvements comprise a 3 bedroom residential dwelling. Other rural improvements comprise 2 x timber & steel hay sheds, 2 x timber & steel hay/machinery sheds, 2 x silos, cattle yards, crush & loading ramp and 2 x round yards.	\$2,564	\$4,380
	Part Lot 149 Woerdens Rd South, Clarence Town DP 752497	\$800,000 As advised by purchaser (Registered records indicate \$650,000 recorded)	Jul 2011	142.3	Gently undulating to undulating selectively cleared grazing parcel. Subdivision from larger holding and servicing to be provided as a condition of purchase. Provides direct road frontage and various dams and natural catchments on site. Vacant land with a number of identified home sites within the boundaries. We were advised by the purchaser that the purchase price was \$800,000 in total. The recorded consideration is \$650,000.	\$5,621	N/A

2010							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
< 10ha							
	380 Muscle Creek Road, Muswellbrook Lot 30 DP816946	\$340,000	Jul 2010	7.00	Dilapidated weatherboard & corrugated iron 1920's style dwelling. Small yards on near level regular shaped parcel adjoining rain line. Improvements of little added value. Improvements = \$50,000 Land = \$290,000	\$41,428	\$48,571
10ha-<60ha							
	210 Inglewood Road, Muswellbrook	\$435,000	Dec 2010	39.46	Comprises a predominantly cleared hobby block with access via adjoining land. Includes some 600 Olive trees and infrastructure on site as well as a Machinery shed – improved to cater for weekend living quarters. The land adjoins Rail line and is bisected by Transmission easement. Includes a 5 ML water entitlement which is utilised to service the Olive grove. Improvements = \$75,000 Vacant Land = \$360,000 (incl. Olive trees & water)	\$9,123	\$11,023
	463 Milbrodale Road, Fordwich	\$335,000	Dec 2010	16.39ha	Providing a vacant gently undulating cleared parcel with frontage to Wollombi Brook and a small dilapidated 20m2 store shed on site. Building pad cleared and shed construction commenced subsequent to the date of purchase.	\$20,439	N/A
	Lot 1 DP982775 Kelman St, Belford	\$240,000	Nov 2010	12.14ha	Vacant semi rural hobby block, selectively cleared approximately 20% to heavily timbered 80%. 12.14ha allotment.	\$19,769	N/A
	1325 Broke Road, Broke	\$320,000	Sep 2010	16.68ha	Providing an undulating to steep sloping timbered hill with shared access off Broke Road. The property appears to be vacant.	\$19,184	N/A
	383 Wollombi Road, Broke	\$810,000	Aug 2010	12.95	Comprises a gently undulating to undulating, selectively cleared rural allotment. The property is bisected by Wollombi Road and provides frontage to Wollombi Brook. Residential improvements comprise a restored homestead with in-ground swimming pool. Other improvements comprise a dam, cattle yards and approximately 6ha of vines, as well as a 5megalitre water licence.	\$35,521	\$62,548
	563 Redmanvale Road, Jerry Plains	\$488,000	Jul 2010	12.01	Selectively cleared hobby block approximately providing a weatherboard 1920's style cottage with verandah. Appears to have been moved onto the site and is in renovated condition. Detached "Dutch barn" style colorbond shed and small timber yards. All appear in good condition. Large Dam on site. Improvements = \$275,000 Land = \$213,000	\$17,735	\$40,632
	763 Muscle Creek Rd, Muscle Creek	\$900,000	Jun 2010	51.42	Small residential improvements on site in addition to farm outbuildings. Gently undulating cleared creek flats rising to cleared slopes. Water entitlement (Water Supply Works and Water Use) from Muswellbrook Water source. Improvements = \$200,000 Land = \$700,000	\$13,613	\$17,502
	15 Dry Creek Rd Ellalong Lot 121 DP 1126842	\$460,000	Feb 2010	42.21	Comprising gently undulating to undulating predominantly cleared allotment. Vehicle access is available from Dry Creek Road which is gravel sealed. Subdivided from original total parcel. The property is also improved with 3 dams. Superior cleared land, superior aspect. Available water. More removed from village centre than subject. Discussions with vendor (executor), vendors solicitor and agent confirm arms length sale.	\$10,897	N/A
60ha-<150ha							
150ha+							

2009							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
< 10ha							
	320 Faulkland Road, Faulkland	\$510,000	Jun-2009	7.99	The land provides an undulating, predominantly cleared allotment. The property provides modest hard plank & cement tile clad residential improvements and appears to be utilised as a B&B; detached double garage.	\$63,830	\$47,677
10ha-<60ha							
	Lot 1 Muscle Creek Rd, Muswellbrook Lot 1 DP1146475	\$495,000	Dec 2009	53.81	Gently undulating vacant rural hobby parcel with frontage to both Muscle & Middle Creeks. Predominantly cleared site suitable for residential dwelling entitlement.	\$9,199	N/A
	863 Johnstons Creek Road, Stroud Road	\$1,100,000	Nov-2009	54.9	Gently undulating to undulating, predominantly cleared river flats rising to cleared undulating rural land. Residential and rural improvements include original BJ Slab hut, 1960s style weatherboard/corrugated iron dwelling, detached double carport, machinery shed, stock yards, loading ramp, - 11 dams. SOLD TO GLOUCESTER COAL	\$15,832	\$20,036
	3320 Wybong Road, Muswellbrook	\$285,000	Nov 2009	57.26	Steep sloping heavily timbered land rising to timbered ridges. Nil building improvements evident on site.	\$4,977	N/A
	Bernam Wood Lot 101 Turanville Rd, Scone	\$785,000	Oct 2009	42.49	Improvements comprise a modest hardiplank & corrugated iron detached dwelling; number of timber post & rail fenced paddocks and 2x bay open sided hay shed. Gently sloping cleared allotment. Enjoys a 221ML water license (bore) source is Dart Brook. Improvements: \$130,000 Water: \$221,000 Land: \$434,000	\$10,241	\$17,840
	154 Sanctuary Rd, (Millfield Rd) Ellalong Lot 1 DP185087	\$590,000	Sep 2009	31.41	A predominantly cleared undulating hobby block with a frontage north to Millfield Road (Sanctuary Road) and a secondary frontage to the unformed Truro Street. The land is bisected by a large drainage swale and borders the Ellalong Lagoon. There are a number of identified building platforms on the land and which commands expansive rural outlook. Superior Hobby Block – available water, superior outlook and predominantly cleared evidencing a number of suitable building sites.	\$18,783	N/A
	2 Bridgeman Road, Dunolly (Singleton)	\$780,000	Sep/2009	29.19	Medium sized alluvial river flats utilised as small vineyard. Purchased for development to retail purposes but refused by Council. Residence and farm outbuildings. Parcel close to town.	\$16,443	\$26,721
	95 Sanctuary Rd, (Lot 5 Millfield Rd) Paxton Lot 5 DP714067	\$430,000	Aug 2009	40.83	A predominantly timbered gently undulating vacant hobby block running south to Millfield Road (Sanctuary Road) and providing identified cleared building platforms towards its Sanctuary Road frontage. Providing expansive rural views. Comparable Hobby Block – dated sale – superior cleared areas and superior aspect. More removed from village centre than subject. Discussions with vendor (executor), vendors solicitor and agent confirm arms length sale.	\$10,531	N/A
	Lot 18 Combo Lane, Combo (Singleton)	\$1,275,000	Aug 2009	34.59	Medium sized alluvial river flats utilised for cropping. Some rural outbuildings on site. Comprises 3 x contiguous parcels close to town.	\$34,692	\$36,860
	721 Upper Avon Road, Craven	\$600,000	Aug 2009	39.6	The property provides 90% cleared gently undulating to undulating land, rising to timbered slopes and ridges. Provides river frontage to the Avon River along the western boundary. Modest weathertex & colourbond clad detached dwelling and triple car garage.	\$15,152	\$11,591
	610 Wollombi Road, Broke	\$450,000	Jul 2009	12.83	Asbestos cement and corrugated iron clad store shed with power connected. Otherwise timbered vacant allotment rising up from its Wollombi Brook frontage to provide an elevated home site.	\$29,228	\$35,074

2009							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
10ha-<60ha							
	120 Reedy Creek Rd, Hollydeen	\$570,000	Jul 2009	52.89	Small creek bisecting property. 80% cleared gently undulating grazing land rising to 20% timbered slopes and ridges. Residential improvements and outbuildings on site. Improvements = \$200,000 Land = \$370,000	\$6,995	\$10,777
	579 Gloucester Tops Rd, Faulkland	\$325,000	May 2009	43.61	Undulating to steep undulating country, 50% timbered and set back from road frontage. Appears to provide nil residential improvements.	\$7,452	\$7,452
	158 Cressfield Rd, Scone	\$1,450,000	Jun 2009	54.80	Gently undulating to undulating semi rural land. River frontage. Modest residential cottage; other rural improvements comprise open sided hay shed, machinery shed. Advised sold to adjoining owner.	\$20,072	\$26,460
	2549 Waukivory Road, Waukivory	\$360,000	May-2009	25.11	70% cleared - undulating to steeply undulating rural allotment. Comprises modest weatherboard & corrugated iron clad 1920's style detached dwelling and modest ancillary rural improvements.	\$10,354	\$14,337
	143 Phillips Road, Waukivory	\$760,000	Apr-2009	29.81	Undulating rural land with existing timber plantation (Spotted Gum) covering approximately 90% of the property; Plantation appears to have been thinned and is presented in maintained condition. Residential improvements include - Western red cedar 1990's style detached dwelling; plus second level mansard style addition. Ancillary rural improvements include a 5 bay open sided store shed and machinery shed - all of which are presented in fair to poor condition. Analysed sale to \$550,000 -excluding timber asset. Timber asset evidences added value at some \$8,000/ha.	\$17,977	\$25,495
	3220 Wybong Road, Muswellbrook	\$420,000	Apr 2009	42.79	Approximately 10% selectively cleared undulating land and rising to steep undulating timbered slopes and ridges. Hardiplank and metal deck clad cottage and outbuildings. Improvements = \$200,000 Land = \$220,000	\$5,141	\$9,815
	68 Combo Lane, Combo (Singleton)	\$800,000	Apr 2009	11.13	Small parcel of alluvial river flats with residence and ancillary farm buildings. River front land in close proximity to town. 2 x contiguous parcels.	\$40,341	\$71,877
	45 Gillieston Road, Gillieston Heights	\$1,950,000	Apr 2009	10.32	Vacant rural parcel - Category 1 land under the MUSS - anticipate residential zoning prior to 2011 LEP. On the basis of 10 lots per hectare the dollar rate per raw lot is \$18,534 per lot.	\$188,953	N/A
	143 O'Connor Road, Pokolbin	\$760,000	Mar 2009	32.37	Comprises an irregular shaped vacant semi-rural allotment located within 1(a) Rural zone. Mortgagee in possession - sold at auction. Shows: \$23,478/ha as vacant land (TFW)	\$23,478	N/A
	8518 New England Highway, Muswellbrook	\$755,000	Feb 2009	41.30	Brick/cement tile 1980's style detached dwelling; detached double car garage. Other improvements include corrugated iron clad dog kennels, small metal constructed stock yards & loading ramp. Provides an irregular shaped gently undulating 50% cleared to heavily timbered rural parcel of land. . Improvements = \$200,000 Land = \$555,000	\$13,438	\$18,280
	4427 Bucketts Road South, Gloucester	\$600,000	Jan-2009	38.42	The property provides a vacant gently undulating to undulating pasture improved semi rural allotment. Nil residential improvements. We are advised that the previous owner investigated higher density rural residential development without success and we understand that the property enjoys a residential building entitlement. We have considered the sale as a vacant single semi rural home site.	\$15,617	\$15,617

2009							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
60ha-<150ha							
	Lot 22 Sandy Creek Road, Muswellbrook	\$800,000	Oct 2009	120.6	Predominantly cleared gently undulating to sloping grazing land rising up to a small timbered hill. Residential improvements and ancillary farm buildings on site. Water entitlement (Water Supply Works and Water Use) from Muswellbrook Water source. Improvements = \$250,000 Land = \$550,000	\$4,560	\$6,633
	491 Westwood Road, Gungahlin	\$655,000	Sep 2009	110.3	Approximately 65% cleared undulating grazing and 35% timbered slopes and ridges. Residential improvements and outbuildings on site. Water entitlement (Water Supply Works and Water Use) from Halls Creek Water source. Improvements = \$155,000 Land = \$500,000	\$4,533	\$5,938
	1100 Merriwa Road, Sandy Hollow	\$340,000	Sep 2009	105.3	Small creek traversing across and towards the road frontage of property. Approximately 15% of the land is cleared gently undulating grazing land and rises to 85% undulating timbered slopes and steep slopes to ridges. Residential improvements and outbuildings on site. Improvements = \$100,000 Land = \$240,000	\$2,279	\$3,228
	Lot 1 Dalswinton Road, Dalswinton	\$1,300,000	Sep 2009	92.37	Small dated residential improvements and ancillary farm improvements on site. Gently undulating river flats formerly used as a vineyard but cleared post sale. Water entitlement (Water Supply Works and Water Use) from Hunter River and Alluvial. Improvements = \$200,000 Land = \$1,100,000	\$11,908	\$14,073
	Lot 1 Dalswinton Road, Dalswinton	\$1,300,000	Aug 2009	92.37	Small dated residential improvements and ancillary farm improvements on site. Gently undulating river flats formerly used as a vineyard but cleared post sale. Water entitlement (Water Supply Works and Water Use) from Hunter River and Alluvial.	\$11,908	\$14,073
	Lot 4 Bell Road, Belford	\$800,000	Jun 2009	101.18	Provides gently undulating predominantly cleared grazing land. Provides river frontage and evidence of significant area flood liable.	\$7,906	N/A
	750 Muscle Creek Rd, Muscle Creek	\$750,000	May 2009	82.56	Hardiplank & colourbond 1970's style detached dwelling. Detached carport in poor condition. The property provides an irregular shaped gently undulating parcel rising to steep ridges. It is predominantly cleared land with a small creek adjoining the southern boundary. Improvements = \$150,000 Land = \$650,000	\$7,837	\$9,084
150ha+							
	Lot 1 Brawboy Road, Scone	\$700,000	Nov 2009	274.6	Poor quality bush block - undulating to sloping parcel with small residential improvements on site.	\$2,185	\$2,594
	Lot 1 Sandy Creek Road, McCullys Gap (DP 374424; DP752444; DP1145849)	\$720,000	Sep 2009	240.43	Predominantly cleared undulating grazing land rising up from small creek to selectively cleared undulations and steep slopes and ridges. Residential dwelling and farm outbuildings on site. Remote parcel.	\$2,370	\$2,994
	Lot 101 Scone Road, Merriwa	\$1,500,000	Jul 2009	317.4	" Millera" Selectively cleared grazing land bisected by road. Approximately 15% low lying land the balance of land is gently undulating to undulating. Residential dwelling and ancillary improvements.	\$4,095	\$4,725

2008							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
< 10ha							
10ha-<60ha							
	2455 The Bucketts Way, Wards River	\$280,000	Dec 2008	11.03	Vacant, undulating selectively cleared semi rural parcel. Land rises above road frontage.	\$25,385	\$25,385
	509 Fairburns Road, Forbesdale	\$700,000	Dec 2008	27.63	Gently undulating river flats with river frontage; 2 x rainwater tanks; 2 x corrugated iron sheds converted to residential use; timber stockyards, crush, loading ramp. Small former dairy presented in poor condition. Small proportion of total land is situated on opposite site of river frontage.	\$25,335	\$22,208
	1349 Sandy Creek Rd, Macullays Gap	\$700,000	Nov 2008	67.18	Improvements comprise a weather-board and corrugated iron 1960's style detached dwelling; detached single car garage; timber constructed stock yards and loading ramp. Provides a regular shaped, undulating to steeply undulating, predominantly cleared rural parcel. Improvements = \$150,000 Land = \$550,000	\$8,186	\$10,419
	Lot 100 Turanville Rd, Scone	\$1,100,000	Nov 2008	18.84	Substantial modern dwelling, timber post & rail fencing with a 75ML water license (bore) source is Dart Brook. Gently undulating predominantly cleared rural land. Improvements: \$500,000 Water: \$75,000 Land: \$525,000	\$27,866	\$58,386
	63 Blairmoore Road, Aberdeen	\$1,400,000	Nov 2008	54.45	Improvements comprise a weather-board & corrugated iron cottage; 4 bay open side machinery shed; storage shed; 276ML water license from the Hunter River. The land provides gently undulating cleared alluvial river flats. No elevated land within the boundaries of the site. Improvements: \$200,000 Water: \$414,000 Land: \$786,000	\$14,435	\$25,711
	"Seaham Grange" 86 Brandy Hill Drive, Brandy Hill	\$2,300,000	Oct 2008	32.73 (incl. 4.15ha allotment)	Large render and colourbond single storey homestead, garage, office, entertainment area and separate guest accommodation. In ground pool, tennis court, gymnasium, putting green, dressage arena, polo fields, stables and machinery sheds. Town water, dam, irrigation license. Mortgagee in possession/family settlement.	\$28,000	\$70,271
	319 Faulkland Road, Faulkland	\$375,000	Sep 2008	12.79	2 bedroom house; gently undulating predominantly cleared rural/residential allotment. Being offered for re-sale at date of report.	\$29,320	\$29,320
	"Eelah" 467 Maitland Vale Rd, Maitland Vale	\$1,950,000	Jun 2008	27.62	1835 constructed dwelling on undulating river flats – rising to cleared slopes and timbered slopes. ¾ bedroom refurbished dwelling. Brick rendered/colour bond plus self contained guest house, machinery shed and former dairy. 10ha of alluvial river flats.	\$52,498	\$70,601
	1 Yeoman Rd Muswellbrook	\$700,000	May 2008	31.05	Weatherboard & corrugated iron detached dwelling present in poor condition. Timber stockyards & loading ramp. The land provides gently undulating cleared river flats and enjoys river frontage and a 230ML water license from the Hunter River. Utilised as grazing. Improvements: \$75,000 Water: \$345,000 Land: \$280,000	\$9,017	\$22,545
	1116 Lovedale Road, Allandale	\$635,000	Apr 2008	40.30	Improvements comprise a modest hardiplank and cement tile 1970's style detached dwelling. The land provides a gently undulating to undulating, selectively cleared to heavily timbered allotment. 1(a) Rural zone.	\$13,278	\$15,756

2008							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
10ha-<60ha							
	5 Milperra Drive, Muswellbrook	\$635,000	Apr 2008	11.35	Weatherboard & cement tile 1970's style detached dwelling. Selectively cleared small rural hobby block. Smaller semi rural allotment within close proximity to Muswellbrook. Improvements = \$185,000 Land = \$450,000	\$39,647	\$55,947
	21 Weismantle Lane, Waukivory	\$308,000	Feb 2008	20.78	Small cleared home site with modest residential improvements, undulating to steep ridge country predominantly timbered allotment.	\$10,010	\$14,822
60ha-<150ha							
	572 Torryburn Rd, Torryburn	\$1,070,000	Oct 2008	90.86	Gently undulating cleared grazing land rising to cleared slopes towards the east and evidencing a small area of timbered slopes towards the eastern boundary. Bisected by a creek the property evidences a large dam (45 ML licence to irrigate), substantial modern residential improvements and store shed and a small Olive grove. Improvements - \$450,000 Land value (TFW) - \$620,000 Small hobby block – difficult to analyse but evidences cleared well watered grazing land rising to cleared slopes and a some timbered ridges. Olives are not of a production scale to be economically viable independently.	\$6,823	\$11,776
	"Orange Grove" Paterson Rd, Woodville	\$2,600,000	Jun 2008	106.90	Substantially vacant land with river frontage; improvements of little added value. 106.9ha. Land value only.	\$24,321	\$24,321
	"Murrulla Stud" 3001 New England Highway, Wingen	\$1,700,000	May 2008	86.43	Developed small horse stud. Gently undulating to undulating selectively cleared semi rural parcel of land. Improvements comprise basic residential improvements, stables, machinery shed, hay shed. Improvements = \$550,000 Land = \$1,150,000	\$13,305	\$19,669
	200 Faulkland Road, Faulklands	\$1,350,000	Mar 2008	75.41	100% pasture improved gently undulating alluvial river flats with river frontage; Residential dwelling and 2 x machinery sheds. We are advised the sale reflects a stressed vendor.	\$17,902	\$14,587
150ha+							
	Lots 1,4,12-17,22-24, 36 & 41 Wollombi Rd, Broke	\$4,615,000	Apr 2008	495.10	Gently undulating to undulating selectively cleared land. Part of total holding is land locked. Includes 500ML water licence. Modest improvements.	\$7,705	\$9,321
	Lot 3 Adams Peak Rd, Broke	\$3,148,000	Apr 2008	471.27	Gently undulating to undulating & ridge, selectively cleared land. Modest improvements.	\$6,255	\$6,679
	52 Gabulah Rd, Gresford	\$735,000	Apr 2008	267.28	Undulating to steep sloping predominantly cleared grazing country. Rising to timbered ridges. Nil structural improvements. Land Value (TFW) - \$735,000. Evidence of undulating to sloping cleared grazing land rates. Larger proportion of timbered slopes and ridges than subject land.	\$2,749	N/A
	Lot 50 Horsecreek Rd, Mount Rivers	\$196,500	Feb 2008	157.8	Steep sloping predominantly timbered country rising to very steep heavily timbered country. Nil structural improvements. Land Value (TFW) - \$196,500. Evidence of steep timbered grazing land rates. Larger proportion of heavily timbered land than subject.	\$1,245	N/A
	Lot 1 Putty Road, Glenridding (Mt Thorley)	\$1,675,000	Feb 2008	259.52	Undulating predominantly cleared grazing land. Purchased by adjoining owner (Commonwealth Gov) for buffer for the Dept of Defence.	\$6,454	N/A

2007							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
< 10ha							
10ha-<60ha							
	"Minimbah House" 119 Minimbah Rd, Whittingham	\$3,850,000	Jun 2007	47.87	1870's constructed heritage listed estate. Sandstone 2 storey prestige residence, 15 bedrooms, 8 bathrooms, small (4ha) vineyard; 47.87ha.	\$17,756	\$80,426
	"Bellevue" 378 Tocal Road, Mindaribba	\$2,300,000	Jun 2007	41.98	1860's constructed prestige brick & slate tile residence. 3-4 bedroom dwelling in poor state of repair at time of purchase. Some \$800,000 expended on upgrade of residence and surrounds - since purchase. Situated on 41.98ha of Hunter River front land comprising 50% productive Lucerne flats rising to cleared grazing slopes and an elevated home site. Underground mains servicing river flats.	\$40,019	\$54,787
	577 Maitland Vale Rd, Maitland Vale	\$835,000	May 2007	40.00	Comprises vacant undulating to steep ridge country - semi-rural parcel of land. Hunter River frontage. Affected by bush fire constraints and flood liable. Approximately 40% of the land is heavily undulating to steep ridge.	\$20,875	\$20,875
	199 Anambah Road, Anambah	\$4,000,000	Feb 2007	40.47	Undulating rural land – unlikely to be rezoned prior to 2011 LEP. 2 storey brick veneer cottage on site – nil added value. 40.47ha.	\$98,838	\$98,838
60ha-<150ha							
	"Hillview" 558 Gresford Rd, Patterson	\$2,250,000	Dec 2007	72.17	Weatherboard & corrugated iron 1920's style residence (poorly presented externally) which has been significantly upgraded internally to provide ducted A/C, new kitchen, bathroom and upgraded living. Paterson River frontage comprising cleared river flats. 2 x large machinery sheds and hay shed on site. Sale includes 240.4ML water entitlement contracted at \$350,000. 72.17ha.	\$24,248	\$31,614
	"Glenroy" 260 Lewinsbrook Rd, East Gresford	\$2,300,000	Sep 2007	81.63	1920's constructed single storey brick dwelling; 4 bedrooms, pool, tennis court, hayshed; creek frontage; 81.63ha.	\$23,275	\$28,176
	182 Allyn River Road, Dungog	\$625,000	May 2007	88.72	Gently undulating to undulating cleared to selectively cleared dry grazing land. Nil residential improvement on site.	\$7,044	\$7,044

2007							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
150ha+							
	"Bundarra" Melville Ford Rd, Maitland Vale	\$2,850,000	Sep 2007	173.00	1980's constructed single storey brick veneer dwelling; 4 bedrooms, pool, tennis court plus 2 bedroom weatherboard dwelling. Part flood liable; river frontage; 173ha. Flood damage incurred immediately prior to sale.	\$13,294	\$16,473
	1634 Dungog Rd Wollarobba	\$1,700,000	Sep 2007	187.3	Predominantly cleared gently undulating creek flats. Significant pasture improvement. Operating dairy (modern construction), store shed (modern construction) plus older store shed and dated residential improvements. All structural improvements and creek flats are situated on the southern side of Dungog Road. Approximately 70ha of cleared sloping grazing country with small component of timbered slopes and ridges is situated on northern side of Dungog Road. Improvements - \$500,000. Land value (TFW) - \$1,200,000 The southern parcel is evidence of the rates for pasture improved creek flats whilst the northern parcel is evidence of gently sloping cleared grazing land rising to a small area of timbered slopes and ridges. Larger proportion of cleared pasture improved grazing flats than the subject.	\$6,406	\$9,076
	480 Woerdens Rd, Clarence Town	\$2,000,000	Mar 2007	300.8	Undulating to steep predominantly cleared grazing country. Small area of low lying marsh land. Small creek bisecting the property. Modest residential improvements and out buildings. Improvements - \$300,000. Land value (TFW) - \$1,700,000. Evidence of cleared sloping grazing land with some undulating grazing land and including some marsh land.	\$5,651	\$6,648
	"Foxton" 144 Sandy Creek Rd, Wollarobba	\$2,000,000	Jan 2007	295.53	Predominantly cleared undulating country rising to steep slopes and timbered ridges. Substantial residential improvements and outbuildings. Gravel road frontage. Small creek bisecting the property. Improvements - \$450,000 Land value (TFW) - \$1,550,000 Comparable country to the subject land but comprising a larger proportion of steep timbered slopes and ridges than the subject.	\$5,244	\$6,767

2006							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
< 10ha							
10ha-<60ha							
60ha-<150ha							
	245 Oakdale Rd, Glen Oak	\$1,800,000	Jul 2006	132.1	Gently undulating to undulating cleared grazing country. Right of Carriageway access. Substantial residential and ancillary improvements including original shearing shed and modern storage shed. Predominantly cleared creek flats. Some pasture improved land. Strong price for this type of country – purchased by neighbour. Shows: \$13,626/ha improved. Neighbour influence may be as much as 20% premium above market value (Show: \$7,569/ha TFW after adjustment of 20%). Improvements - \$550,000. Land Value (TFW) - \$1,250,000. Evidence of gently undulating cleared grazing land rates.	\$9,462	\$13,626
150ha+							
	"Summerleaves" 415 Clarencetown Rd, Dungog	\$2,170,000	Mar 2006	443.0	Undulating cleared grazing land and creek flats with creek frontage. Comprises residential and farm improvements including machinery shed and cattle yards.	\$4,492	\$4,898

2005							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
< 10ha							
	1051 Castlerock Road, Castle Rock	\$400,000	May 2005	7.95	Gently undulating semi rural hobby block. Improvements comprise residential dwelling, swimming pool and machinery shed.	\$20,126	\$50,314
10ha-<60ha							
	3220 Wybond Road, Muswellbrook	\$320,000	May 2005	42.79	Undulating to steep ridge, heavily timbered allotment. Modest residential improvements.	\$6,427	\$7,478
	2923 New England Highway, Scone	\$1,000,000	Mar 2005	39.66	Gently undulating creek flats with creek frontage. Improvements comprise two residential dwellings with additional dwelling under construction and horse stables.	\$18,911	\$25,214
	3735 New England Highway, Scone	\$750,000	Mar 2005	38.25	Gently undulating creek flats with creek frontage. Improvements comprise single residential dwelling.	\$16,993	\$19,608
	620 Ridgeland Rd, Muswellbrook	\$425,000	Feb 2005	45.68	Gently undulating predominantly cleared grazing land. Improvements comprise a modest residential cottage, 3 x sheds and large dam (no water).	\$5,801	\$9,304
60ha-<150ha							
	263 Martins Creek Rd, Paterson	\$1,550,000	Jan 2005	97.0	Gently undulating creek flats – fully cleared grazing land. Improvements comprise residential dwelling and farm shed. Bisected by the main northern railway line.	\$13,918	\$15,979
150ha+							
	3450 Wybong Road, Muswellbrook	\$750,000	Feb 2005	714.9	Undulating to steep ridge, heavily timbered vacant allotment.	\$1,049	N/A

2004							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
< 10ha							
10ha-<60ha							
	1144 Castlerock Road, Castle Rock	\$275,000	Mar 2004	40.0	Undulating to steeply undulating timbered land. Selectively cleared with average residential improvements.	\$5,750	\$6,875
60ha-<150ha							
	561 Allyn River Rd, East Gresford	\$850,000	Nov 2004	130.55	The property is bisected by the Allyn River and situated on both the western and eastern sides. The eastern side comprises predominantly undulating heavy regrowth timbered land. The western side comprises selectively cleared gently undulating to timbered slopes. Residential improvements comprise a weatherboard & corrugated iron clad detached dwelling.	\$5,745	\$6,511
150ha+							
	Lot 101 Seaham Rd, Seaham	\$1,050,000	Jan 2004	187.54	Gently undulating creek flats with creek frontage. Improvements comprise modest residential cottage.	\$5,279	\$5,599

2003							
Size	Address	Sale Price	Sale Date	Land Area ha	Comments	\$/ha As Vacant Land	\$/ha Improved Rate
150ha+							
	Lot 102 Seaham Rd, Seaham	\$2,100,000	Nov 2003	363.28	Vacant gently undulating creek flats with creek frontage.	\$5,781	N/A

Sample of sales which are indicative of repeat sales in varying circumstances.

Properties Sold Twice Between 2010 - 2018									
Property Address	Zone	Sale Price	Sale Date	Area (ha)	Adjusted Land Value	Adjusted Rate/ha	Change	% Change	Comment
Bickwar Park, Scone	RU4	\$530,000	29/10/2010	58.09	\$480,000	\$8,263.04			
		\$645,000	19/03/2015	58.09	\$599,000	\$10,311.59	\$119,000	24.79%	
Shannandore 2624 Ridgeland Road, Bunnan	RU1	\$1,750,000	5/03/2010	588.60	\$1,149,780	\$1,953.41			
		\$2,500,000	23/06/2015	588.60	\$1,225,222	\$2,081.59	\$75,442	6.56%	
380 Yarraman Road, Wybong	RU1	\$585,000	19/02/2009	32.00	\$267,548	\$8,360.88			
		\$632,000	29/04/2015	32.00	\$280,429	\$8,763.41	\$12,881	4.81%	
1183 Yarrawa Road, Denman	RU1	\$549,000	27/08/2009	43.00	\$223,938	\$5,207.86			
		\$630,000	13/03/2015	43.00	\$230,751	\$5,366.30	\$6,813	3.04%	
63 Blairmore Lane, Aberdeen	RU1	\$842,500 (Ex Water)	30/08/2006	54.45	\$675,000	\$12,396.69			
		\$1,400,000 (Ex Water)	12/08/2008	54.45	\$725,000	\$13,314.97	\$50,000	7.41%	Adjoining owner purchase.
		\$1,369,500 (Ex Water)	28/02/2018	54.45	\$1,090,000	\$20,018.37	\$365,000	50.34%	
112 Blairmore Lane, Aberdeen	RU1	\$ 980,000	15/11/2005	41.74	\$525,000	\$12,577.86			
		\$ 850,000	24/09/2010	41.74	\$550,000	\$13,176.81	\$25,000	4.76%	
		\$ 850,000	28/10/2014	41.74	\$575,000	\$13,775.75	\$25,000	4.55%	

MOVEMENT IN LAND VALUES

Below is a table of land holdings which indicate the land values assigned for rating and taxing purposes by NSW Valuer Generals in the years 2013 – 2017. It is noteworthy there is little movement in values over that timeframe for the smaller lifestyle parcels whilst the larger rural production units indicate movement in values – most particularly from 2016/2017 and again in 2017-2018 (not represented here).

ADDRESS	AREA HA	ZONING	VALUING YEAR	LAND VALUE
Bunnan	772.00	RU1 Primary Production	2017	\$2,000,000
			2016	\$2,000,000
			2015	\$1,910,000
			2014	\$1,800,000
			2013	\$1,800,000
Wybong	596.12	RU1 Primary Production E3 Environmental Management	2017	\$1,740,000
			2016	\$1,650,000
			2015	\$1,700,000
			2014	\$1,700,000
			2013	\$1,700,000
Hollydeen	49.03	RU1 Primary Production	2017	\$380,000
			2016	\$380,000
			2015	\$380,000
			2014	\$368,000
			2013	\$368,000
Hollydeen	59.39	RU1 Primary Production	2017	\$448,000
			2016	\$448,000
			2015	\$448,000
			2014	\$422,000
			2013	\$422,000

ADDRESS	AREA HA	ZONING	VALUING YEAR	LAND VALUE
Denman	71.12	E3 Environmental Management	2017	\$230,000
			2016	\$220,000
			2015	\$220,000
			2014	\$220,000
			2013	\$220,000
Denman	47.14	E3 Environmental Management	2017	\$282,000
			2016	\$270,000
			2015	\$270,000
			2014	\$270,000
			2013	\$270,000
Hollydeen	45.30	E3 Environmental Management	2017	\$95,400
			2016	\$94,600
			2015	\$95,000
			2014	
			2013	
Wybong	40.06	E3 Environmental Management	2017	\$209,000
			2016	\$200,000
			2015	\$200,000
			2014	\$200,000
			2013	\$200,000
Wybong	2.83	RU1 Primary Production	2017	\$83,200
			2016	\$75,000
			2015	\$75,000
			2014	\$75,000
			2013	\$75,000

ADDRESS	AREA HA	ZONING	VALUING YEAR	LAND VALUE
Manobalai	51.56	E3 Environmental Management	2017	\$318,000
			2016	\$305,000
			2015	\$305,000
			2014	\$305,000
			2013	\$305,000
Castle Rock	78.52	RU1 Primary Production	2017	\$390,000
			2016	\$373,000
			2015	\$373,000
			2014	\$373,000
			2013	\$373,000
Scone	716.36	RU1 Primary Production	2017	\$1,000,000
			2016	\$920,000
			2015	\$890,000
			2014	\$890,000
			2013	\$890,000
Brawboy	1474.14	RU1 Primary Production	2017	\$3,370,000
			2016	\$3,110,000
			2015	\$2,960,000
			2014	\$2,800,000
			2013	\$2,780,000
Brawboy	274.60	RU1 Primary Production	2017	\$634,000
			2016	\$564,000
			2015	\$537,000
			2014	\$508,000
			2013	\$498,000

ADDRESS	AREA HA	ZONING	VALUING YEAR	LAND VALUE
Owens Gap	694.10	RU1 Primary Production	2017	\$1,250,000
			2016	\$1,030,000
			2015	\$1,030,000
			2014	\$1,000,000
			2013	\$955,000
Owens Gap	155.80	RU1 Primary Production	2017	\$299,000
			2016	\$285,000
			2015	\$285,000
			2014	\$277,000
			2013	\$254,000

We have also considered sales and resales of rural properties where those sales have occurred at least twice in the period 2005 – 2018. Where possible we have endeavoured to ascertain changes in the improvements and infrastructure which may be applicable to better understand the reasons for changes in values/achieved sales prices.

We have identified some 15 x properties of varying size, situated in proximately to the Mangoola locality which have evidenced repeat sales in the timeframe applicable to this analysis and which indicate movement of values ranging from 3.0% upward movement over a 6 year sales date difference and up to 100% upward movement over a 10 year sales date difference. The 100% uplift is indicative of an adjoining owner transaction whereby it may be prudent to consider the sale evidences an adjoining owner premium of say up to 25% over market value. The remaining 14 x repeat sales indicate a range of 3% – 25% uplift in achieved sale price over sales dates of 5 – 8 year time difference.

The above is further support for our consideration of increased values over the 13 year timeframe considered for the purposes of this advice - is in the range of 25% - 50% uplift in values in that timeframe.

5. Provide a table indicating findings.

Analysis of sales evidence from 2003- 2005 indicates market value for the varying rural assets (vacant land value) is in the range depicted in the tables below.

Land Value range as at 2003 - 2005 is represented as a dollar rate per hectare in the table below.

	Low - Range	High - Range	Low - Range	High - Range	Low - Range	High - Range
Land Classification rate/ha			10 -15Ha	10 -15Ha	15-40Ha	15-40Ha
Superior type land			\$18,000	\$30,000	\$10,000	\$18,000
Lesser type land – bush blocks			\$10,000	\$20,000	\$5,500	\$15,000
Land Classification rate/ha	40-80Ha	40-80Ha	80-150Ha	80-150Ha	150-250Ha	150-250Ha
Superior type land	\$10,000	\$12,000	\$7,000	\$10,000	\$5,000	\$7,500
Lesser type land	\$4,500	\$10,000	\$4,000	\$7,000	\$2,000	\$5,000
Land Classification rate/ha	250-350Ha	250-350Ha	350Ha+	350Ha+		
Superior type land	\$4,000	\$7,500	\$2,000	\$5,000		
Lesser type land	\$1,500	\$4,000	\$1,000	\$2,000		

Land Value range as at 2017 - 2018 is represented as a dollar rate per hectare in the table below.

	Low - Range	High - Range	Low - Range	High - Range	Low - Range	High - Range
Land Classification rate/ha			10 -15Ha	10 -15Ha	15-40Ha	15-40Ha
Superior type land			\$25,000	\$40,000	\$12,000	\$25,000
Lesser type land – bush blocks	Block value		\$12,000	\$30,000	\$5,500	\$20,000
Land Classification rate/ha	40-80Ha	40-80Ha	80-150Ha	80-150Ha	150-250Ha	150-250Ha
Superior type land	\$12,000	\$15,000	\$8,500	\$12,000	\$6,000	\$9,000
Lesser type land	\$5,500	\$12,000	\$5,000	\$8,500	\$2,500	\$6,000
Land Classification rate/ha	250-350Ha	250-350Ha	350Ha+	350Ha+		
Superior type land	\$5,000	\$8,500	\$2,500	\$6,000		
Lesser type land	\$2,000	\$5,000	\$1,500	\$2,500		

The above table does not indicate values for such as heavily timbered slopes and ridges which can evidence as little as \$400 - \$800/ha as a proportion of larger holdings. Rather, we have generally considered that land which is either small, medium and large rural lifestyle lots or small to medium sized rural production units.

The majority of assets considered for the purposes of this advice however, indicates increases in value over 13 years in the range 25% - 50% over that market value as was evidenced in 2005 - subject to a range of influencing factors as described above.

Should you wish to discuss this further please contact the writer.

TEW PROPERTY CONSULTANTS



RW TEW AAPI MRICS
Certified Practising Valuer

Tew Property Consultants Terms and Conditions

IT IS AGREED AS FOLLOWS:

<p>1. DEFINITIONS</p> <p>'Confidential Information' means information that:</p> <ul style="list-style-type: none"> (a) Is by its nature confidential; (b) Is designated by Us as confidential (c) You know or ought to know is confidential; (d) and includes, without limitation: <ul style="list-style-type: none"> (i) Information comprised in or relating to any of Our intellectual property in the Services or any reports or certificates provided as part of the Services; and (ii) The Quotation annexed hereto. <p>'Currency Date' means, in relation to any valuation or consultancy report, the date as at which our professional opinion is stated to be current.</p> <p>'Fee' means the amount agreed to be paid for the Services as set out in the Quotation.</p> <p>'Draft' means, in relation to any valuation or consultancy report or letter of advice, a preliminary written form which is not complete and may be subject to revision.</p> <p>'Parties' mean You or Us as the context dictates.</p> <p>'Quotation' means the written quote provided by Us in relation to the Services.</p> <p>'Services' means the valuation or consultancy services provided pursuant to these Terms and Conditions and the Quotation, and includes and documents, reports or certificates provided by Us in connection with the services.</p> <p>'We', 'Us', 'Our', means Tew Property Consultants (ABN 93 257 871 670).</p> <p>'You', 'Your' means the entity engaging Us to perform the Services as set out in the Quotation</p>
<p>2. PERFORMANCE OF SERVICES</p> <p>We will provide the Services in accordance with:</p> <ul style="list-style-type: none"> (a) The Terms and Conditions contained herein; and (b) The required provisions of the current Australian Property Institute Professional Practice Standard.
<p>3. CONDITIONS OF THE PROPERTY</p> <p>3.1. In undertaking the Services We will have regard to the apparent state of repair, condition and environmental factors in relation to the property based upon a visual inspection, but We will not (and are not qualified to) carry out structural, geotechnical or environmental survey. We will not inspect those parts of the property that are unexposed or inaccessible.</p> <p>3.2. We will assume that there is no timber infestation, asbestos or any other defect (unless advised otherwise) and that the property is compliant with all relevant environmental laws. It is Your responsibility to provide reports to Us that are relevant to these issues.</p> <p>3.3. We will not undertake a detailed inspection of any plant and equipment or obtain advice on its condition or suitability.</p> <p>3.4. We recommend that You engage appropriately qualified persons to undertake investigations excluded from the Services.</p> <p>3.5. No responsibility will be accepted either to You or to any third party for loss or damage that may result directly or indirectly from the condition of the property.</p>
<p>4. ENVIRONMENT AND PLANNING</p> <p>4.1. We will obtain only verbal town planning information. It is Your responsibility to check the accuracy of this information by obtaining a certificate under the appropriate legislation.</p> <p>4.2. State or Federal Laws may require environmental audits to be undertaken before there is a change of land use. You will provide such audits to Us where they are required. We will not advise You whether such audits are required or obtain such audits. If You do not provide Us with such audits We will perform the Services on the assumption that such audits are not required.</p>
<p>5. BUILDING AREAS AND LETTABLE AREAS</p> <p>5.1. Where a survey is provided to Us for consideration, We will assume that information contained in the survey is accurate and has been prepared in accordance with the Property Council of Australia (PCA) Method of Measurement.</p> <p>5.2. If You do not provide Us with a survey, We will estimate building and/ or lettable areas based only upon available secondary information (including but not limited to building plans, Deposited Plans, and our own check measurements). Such estimates do not provide the same degree of accuracy or certainty as would be provided by a survey prepared by an appropriately qualified professional in accordance with the Property Council of Australia (PCA) Method of Measurement.</p> <p>5.3. Where such a survey is subsequently produced which differs from the areas estimated then You will refer the valuation or consultancy advice back to Us for comment or, where appropriate, amendment.</p>
<p>6. OTHER ASSUMPTIONS</p> <p>6.1. Unless otherwise notified by You, We will assume:</p> <ul style="list-style-type: none"> (a) there are no easements, mortgages, leases, encumbrances, covenants, caveats, rights of way or encroachments except those shown on the Title; and (b) all licences and permits can be renewed and We will not make any enquiries in this regard. <p>6.2. Where third party expert or specialist information or reports are provided to Us or obtained by Us in connection with the Services (including but not limited to surveys, quantity surveyors reports, environmental audits, structural/ dilapidation reports), We will rely upon the apparent expertise of such experts/ specialists. We will not verify the accuracy of such information or reports.</p> <p>6.3. Where We describe Our valuation or consultancy report or valuation advice as either a kerbside valuation, desktop assessment, restricted assessment or restricted valuation, You will assume it has been carried out in strict compliance with the Restricted Valuation Supporting Memorandum or Residential Desktop Assessment Advisory Note issued by the Australian Property Institute as applicable as at the date of such valuation or assessment.</p>
<p>7. VALUATION FOR FIRST MORTGAGE SECURITY</p> <p>7.1. Where the Services are provided for mortgage purposes, You agree that You will not use the valuation or consultancy report where the property is used as security other than by first registered mortgage.</p> <p>7.2. We reserve the right, at Our absolute discretion, to determine whether or not to assign Our valuation to any third party. Without limiting the extent of Our discretion, We may decline a request for assignment where:</p> <ul style="list-style-type: none"> (a) the proposed assignee is not a major recognised lending institution (such as a major bank); (b) the assignment is sought in excess of 3 months after the date of valuation; (c) We consider that there has been a change in conditions which may have a material impact on the value of the property; (d) the proposed assignee seeks to use the valuation for an inappropriate purpose (including in a manner inconsistent with Your agreement at clause 7.1); or (e) Our fee has not been paid in full. <p>7.3. Where We decline to provide an assignment on either of the bases at 7.2(b) or (c), We may be prepared to provide an updated valuation on terms to be agreed at that time.</p> <p>7.4. In the event that You request us to assign Our valuation and We agree to do so, You authorise Us to provide to the assignee a copy of these Terms and Conditions, the Quotation and any other document, including instructions provided by You, relevant to the scope of Our Services.</p>
<p>8. ESTIMATED SELLING PRICE</p> <p>8.1. Where You instruct Us to provide an Estimated Selling Price, You agree that the Services:</p> <ul style="list-style-type: none"> (a) are limited to the provision of a opinion based upon Our knowledge of the market and informal enquiries. (b) We are not required to carry out a full inspection of the property; any inspection of comparable properties; a search on Title(s) or other enquiries as to encumbrances, restrictions or impediments on Title(s); or other investigations which would be required for a formal valuation. (c) provide an indicative figure only which is not suitable for use for any purpose other than as general information or guide as to sale expectations. It is not suitable to be relied upon for the purpose of entry into any transaction. <p>8.2. No responsibility will be accepted either to you or any third party for loss or damage that may result from the issue of such an Estimated Selling Price.</p>

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<p>9. CURRENCY OF VALUATION</p> <p>9.1. Due to possible changes in market forces and circumstances in relation to the subject property the Services can only be regarded as relevant as at the Currency Date.</p> <p>9.2. Where You rely upon Our valuation or consultancy report after the Currency Date, You accept the risks associated with market movement between the Currency Date and the date of such reliance.</p> <p>9.3. Without limiting the generality of 9.2, You should not rely upon Our valuation or consultancy report;</p> <p>(a) after the expiry of 3 months from the Currency Date;</p> <p>(b) where circumstances have occurred during that period which may have a material effect on the value of the property or the assumptions or methodology used in the valuation or consultancy report.</p>
<p>10. MARKET PROJECTIONS</p> <p>10.1. Any market projections incorporated within our Services including, but not limited to, income, expenditure, associated growth rates, incentives, interest rates, yields and costs are projections only, and may prove to be inaccurate. Accordingly, such market projections should be interpreted as an indicative assessment of potentialities only, as opposed to certainties.</p> <p>10.2. Where Our Services include market projections such as projections which require the dependence upon a host of variables that are highly sensitive to varying conditions. Accordingly, variation in any of these conditions may significantly affect these market projections.</p> <p>10.3. Where market projections form part of Our Services, We draw your attention to the fact that there will be a number of variables within acceptable market parameters that could be pertinent to Our Services and the projections adopted are representative of only one of these acceptable parameters.</p>
<p>11. YOUR OBLIGATIONS.</p> <p>11.1. You warrant that the instructions and subsequent information supplied by You contain a full and frank disclosure of all information that is relevant to Our provision of the Services.</p> <p>11.2. You warrant that all third party expert or specialist reports provided to Us by You for the purpose of Us providing the Services are provided with the authority of the authors of those reports.</p> <p>11.3. You authorise and licence us to incorporate Your intellectual property within our report(s).</p> <p>11.4. You will not release any part of Our valuation or consultancy report or its substance to any third party without Our written consent. Such consent will be provided at Our absolute discretion and on such conditions as We may require including that a copy of these Terms and Conditions be provided to such third party. This clause shall not apply to persons noted as recipients in Your prior instruction to Us or in the Quotation provided that you shall provide any such recipient with a copy of these Terms and Conditions.</p> <p>11.5. If you release any part of the valuation or consultancy advice or its substance with our written consent, You agree: a) to inform the other person of the terms of our consent; and b) to compensate Us if You do not do so. We have no responsibility to any other person even if that person suffers damage as a result of any other person receiving this valuation or consultancy advice.</p> <p>11.6. You must pay our fees within 14 days of the date of a correctly rendered invoice. Fees that remain unpaid for a period of 30 days or more will attract an administration charge of 2% of the total of the invoice calculated per month or part thereof.</p> <p>11.7. We reserve the right to reconsider or amend the valuation or consultancy advice, or the Fee set out in our Quotation to You if:</p> <p>(a) Certificates, surveys, leases, side agreements or related documentation that were not provided to Us prior to the provision of the Services are subsequently provided, and contain matters that may affect the value of the advice; or</p> <p>(b) Where subsequent site inspections made in relation to any of the matters raised in clause 3 materially affect or may alter the value of the property the subject of the Services.</p>
<p>12. CONFIDENTIALITY</p> <p>12.1. You must not disclose or make any of the Confidential Information available to another person without Our written consent.</p> <p>12.2. If consent to disclose the Confidential Information is provided by Us, You agree to abide by any additional terms and conditions that We may apply to that disclosure.</p>
<p>13. PRIVACY</p> <p>13.1. We may obtain personal information about You in the course of performing Our Services. We respect Your privacy. The Privacy Amendment (Private Sector) Act, 2001 requires Us to advise You that we will only obtain information that is necessary to assist us in the course of performing Our Services. If it is necessary for Us to engage third parties, we will inform these parties that they are not to disclose any personal information about You to any person or organisation other than Us.</p>
<p>14. SUBCONTRACTING</p> <p>14.1. We may subcontract or otherwise arrange for another person to perform any part of the Services or to discharge any of Our obligations under any part of these Terms and Conditions, with Your consent.</p>
<p>15. LIABILITY</p> <p>15.1. You agree to release Us and hold Us harmless from all liability to You for or in respect of any loss, damage, costs and expenses of whatsoever kind which we have or may have or, but for the operation of this Clause, might have had arising from or in any way connected with the Services or the use of the Services or any part of them. This release shall be complete and unconditional except in the case of gross negligence or wilful misconduct by Us in the provision of the Services.</p> <p>15.2. You agree that You will fully indemnify us for an in respect of all loss, liability, costs and expenses of whatsoever kind which We may suffer or incur arising from or in any way connected with any breach by You of Clause 11 or Clause 12. This indemnity shall include but not be limited to loss, liability, costs and expenses which we may suffer or incur in respect of any claims, actions, proceedings, disputes or allegations made against Us or to which we are party.</p>
<p>16. DOCUMENTATION</p> <p>16.1. We may forward documentation to You which is clearly marked as a "draft" document.</p> <p>16.2. You agree You will not rely on documentation which is marked "draft" as You understand such documentation is preliminary and may be subject to revision.</p> <p>16.3. You agree such marked documents cannot, under any circumstances, be relied upon for the purposes of mortgage or other financial security.</p> <p>16.4. No responsibility will be accepted either to You or to any third party for or in respect of any loss, damage, costs and expenses of whatsoever kind that may result directly or indirectly from You relying on documentation which is provided to You in a "draft" form.</p>
<p>17. ENTIRE AGREEMENT</p> <p>17.1. No further agreement, amendment or modification of these Terms and Conditions shall be valued or binding unless made in writing and executed on behalf of the Parties by their duly authorised officers.</p> <p>17.2. If there is an inconsistency between these Terms and Conditions and the Quotation, any letter of instruction from You, or other specific request or information, other specific request or information shall prevail to the extent of the inconsistency.</p>

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