The Northern Road Upgrade
Mersey Road, Bringelly to Glenmore Parkway, Glenmore Park

NSW Environmental Impact Statement / Commonwealth Draft Environmental Impact Statement

Appendix J – Technical working paper: Socio-economic

June 2017
The Northern Road Upgrade –
Mersey Road to Glenmore Parkway
Prepared for Roads and Maritime Services by Jacobs Australia
Socio-economic Assessment
Final
15 May 2017
The Northern Road Upgrade (Mersey Road to Glenmore Parkway)

Project No: IA086100
Document Title: Socio-economic assessment
Document No.: 09
Date: 15 May 2017
Client Name: Roads and Maritime Services
Client No: Client Reference
Project Manager: Emidio D'Angola
Author: Nicole Sommerville
File Name: C:\Users\nsommerville\Documents\Projects\TNR\Working Paper\Draft 4\IA086100-RP-EN-148_Final Draft Socio-economic assessment_V4a.docx

Jacobs Group (Australia) Pty Limited
ABN 37 001 024 095
32 Cordelia Street
PO Box 3848
South Brisbane QLD 4101 Australia
T +61 7 3026 7100
F +61 7 3026 7300
www.jacobs.com

Limitation: This report has been prepared on behalf of, and for the exclusive use of Jacobs' Client, and is subject to, and issued in accordance with, the provisions of the contract between Jacobs and the Client. Jacobs accepts no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this report by any third party.

Document history and status

<table>
<thead>
<tr>
<th>Revision</th>
<th>Date</th>
<th>Description</th>
<th>By</th>
<th>Review</th>
<th>Approved</th>
</tr>
</thead>
<tbody>
<tr>
<td>V02</td>
<td>06/07/2016</td>
<td>Draft for client review</td>
<td>N. Sommerville</td>
<td>D. Williams</td>
<td>07/07/2017</td>
</tr>
<tr>
<td>V03</td>
<td></td>
<td>Draft for client review</td>
<td>N. Sommerville</td>
<td>D. Williams</td>
<td></td>
</tr>
<tr>
<td>V04</td>
<td></td>
<td>Draft for client review</td>
<td>N. Sommerville</td>
<td>D. Williams</td>
<td></td>
</tr>
<tr>
<td>V05</td>
<td>30/9/2016</td>
<td>Draft for adequacy review</td>
<td>N. Sommerville</td>
<td>D. Williams</td>
<td>30/09/2016</td>
</tr>
<tr>
<td>V06 (final draft)</td>
<td>14/11/2016</td>
<td>Final for adequacy review</td>
<td>N. Sommerville</td>
<td>D. Williams</td>
<td>14/11/2016</td>
</tr>
<tr>
<td>V07</td>
<td>10/02/2017</td>
<td>Final draft for exhibition</td>
<td>N. Sommerville</td>
<td>D. Williams</td>
<td>17/02/2017</td>
</tr>
<tr>
<td>V08</td>
<td>10/03/2017</td>
<td>Final draft for exhibition</td>
<td>N. Sommerville</td>
<td>D. Williams</td>
<td>10/03/2017</td>
</tr>
<tr>
<td>V09</td>
<td>15/05/2017</td>
<td>Updated project description</td>
<td>N. Sommerville</td>
<td>D. Williams</td>
<td>15/05/2017</td>
</tr>
</tbody>
</table>
Contents

1. Introduction ............................................................................................................................................... 1
  1.1 Project overview .................................................................................................................................. 1
  1.2 Purpose of this document ....................................................................................................................... 7
  2. Methodology ........................................................................................................................................... 9
    2.1 Study area ........................................................................................................................................... 9
    2.2 Study methodology ............................................................................................................................... 9
    2.2.1 Local business surveys .................................................................................................................... 11
    2.3 Community and stakeholder consultation ......................................................................................... 12
  3. Socio-economic policy context .............................................................................................................. 14
    3.1 New South Wales ............................................................................................................................... 14
    3.1.1 A Plan for Growing Sydney ............................................................................................................ 14
    3.1.2 South West Priority Growth Centre ................................................................................................. 14
    3.1.3 Western Sydney Priority Growth Area ............................................................................................... 15
    3.1.4 Western Sydney Infrastructure Plan ................................................................................................. 15
    3.1.5 Western Sydney airport ................................................................................................................... 16
    3.2 Local Government strategies ............................................................................................................. 18
    3.2.1 Penrith Community Plan ............................................................................................................... 18
    3.2.2 Growing Liverpool 2023 ............................................................................................................... 18
    3.2.3 Local planning context ................................................................................................................... 18
  4. Existing social and economic environment .......................................................................................... 19
    4.1 Regional context ................................................................................................................................... 19
    4.1.1 Penrith local government area ....................................................................................................... 19
    4.1.2 Liverpool local government area ..................................................................................................... 19
    4.2 Land use .............................................................................................................................................. 20
    4.2.1 Land use zoning .............................................................................................................................. 20
    4.2.2 Areas of public domain ................................................................................................................... 26
    4.3 Population and housing ...................................................................................................................... 26
    4.3.1 Population size, growth and mobility ............................................................................................ 27
    4.3.2 Age profile ...................................................................................................................................... 28
    4.3.3 Cultural diversity ............................................................................................................................. 29
    4.3.4 Households and families ................................................................................................................ 30
    4.3.5 Housing .......................................................................................................................................... 32
    4.3.6 Socio-economic disadvantage and need for assistance ............................................................... 33
    4.3.7 Vehicle ownership ......................................................................................................................... 35
    4.4 Economic profile ................................................................................................................................. 35
    4.4.1 Income and employment ................................................................................................................ 35
    4.4.2 Agriculture ...................................................................................................................................... 38
    4.4.3 Local businesses ............................................................................................................................. 45
    4.5 Community values ............................................................................................................................... 53
    4.6 Social infrastructure............................................................................................................................. 54
Socio-economic assessment

4.6.1 Social infrastructure in the study area ................................................................. 54
4.6.2 Social infrastructure near the project ................................................................. 55
4.7 Transport and access ............................................................................................... 61
4.7.1 Transport infrastructure and facilities ............................................................... 61
4.7.2 Journey to work ................................................................................................. 62
5. Issues raised during consultation ............................................................................ 64
6. Impact assessment .................................................................................................. 66
  6.1 Property impacts ................................................................................................... 66
    6.1.1 Directly affected properties ............................................................................ 66
    6.1.2 Impact of property acquisition ....................................................................... 76
    6.1.3 Other property impacts ................................................................................ 77
  6.2 Land use impacts ................................................................................................. 77
  6.3 Population and demography ................................................................................ 80
  6.4 Employment impacts .......................................................................................... 80
  6.5 Local business impacts ........................................................................................ 81
    6.5.1 Directly affected businesses .......................................................................... 81
    6.5.2 Impacts on businesses in the study area ......................................................... 92
  6.6 Agricultural impacts ............................................................................................ 95
    6.6.1 Loss of agricultural land ................................................................................ 95
    6.6.2 Directly affected agricultural uses ................................................................. 96
    6.6.3 Impacts on agricultural uses in the study area .............................................. 101
  6.7 Social infrastructure ............................................................................................ 102
    6.7.1 Directly affected social infrastructure ............................................................ 102
    6.7.2 Impacts on social infrastructure in the study area ....................................... 102
  6.8 Community values .............................................................................................. 103
    6.8.1 Construction impacts .......................................................... 103
    6.8.2 Operational impacts .................................................................................... 104
  6.9 Access and connectivity ....................................................................................... 106
    6.9.1 Construction impacts .................................................................................... 106
    6.9.2 Operational impacts .................................................................................... 106
  6.10 Cumulative impacts ........................................................................................... 108

7. Environmental management measures .................................................................... 109
  7.1 Expected environmental outcomes ..................................................................... 109
  7.2 Expected effectiveness ....................................................................................... 109
  7.3 Socio-economic environmental management measures ..................................... 109

8. Residual impacts .................................................................................................... 112
  8.1 Construction ....................................................................................................... 112
  8.2 Operation .......................................................................................................... 112

9. References ............................................................................................................. 113
Appendix A. Business survey
Appendix B. Demographic information
Appendix C. Properties to be acquired

List of Figures

Figure 1-1 : Regional context of the project ................................................................. 4
Figure 1-2 : Location and overview of the project ....................................................... 5
Figure 2-1 : Socio-economic assessment study area .................................................. 13
Figure 3-1 : Western Sydney Infrastructure Plan ...................................................... 17
Figure 4-1 : Land use zoning ................................................................................. 21
Figure 4-2 : Age profile, 2011 ............................................................................... 29
Figure 4-3 : Households, 2011 ............................................................................. 31
Figure 4-4 : Relative socio-economic disadvantage ................................................. 34
Figure 4-5 : Industry of employment, 2011 ............................................................. 37
Figure 4-6 : Agricultural land uses ......................................................................... 39
Figure 4-7 : Business size – employees, 2015............................................................ 47
Figure 4-8 : Origin of customers in Luddenham identified through the carpark survey ................................................................. 52
Figure 4-9 : Social infrastructure near the project ................................................... 57
Figure 6-1 : Potential locations of construction ancillary facilities ......................... 73
Figure 6-2 : Directly affected businesses ................................................................. 87
Figure 6-3 : Directly affected agricultural businesses .............................................. 99
Figure C.1 : Properties to be acquired .................................................................. 121

List of Tables

Table 1-1 : Secretary’s Environmental Assessment Requirements ........................................ 7
Table 1-2 : Commonwealth EIS Guidelines ................................................................ 8
Table 4-1 : Land use zones .................................................................................... 23
Table 4-2 : Estimated resident population, 2005-2015 ............................................. 27
Table 4-3 : Population projections, 2011-2031 .......................................................... 28
Table 4-4 : Population mobility, 2011 (%) ............................................................... 28
Table 4-5 : Cultural diversity, 2011 (%) .................................................................. 30
Table 4-6 : Family composition, 2011 .................................................................... 31
Table 4-7 : Dwellings, 2011 .................................................................................. 32
Table 4-8 : Housing tenure and costs, 2011 ............................................................. 33
Table 4-9 : Vehicle ownership, 2011 (%) ................................................................. 35
Table 4-10 : Income, 2011 .................................................................................... 36
Table 4-11 : Labour force, 2011 ............................................................................. 36
Table 4-12 : Agricultural industry, 2010-2011 ......................................................... 38
Table 4-13 : Agricultural commodities, 2010-2011 .................................................. 42
Table 4-14 : Value of agricultural production, 2011 ............................................... 43
Table 4-15 : Businesses by industry, 2015 (%) .......................................................... 45
Table 4-16 : Local businesses near the project ......................................................... 47
Table 4-17 : Top 10 suburbs of origin identified by car park (number plate) survey ................................................................. 50
Table 4-18 : Social infrastructure in the broader study area ..................................... 54
Table 4-19 : Social infrastructure near the project ................................................... 55
Table 4-20 : Travel to work, 2011 (%) ..................................................................... 62
Table 5-1 : Summary of community issues .............................................................. 64
Table 6-1 : Summary of property acquisition ......................................................... 67
Table 6-2 : Summary of temporary leases ............................................................... 72
Table 6-3 : Land uses within the operational footprint ............................................. 78
Table 6-4 : Land use zones within the operational footprint ..................................... 79
Table 6-5 : Impacts on directly affected businesses ................................................ 82
Table 6-6 : Agricultural land within the operational footprint ............................... 95
Table 6-7 : Impacts on directly affected agricultural businesses .......................... 97
Table 7-1: Summary of environmental management measures ................................................................. 109
Table A-9-1: Age profile, 2011 .................................................................................................................. 116
Table A-9-2: Households, 2011 .................................................................................................................. 116
Table A-9-3: Housing tenure, 2011 .............................................................................................................. 116
Table A-9-4: Housing costs, 2011 .............................................................................................................. 117
Table A-9-5: Need for assistance, 2011 ...................................................................................................... 117
Table A-9-6: Industry of employment, 2011 .................................................................................................. 118
Table A-9-7: Local business characteristics, 2015 .................................................................................. 119
1. Introduction

The project would include upgrading the 16 km section of The Northern Road between Mersey Road, Bringelly and Glenmore Parkway, Glenmore Park (the project). The Northern Road is a key north–south road between Narellan and Richmond, connecting the North West and South West Priority Growth Areas (refer to Figure 1-1). The corridor intersects with a number of regional motorway, arterial and collector roads such as (north to south) Richmond Road, Great Western Highway, M4 Motorway, Elizabeth Drive, Bringelly Road, and Camden Valley Way.

The upgrade of The Northern Road (including the project) is part of the Western Sydney Infrastructure Plan (WSIP). The WSIP involves major road and transport linkages that will capitalise on the economic gains from developing Western Sydney Airport whilst boosting the local economy and liveability of western Sydney. This socio-economic assesses the impact of The Northern Road Upgrade from Mersey Road, Bringelly to Glenmore Parkway, Glenmore Park.

1.1 Project overview

The project involves upgrading the 16 km section of The Northern Road between Mersey Road, Bringelly and Glenmore Parkway, Glenmore Park (the project).

The project generally comprises the following key features:

- A six-lane divided road between Mersey Road, Bringelly and Bradley Street, Glenmore Park (two general traffic lanes and a kerbside bus lane in each direction). The wide central median would allow for an additional travel lane in each direction in the future, if required

- An eight-lane divided road between Bradley Street, Glenmore Park and about 100 m south of Glenmore Parkway, Glenmore Park (three general traffic lanes and a kerbside bus lane in each direction separated by a median)

- About eight kilometres of new road between Mersey Road, Bringelly and just south of the existing Elizabeth Drive, Luddenham, to realign the section of The Northern Road that currently bisects the Western Sydney Airport site and to bypasses Luddenham

- About eight kilometres of upgraded and widened road between the existing Elizabeth Drive, Luddenham and about 100 m south of Glenmore Parkway, Glenmore Park

- Closure of the existing The Northern Road through the Western Sydney Airport site

- Tie-in works with the following projects:
  - The Northern Road Upgrade, between Peter Brock Drive, Oran Park and Mersey Road, Bringelly (to the south)
  - The Northern Road Upgrade, between Glenmore Parkway, Glenmore Park and Jamison Road, South Penrith (to the north)

- New intersections including:
  - A traffic light intersection connecting the existing The Northern Road at the southern boundary of the Western Sydney Airport, incorporating a dedicated u-turn facility on the western side
  - A traffic light intersection for service vehicles accessing the Western Sydney Airport, incorporating 160 m of new road connecting to the planned airport boundary
  - A traffic light intersection connecting the realigned The Northern Road with the existing The Northern Road (west of the new alignment) south of Luddenham
  - A ‘give way’ controlled intersection (that is, no traffic lights) connecting the realigned The Northern Road with Eaton Road (east of the new alignment, left in, left out only)
  - A four-way traffic light intersection formed from the realigned Elizabeth Drive, the realigned The Northern Road and the existing The Northern Road, north of Luddenham
  - A traffic light intersection at the Defence Establishment Orchard Hills entrance, incorporating a u-turn facility
- New traffic lights at four existing intersections:
  - Littlefields Road, Luddenham
  - Kings Hill Road, Mulgoa
  - Chain-O-Ponds Road, Mulgoa
  - Bradley Street, Glenmore Park incorporating a u-turn facility
- Modified intersection arrangements at:
  - Dwyer Road, Bringelly (left in, left out only)
  - Existing Elizabeth Drive, Luddenham (left out only)
  - Gates Road, Luddenham (left in only)
  - Longview Road, Luddenham (left in, left out only)
  - Grover Crescent south, Mulgoa (left in only)
  - Grover Crescent north, Mulgoa (left out only)
- Dedicated u-turn facilities at:
  - The existing The Northern Road at Luddenham, south-west of Elizabeth Drive
  - The existing Elizabeth Drive, Luddenham around 800 m east of The Northern Road
  - Chain-O-Ponds Road, Mulgoa
- Twin bridges over Adams Road, Luddenham
- Local road changes and upgrades, including:
  - Closure of Vicar Park Lane, east of the realigned The Northern Road, Luddenham
  - Eaton Road cul-de-sac, west of the realigned The Northern Road, Luddenham
  - Eaton Road cul-de-sac, east of the realigned The Northern Road, Luddenham
  - Elizabeth Drive cul-de-sac, about 300 m east of The Northern Road with a connection to the realigned Elizabeth Drive, Luddenham
  - Extension of Littlefields Road, east of The Northern Road, Mulgoa
  - A new roundabout on the Littlefields Road extension, Mulgoa
  - A new service road between the Littlefields Road roundabout and Gates Road, including a ‘give way’ controlled intersection (that is, no traffic lights) at Gates Road, Luddenham
  - Extension of Vineyard Road, Mulgoa between Longview Road and Kings Hill Road
  - A new roundabout on the Vineyard Road extension at Kings Hill Road, Mulgoa
- A new shared path on the western side of The Northern Road and footpaths on the eastern side of The Northern Road
- A new shared path on the western side of The Northern Road and footpaths on the eastern side of The Northern Road where required
- The upgrading of drainage infrastructure
- Operational ancillary facilities including:
  - Heavy vehicle inspection bays for both northbound and southbound traffic, adjacent to Grover Crescent, Mulgoa and Longview Road, Mulgoa respectively
  - An incident response facility on the south-western corner of the proposed four-way traffic light intersection at Elizabeth Drive, Luddenham
- New traffic management facilities including variable message signs (VMS)
• Roadside furniture and street lighting
• The relocation of utilities and services
• Changes to property access along The Northern Road (generally left in, left out only)
• Establishment and use of temporary ancillary facilities and access tracks during construction
• Property adjustments as required
• Clearance of undetonated explosive ordinance (UXO) within the Defence Establishment Orchard Hills as required.

The project assessed in this EIS does not include surveys, test drilling, test excavations, geotechnical investigations or other tests, surveys, sampling or investigation for the purposes of the design or assessment of the project.

The location and an overview of the project is shown on Figure 1-2.
The Northern Road upgrade - Mersey Road to Glenmore Parkway

**Figure 1-1**  |  Location of the project
BRINGELLY

Tie-in with The Northern Road Upgrade, Peter Brock Drive to Mersey Road

Changed to left in, left out only To Campbelltown

Six-lane divided road separated by a wide central median

A signalised intersection for service vehicle access to the Western Sydney Airport

Closure of the existing The Northern Road through the Western Sydney Airport

Eight kilometres of new road between Mersey Road and just south of Elizabeth Drive

A signalised intersection connecting the existing The Northern Road at the southern boundary of the Western Sydney Airport, incorporating a dedicated U-turn facility on the western side

An un-signalised (give way controlled) intersection connecting the new The Northern Road with the Eaton Road (east of the new alignment, left in, left out only)

An incident response facility located on the southwestern corner of the proposed four-way signalised intersection at Elizabeth Drive (pending provision of funding)

Closure of Vicar Park Lane east of the realigned The Northern Road

A signalised intersection connecting the new The Northern Road with the existing The Northern Road

Eaton Road - cul-de-sac west of The Northern Road

A signalised intersection connecting the existing The Northern Road with the Eaton Road (east of the new alignment, left in, left out only)

Eaton Road - cul-de-sac east of The Northern Road

New bridge over Adams Road

U-turn facility

Left out only

Cul-de-sac and connection to re-aligned Elizabeth Drive

U-turn facility

A four-way signalised intersection at Elizabeth Drive and the existing The Northern Road

Eaton Road - cul-de-sac east of The Northern Road

Cul-de-sac and connection to re-aligned Elizabeth Drive

U-turn facility

A four-way signalised intersection at Elizabeth Drive and the existing The Northern Road

Eaton Road - cul-de-sac east of The Northern Road

New bridge over Adams Road

U-turn facility

Left out only

Cul-de-sac and connection to re-aligned Elizabeth Drive

Western Sydney Airport site (Commonwealth Land)

Defence Establishment Orchard Hills (Commonwealth Land)

Commonwealth Lands

The Northern Road upgrade - Mersey Road to Glenmore Parkway

The Northern Road (Existing)

Figure 1-2  |  Overview of the project
Eight kilometres of upgraded and widened road between Elizabeth Drive and Glenmore Parkway

A new roundabout on the Vineyard Road Extension at Kings Hill Road

A signalised intersection at Defence Establishment Orchard Hills incorporating a u-turn facility on the western side

Grover Crescent north (left out only)

Northbound heavy vehicle inspection bays

A new roundabout on the Littlefields Road extension

Grover Crescent south (left in only)

New traffic signals

New traffic signals

Changed to left in, left out only

Southbound heavy vehicle inspection bays

Changed to left in only

U-turn facility

Grover Crescent south (left in only)

New traffic signals

A new service road connecting Littlefields Road roundabout and Gates Road

Un-signalised intersection (give way controlled)

A new service road connecting Littlefields Road roundabout and Gates Road

New roundabout on the Littlefields Road extension

Eight-lane divided road between Bradley Street and Glenmore Parkway

Tie-in with The Northern Road Upgrade Glenmore Parkway to Jamison Road

The Northern Road upgrade - Mersey Road to Glenmore Parkway

The Northern Road (Existing)

WaterNSW supply pipelines

Extended Vineyard Road

New traffic signals

U-turn facility

WaterNSW supply pipelines

Western Sydney Airport site (Commonwealth Land)

Defence Establishment Orchard Hills (Commonwealth Land)

Commonwealth Lands

Figure 1-2 | Overview of the project
1.2 Purpose of this document

This working paper forms part of the environmental impact statement (EIS) for The Northern Road Upgrade between Mersey Road, Bringelly and Glenmore Parkway, Glenmore Park. The EIS has been prepared under Part 5.1 of the NSW Environmental Planning and Assessment Act 1979 (EP&A Act) and Part 8 of the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

This assessment has been prepared to address the NSW Planning and Environment Secretary’s Environmental Assessment Requirements (SEARs) and the Commonwealth’s Guidelines for the content of a draft Environmental Impact Statement (Commonwealth Department of Environment, August 2016) for the project (referred to throughout this report as the ‘Commonwealth EIS Guidelines’) relating to social and economic issues. It provides an assessment of potential socio-economic benefits and impacts of the project, including:

- A description of the existing socio-economic baseline conditions of potentially affected communities and groups near the project
- An assessment of potential changes to socio-economic conditions from the construction and operation of the project
- Recommended mitigation and management measures to enhance the project’s benefits and avoid, manage or mitigate its potential socio-economic impacts
- Assessment of the residual socio-economic impacts of the project.

Table 1-1 outlines the SEARs relevant to this assessment along with a reference to where these are addressed in this working paper. The Commonwealth EIS Guidelines relevant to the socio-economic assessment are outlined in Table 1-2 along with reference to where these are addressed in this working paper.

Table 1-1: Secretary’s Environmental Assessment Requirements

<table>
<thead>
<tr>
<th>Secretary’s Environmental Assessment Requirements</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social and economic – including:</td>
<td>Section 6.1 (directly affected properties and property acquisition)</td>
</tr>
<tr>
<td>• Impacts on directly affected properties and land uses, including impacts related to access and severance, existing and proposed land uses, property acquisition and amenity related changes.</td>
<td>Section 6.2 (impacts on land use)</td>
</tr>
<tr>
<td></td>
<td>Section 6.9 (access)</td>
</tr>
<tr>
<td></td>
<td>Section 6.6.2 (severance)</td>
</tr>
<tr>
<td></td>
<td>Section 6.8 (amenity)</td>
</tr>
<tr>
<td>• Social and economic impacts to the community and businesses in the vicinity of the project (including agricultural businesses), associated with traffic, access, property, public domain and amenity related changes.</td>
<td>Section 6.5 (business impacts)</td>
</tr>
<tr>
<td></td>
<td>Section 6.9 (traffic and access)</td>
</tr>
<tr>
<td></td>
<td>Section 6.1 (property)</td>
</tr>
<tr>
<td></td>
<td>Section 6.8 (public domain and amenity related changes)</td>
</tr>
<tr>
<td>• A draft Community Involvement Plan for the works, identifying relevant stakeholders, procedures for distributing information and receiving/ responding to feedback and procedures for resolving community complaints during construction. Key issues that should be addressed in the draft Plan should include (but not necessarily be limited to):</td>
<td>Section 7</td>
</tr>
<tr>
<td>• Traffic management (including property access and pedestrian access)</td>
<td>Chapter 6 of the EIS</td>
</tr>
<tr>
<td>• Noise and vibration mitigation and management, including work outside standard construction hours.</td>
<td></td>
</tr>
</tbody>
</table>
### Table 1-2: Commonwealth EIS Guidelines

<table>
<thead>
<tr>
<th>Commonwealth EIS Guidelines</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>The EIS must include a description of the environment of the proposal site and the surrounding areas that may be affected by the action. It is recommended that this include the following information:</td>
<td>• Section 4 (existing social and economic environment)</td>
</tr>
<tr>
<td>• A description of the environment in all areas of potential impact, including all components of the environment as defined in Section 528 of the EPBC Act:</td>
<td>• Soils, water and contamination Working Paper (natural and physical resources, including water resources) – Appendix L of the EIS</td>
</tr>
<tr>
<td>• Ecosystems and their constituent parts, including plants and animals, people and communities, landscapes and soils</td>
<td>• Aboriginal Cultural Heritage Assessment Report (CHAR) – Appendix M of the EIS, and Non-Aboriginal heritage Working Paper (heritage values and places) – Appendix N of the EIS</td>
</tr>
<tr>
<td>• Natural and physical resources, including water resources and air</td>
<td>• Urban design, landscape character and visual impact assessment (qualities and characteristics of locations, places and areas) – Appendix O of the EIS</td>
</tr>
<tr>
<td>• The qualities and characteristics of locations, places and areas</td>
<td>• Biodiversity Working Paper (ecosystems and their constituent parts, including plants, animals, landscapes and soils) – Appendix I of the EIS</td>
</tr>
<tr>
<td>• Heritage values of places</td>
<td></td>
</tr>
<tr>
<td>• The social, economic and cultural aspects of a thing mentioned in preceding dot points.</td>
<td></td>
</tr>
</tbody>
</table>

Impacts to the environment (as defined in Section 528) should include but not be limited to the following:

<table>
<thead>
<tr>
<th>Impacts to the environment (as defined in Section 528)</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Changes in recreational use and amenity of natural areas</td>
<td>• Section 6.7 and section 6.2 (recreational use)</td>
</tr>
<tr>
<td></td>
<td>• Section 6.8 (amenity)</td>
</tr>
</tbody>
</table>

The economic and social impacts of the action, both positive and negative, must be analysed. Matters of interest may include:

<table>
<thead>
<tr>
<th>The economic and social impacts of the action, both positive and negative, must be analysed. Matters of interest may include:</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Details of any public consultation activities undertaken, and their outcomes</td>
<td>• Section 2.3 and Section 5 (consultation)</td>
</tr>
<tr>
<td>• Employment opportunities expected to be generated by the project (including construction and operational phases).</td>
<td>• Chapter 6 of the EIS (consultation)</td>
</tr>
<tr>
<td>Economic and social impacts should be considered at the local, regional and national levels.</td>
<td>• Section 6.4 (employment)</td>
</tr>
<tr>
<td></td>
<td>• Section 6 (impact assessment)</td>
</tr>
</tbody>
</table>
2. Methodology

2.1 Study area

The study area for this socio-economic assessment is shown in Figure 2-1. It has been based on those communities that have potential to experience impacts on or changes to socio-economic conditions due to the location and operation of the project, construction activities and changes in movement patterns for residents, workers and visitors. It includes the Australian Bureau of Statistics (ABS) Statistical Areas Level 2 (SA2) geographies of:

- Glenmore Park-Regentville SA2 (referred to as Glenmore Park-Regentville)
- Mulgoa-Luddenham-Orchard Hills SA2 (referred to as Mulgoa-Luddenham-Orchard Hills)
- Badgerys Creek-Greendale SA (referred to as Badgerys Creek-Greendale).

The project’s benefits and impacts may also be experienced by regional communities. As such, this assessment also considers at a broader level, regional impacts on communities and businesses in the local government areas (LGAs) of Penrith City and Liverpool City as well as the wider Sydney region.

2.2 Study methodology

Socio-economic impact assessment involves the process of analysing, monitoring and managing the intended and unintended social and economic impacts, both positive and negative, of a proposed development. It involves identifying, assessing and evaluating changes to or impacts on, communities, business and industry that are likely to occur as a result of a proposed development, in order to mitigate or manage impacts and maximise benefits.

This assessment has been developed in accordance with the Roads and Maritime Environmental Impact Assessment Practice Note N05 – Socio-economic assessment and to address the socio-economic matters outlined in the SEARs and the economic and social matters identified in the Commonwealth EIS guidelines.

The first step in the assessment process involved scoping the likely range of potential land use, property and socio-economic impacts and identifying communities likely to be affected by the project’s construction and operation. The outcomes of the scoping phase informed the study area for the socio-economic assessment, the information to be gathered for the existing baseline, and assessment of potential impacts.

The second step of the assessment involved describing existing socio-economic characteristics, values and conditions in the study area. This provided a baseline from which potential benefits and impacts of the project can be assessed. The existing baseline involved consideration of both qualitative and quantitative analysis, including:

- Existing State and local government policies and strategies relevant to social and economic factors in the study area
- Population and demographic data for communities in the study corridor, such as population size and growth, diversity, socio-economic disadvantage and housing
- Existing and future land use, including land use zoning
- Economic information, including data on employment and income, agricultural uses, and local business and industry in the study area
- Existing social infrastructure in the study area and near the project, such as education facilities, health and emergency services, recreation uses and transport facilities
- Community values relating to factors such as amenity and sense of place, access and connectivity, and community health and safety.

The description of the existing land use, planning and socio-economic conditions principally draws on information from the ABS Census of Population and Housing 2011, which is the most comprehensive dataset...
currently available on population and housing in the study area. Information on the population and socio-economic conditions in the study area has been supplemented with more recent information and data, where available including from:

- Government agencies such as the ABS, NSW Department of Planning and Environment, and NSW Department of Primary Industries
- State Government, Penrith City Council and Liverpool City Council publications, reports, guidelines and websites
- A visual survey of local businesses near the project and within Luddenham
- A survey of local businesses and car parking surveys at key locations within Luddenham.
- Observations made during a site visit to the study area
- Community and stakeholder consultation undertaken for The Northern Road Upgrade, including information on existing community values and issues raised about the project.

The next step for the assessment involved identifying and evaluating impacts on, and changes to, socio-economic conditions and values in the study area from the project’s construction and operation. This included direct and indirect construction and operational benefits and impacts as well as consideration of cumulative impacts due to the project’s interaction with other projects in the study area. The assessment of potential project benefits and impacts considered:

- Property impacts, including impacts on property from the operational and construction footprints, and impacts associated with property acquisition
- Land use impacts
- Changes to population and demography
- Impacts on local business, including direct impacts associated with property acquisition or temporary lease of land for construction, and impacts associated with changes to traffic and access and local amenity
- Impacts on agricultural uses, including agricultural businesses
- Direct and indirect impacts on social infrastructure, including both regional social infrastructure and social infrastructure near the project
- Impacts on community values, including those relating to local character and amenity, safety, and access and connectivity.
- Changes to local access and connectivity, including from the realignment of The Northern Road around the Western Sydney Airport site and east of Luddenham town centre
- Cumulative socio-economic impacts due to the project’s interaction with impacts of other projects.

The final step for the assessment involved identifying measures to avoid, minimise or mitigate socio-economic impacts arising from the construction and operation of the project. This includes a draft Community Involvement Plan framework for the project.

This socio-economic assessment, including scoping of socio-economic issues, description of existing social and economic values, and impact assessment and management has been informed by:

- The SEARs for the project
- The Commonwealth EIS Guidelines for the project
- Significant Impact Guidelines 1.2 – Actions on, or impacting upon Commonwealth land and Actions by Commonwealth Agencies.
- Roads and Maritime’s Environmental Impact Assessment Practice Note N05 – Socio-economic assessment
- Social and economic assessments undertaken for other road and transport infrastructure projects in NSW and elsewhere
Socio-economic assessment

- Literature relating to existing socio-economic values and characteristics in the study area, and assessment of socio-economic impacts, particularly impacts of road bypass projects
- Outcomes of consultation undertaken for The Northern Road Upgrade, including surveys of local businesses
- Car parking surveys at key locations and general observations of the study area
- Outcomes of other technical assessments undertaken for the EIS, including traffic and transport, noise, landscape and visual amenity, and cultural heritage.

2.2.1 Local business surveys

Two separate surveys were conducted to gather information on local businesses in the study area. These included:
- Car park (number plate) survey
- Survey of local business owners/managers.

Car park (number plate) survey

The purpose of the number plate survey was to gather information on the origin of ‘shoppers’ within Luddenham. The survey involved recording vehicle number plates at three locations within Luddenham, including at the:
- IGA and adjoining businesses (for example, post office, pharmacy, medical centre)
- Shopping complex comprising bakery and hairdresser; and David’s Stall fruit and vegetable shop
- Luddenham Village Café and Caltex.

The surveys were conducted over two days, being:
- Wednesday, 9 March 2016, between 9.30am and 3.30pm
- Saturday, 12 March 2016, between 8am and 3pm.

Number plates were recorded at each location about every 1.5 hours. Collated data was provided to Roads and Maritime to allow suburb information to be collated from registration details. Information was provided at a suburb level to ensure anonymity. The outcomes of the number plate survey are discussed in section 4.4.3.

Survey of local business owners/managers

The purpose of the business surveys was to gather information on local businesses within the study area about the type and nature of businesses, business operations, and business owners’ perceptions of potential benefits and impacts for local businesses of the project’s construction and operation.

Written surveys were conducted with owners/managers of retail and service businesses (eg doctors, hairdressers, etc) businesses within Luddenham and other areas near the project. Surveys were hand delivered to local businesses on Wednesday, 9 March 2016. These were either completed face-to-face with business owners/managers or left for the business owners/managers to complete separately. Some surveys were also completed over the telephone. A copy of the business survey is provided in Appendix A.

The outcomes of the business surveys are discussed in section 4.4.3 and section 6.5.
2.3 Community and stakeholder consultation

Community and stakeholder consultation – including with affected property owners, local communities, businesses, and government agencies – has formed an integral part of the project development.

The Chapter 6 of the EIS provides an overview of community and stakeholder consultation undertaken for the project, along with the key issues raised. This assessment has been informed by the outcomes of this consultation, including the identification of existing features and values important to communities in the study area, assessment of potential benefits and impacts of the project, and identification of impact management measures.

In addition, targeted consultation was undertaken for this assessment with businesses in the study area, through a survey of local businesses. The methodology for the survey is described in section 2.2.1.

A summary of the key socio-economic issues raised is provided in section 5.
The Northern Road upgrade - Mersey Road to Glenmore Parkway

Study area

Local government area

The Northern Road (existing)

Figure 2-1 | Socio-economic assessment study area
3. Socio-economic policy context

A detailed discussion on strategic planning and policy documents relevant to the project is described in Chapter 3 of the EIS. This section provides an overview of those relevant to the socio-economic environment of the study area.

3.1 New South Wales

3.1.1 A Plan for Growing Sydney

*A Plan for Growing Sydney* (NSW Government, 2014a) is the NSW Government’s plan for the future of the Sydney Metropolitan Area over the next 20 years. Released in December 2014, the Plan provides key directions and actions to guide Sydney’s productivity, environmental management and liveability, including the delivery of housing, employment, infrastructure and open space.

The Plan outlines a number of goals to guide expected growth in Sydney over the next 20 years and achieve the vision for Sydney as ‘a strong global city, a great place to live’. Those relevant to the project include:

- A competitive economy with world-class services and transport
- A great place to live with communities that are strong, healthy and well-connected.

Transforming the productivity of western Sydney through growth and investment; enhancing capacity at Sydney’s Gateways, including a Western Sydney Airport at Badgerys Creek; and delivering the infrastructure that is needed are some of the steps identified by the NSW Government to deliver the goals (http://www.planning.nsw.gov.au/Plans-for-Your-Area/Sydney).

Sub-regional planning

The project is located within the West and South West subregions of the Plan for Growing Sydney. The Plan identifies the West subregion as continuing to provide distinctive rural landscapes, extensive agricultural and resource lands, and large areas of conservation uses, as well as major urban areas. The Western Sydney Airport at Badgerys Creek will be a catalyst for new infrastructure investment and employment in the subregion. Improved transport connections to the Western Sydney Employment Area and between centres in the subregion and other subregions are identified as priorities for the West subregion (NSW Government, 2014a).

The South West subregion is the fastest growing subregion in Sydney. The Western Sydney Airport and Western Sydney Employment Area are expected to contribute to employment and growth and diversification of the subregion’s economy. Investigating connections between north-south and east-west road links and strengthening the diverse economic benefits of a Western Sydney Airport are identified as priorities for the subregion (NSW Government, 2014a).

3.1.2 South West Priority Growth Centre

The NSW Government established the South West Priority Growth Area (formerly known as the South West Growth Centre and subsequently the South West Priority Land Release Area) in 2015 to streamline the supply of greenfield land for urban development, and coordinate the sustainable delivery of infrastructure through the NSW Department of Planning and Environment over the next 25 to 30 years. The South West Priority Growth Area comprises 18 precincts and covers about 17,000 hectares. It is expected to accommodate about 110,000 new dwellings for 300,000 people (Department of Planning and Environment, 2015). To date, seven precincts within the South West Priority Growth Area have been rezoned to allow urban development, which have the potential for about 42,560 new homes.

Detailed planning for stage 1 of Leppington Precinct has recently been finalised. Upon rezoning, it is expected the Leppington Precinct will provide land for approximately 2,500 additional homes.

The location of the South West Priority Growth Area is shown on *Figure 3-1*. 
3.1.3 Western Sydney Priority Growth Area

The Western Sydney Priority Growth Area (formerly Broader Western Sydney Employment Area) is identified in A Plan for Growing Sydney (NSW Planning and Environment, December 2014). It extends from the intersection of the M4 Western Motorway and WestLink M7 Motorway, to south of The Northern Road/ Elizabeth Drive intersection. The project is located partly within the Western Sydney Priority Growth Area.

The Western Sydney Priority Growth Area identifies about 10,000 hectares of currently low intensity rural activity lands to be developed as a diverse employment centre, providing businesses in the region with land for industry and employment, catering for transport and logistics, warehousing and office space. It is anticipated to provide over 57,000 jobs over the next 30 years and over 200,000 jobs once it is fully established. The redevelopment of this area will involve substantial changes to the local road network, and place significant pressure on arterial roads that will service the employment area.

The location of the Western Sydney Growth Area is shown on Figure 3-1.

3.1.4 Western Sydney Infrastructure Plan

The Australian and NSW governments are funding a 10 year, $3.6 billion road investment program for western Sydney. The WSIP will deliver major road infrastructure upgrades to support an integrated transport solution for the region and to capitalise on the economic benefits from developing a western Sydney airport. The WSIP provides improved road transport capacity ahead of future traffic demand, as planned residential and employment development comes online in Western Sydney Priority Growth Area and the South West Priority Growth Area. The WSIP is a partnership between the Australian and NSW governments to improve and upgrade road infrastructure.

The WSIP program of works includes:

- The Northern Road Upgrade, including all stages of work between the Old Northern Road, Narellan and Jamison Road, Penrith
- Werrington Arterial Road – a two kilometre road to provide a high quality link between the Great Western Highway and the M4 Western Motorway. Construction began in March 2015 and is expected to finish in late 2016
- Bringelly Road Upgrade – An upgrade of Bringelly Road between Camden Valley Way, Leppington and The Northern Road, Bringelly. It would be delivered in two stages:
  - Stage 1 – 5.7 km from Camden Valley Way, Leppington to King Street, Rossmore. Construction is currently underway and expected to be completed in late 2017
  - Stage 2 – 4.3 km from King Street, Rossmore to The Northern Road, Bringelly. Detailed design is being finalised for Stage 2. Construction is expected to start in early 2017 and be completed in mid-2019
- M12 Motorway – a 17 km motorway standard east–west link between the WestLink M7 Motorway and The Northern Road. The proposed route options were displayed for community comment in February 2016 with the preferred corridor planned to be announced in late-2016 and construction expected to start around 2020, subject to approval
- A grade-separated interchange of The Northern Road and Bringelly Road – this would be delivered as part of the upgrades to The Northern Road and Bringelly Road. Subject to approval, construction is expected to start by early 2017 with the new interchange open to traffic in late 2019.
- Glenbrook Intersection Upgrade – this would improve safety and manage congestion at the intersection of Ross Street and the Great Western Highway, Glenbrook
- The Local Roads Package – this would allow councils to deliver targeted road improvements and provide better transport connections.

The Western Sydney Infrastructure Plan is shown on Figure 3-1.
3.1.5 Western Sydney airport

In April 2014, the Australian Government announced its decision to develop a Western Sydney Airport at Badgerys Creek, with passenger flight operations starting in 2025 catering for about three million passengers per year (DIRD, 2015). The airport would be located south east of the existing junction of The Northern Road and Elizabeth Drive and would substantially increase traffic volumes along these arterial roads and other roads in the area.

The Western Sydney Airport Environmental Impact Statement 2016 indicates that the operation of Stage 1 of the airport is expected to result in approximately 43,118 vehicles in total entering and leaving the airport site each day by 2030 (Department of Infrastructure and Regional Development, 2015). It is noted that the traffic impact assessment is based on the information published in the Western Sydney Airport Draft Environmental Impact Statement 2015 as available at the time of the assessment, i.e. 41,858 vehicles (refer to the Traffic and Transport Working Paper, Appendix G of the EIS).

The location of the Western Sydney Airport is shown on Figure 3-1.
Figure 3-1: Western Sydney Infrastructure Plan

Socio-economic assessment

Western Sydney Infrastructure Plan

- The Northern Road and Erskine Park Road:
  - Intersection upgrade studies $1.1 million – complete
  - Erskine Park Road intersection upgrades $29.1 million
  - The Northern Road intersections upgrade $6.7 million

- Bungarribee Road and Flushcombe Road:
  - Traffic lights scoping study $526,000

- Warringar Road:
  - Upgrade $55 million – complete

- Smithfield Road:
  - Upgrade $16.4 million

- Wetherill Street:
  - Upgrade $8.2 million – complete

- Cumberland Highway:
  - Intersections upgrades $5.8 million – complete

- Bringelly Road:
  - Upgrade $509 million
  - Stage 1 – construction started
  - Stage 2 – construction started

- Argyle Street/Camden Valley Way:
  - Corridor upgrade and studies $2.3 million – complete
  - Stage 2 – Macarthur Road Intersection $4.3 million
  - Grahams Hill Road and Richardson Road Intersection $4 million

- Porrende Street:
  - Upgrade scoping study $120,000

- Eagle Vale Drive:
  - Upgrade $17.5 million – complete

- Raby Road from Eschol Park Drive to Stranraer Drive:
  - Scoping study $655,000

Local Roads Package ($200 million Australian Government funded)
Major WSIP road projects
Existing The Northern Road

LEGEND
3.2 Local Government strategies

3.2.1 Penrith Community Plan

The Penrith Community Plan (Penrith City Council, 2015) (Community Strategic Plan) outlines Penrith City Council’s key strategies to meet the community’s long term aspirations for Penrith City. The Community Plan focuses on seven community outcomes that reflect the community’s goals for the LGA and outlines the strategies Penrith City Council has developed to address these goals.

Community outcomes relevant to the project include:

- *We can work close to home*, which looks at how government, partners and Council attract strategic investment, facilitate diversity and growth in employment, promote job clusters and encourage local workforce skills and training so that we can be more resilient to economic changes. A key strategy for this outcome includes ‘secure infrastructure that improves economic opportunities for existing and new businesses’.

- *We plan for our future growth*, which seeks to ensure the City’s future urban growth protects rural lands, respects heritage and provides housing choice. Ensuring services, facilities and infrastructure meet the needs of a growing population is identified as a key strategy for this outcome.

- *We can get around the city*, which targets the delivery of effective transport options for passengers and freight in the City and the region by Council and other levels of government. Strategies to achieve this outcome relate to securing an effective public transport network; providing a safe and efficient road network supported by parking; improving the City’s footpaths and shared pathway network; improving critical cross regional transport connections; and securing an efficient, integrated and sustainable freight network.

3.2.2 Growing Liverpool 2023

Growing Liverpool 2023 (Liverpool City Council, 2013) is Liverpool’s Community Strategic Plan. It outlines the 10-year plan to transform Liverpool into a ‘vibrant regional city of opportunity, prosperity and diversity’.

The Plan identifies seven strategic directions and associated strategies to achieve the community’s vision and move Liverpool forward. Direction six relates to an ‘accessible connected city’, with a diverse range of transport options including public transport, roads, cycleways and pathways. Strategies identified to achieve this direction over the next 10 years that are relevant to the project include:

- Provide safe and easy travel with a high quality road and traffic management network

- Encourage sustainable and alternative transport options such as walking, cycling and integrated public transport.

3.2.3 Local planning context

Roads and Maritime is seeking project approval for the project under Part 5.1 of the Environmental Planning and Assessment Act 1979 (EP&A Act). As such, the planning and development controls contained in the Penrith Local Environmental Plan (LEP) 2010 and the Liverpool LEP 2008 do not apply. However, for completeness, the provisions of these LEPs relevant to the socio-economic assessment have been considered in this assessment eg the defined land use zones.
4. **Existing social and economic environment**

This section describes existing socio-economic characteristics and features of the study area to provide a baseline against which the project’s socio-economic impacts can be assessed. This includes information on land use and land use zoning, population and housing, the economy, community values, social infrastructure and transport and access.

4.1.1 **Regional context**

The project extends from the Liverpool LGA in the south to Penrith LGA in the north and west. This section provides a brief overview of each of the LGAs within the project study area.

4.1.2 **Penrith local government area**

Penrith LGA is located about 50 km west of central Sydney and covers an area of about 404 km$^2$. The LGA is bounded by Hawkesbury LGA to the north, Blacktown and Fairfield LGAs to the east, Liverpool and Wollondilly LGAs to the south and Blue Mountains LGA to the west (http://profile.id.com.au/penrith/about).

The LGA had an estimated residential population of about 197,922 people in 2015. Over the five and 10 years to 2015, average population growth in the Penrith LGA was below or marginally above the NSW average (Commonwealth of Australia, 2016a). Over the next 15 years, the population of the LGA is predicted to grow at a rate above the NSW average.

Penrith comprises predominantly rural land uses, with about 80 per cent of the LGA comprising rural and rural-residential uses. Agricultural uses include dairying, poultry farming, hobby farming, orcharding, market gardening and horse breeding. Urban uses in the LGA comprise mainly residential uses, with some commercial and industrial areas. Major commercial centres in the LGA are located at Penrith, west of the project and St Marys, east of the project (http://profile.id.com.au/penrith/about). The LGA also accommodates the Defence Establishment Orchard Hill, which is used for the storage of munitions as well as weapons training. The Defence Establishment Orchard Hill site is located at The Northern Road and covers an area of about 1,740 hectares (Commonwealth of Australia, 2013b). In addition to buildings and structures, land within the Defence Establishment Orchard Hills includes areas used for recreation, conservation, water storage (dams) and open space.

The LGA has a number of major education facilities including the University of Western Sydney, the Western Sydney Institute, and TAFE NSW Western Sydney Institute Penrith Campus. Major hospitals in the Penrith LGA include the Nepean Public Hospital and Nepean Private Hospital, which are located north of the project. Penrith Lakes Regional Park is a key focus of sport, recreation and leisure facilities for local and regional communities, and accommodates a range of local, regional and international level facilities such as the Sydney International Regatta Centre, Penrith Whitewater Stadium and Nepean Aquatic Centre. Penrith Stadium and the Penrith Panthers Leagues Club also provide sporting, recreation and leisure facilities for local and regional communities.

The Penrith LGA is serviced by a number of major roads including the M4 Motorway, M7 Motorway, the Great Western Highway and The Northern Road. Other key transport routes serving the LGA include the Western railway line, which connects central Sydney to Emu Plains and further to the Blue Mountains.

4.1.3 **Liverpool local government area**

The Liverpool LGA is located approximately 27 km west of central Sydney and covers an area of about 305 km$^2$. In 2015, the LGA had an estimated residential population of about 204,594 people. Over the 10 years to 2015, the LGA’s population grew by about 37,122 people or 22.2 per cent, compared to about 13.8 per cent in NSW over the same period (Commonwealth of Australia, 2016a).

Land uses in the Liverpool LGA include a mix of rural and urban uses, including residential, commercial and industrial uses. The LGA also accommodates Department of Defence uses including the Holsworthy Barracks.
The barracks is part of the Holsworthy military reserve, which covers an area of nearly 20,000 hectares (Commonwealth of Australia, 2013c).

The LGA has experienced rapid urban development over the past two decades, which is expected to continue (http://profile.id.com.au/liverpool/about). The Liverpool CBD is the key commercial centre for the region, offering a range of retail, business and commercial uses.

The LGA accommodates a number of major community services and facilities, including education facilities such as the TAFE NSW South Western Sydney Institute (Liverpool and Miller Colleges); and major health care services at Liverpool Hospital. A number of state and regional level sport and recreation facilities are also located in the LGA, including Warwick Farm Racecourse, Western Sydney Parklands, Sydney International Shooting Centre, Eastern Creek International Raceway and Sydney International Equestrian Centre.

Liverpool LGA is serviced by a number of major roads including the M5 Motorway, M7 Motorway, the Cumberland Highway and The Northern Road. Other key transport routes include the Bankstown, Cumberland and South railway lines and the Liverpool to Parramatta Transitway (http://profile.id.com.au/liverpool/about).

4.2 Land use

4.2.1 Land use zoning

Land use zones within the study area are shown in Figure 4-1.

Rural use zones (RU) generally cover the southern part of the study area, mainly south of the WaterNSW supply pipelines. They include:

- Primary production areas, located south of Elizabeth Drive and generally west of The Northern Road at Luddenham, Greendale and Bringelly
- Small lot primary production around Willowdene Avenue at Luddenham and at Bringelly
- Rural landscape areas, located on either side of The Northern Road between the WaterNSW supply pipelines and Elizabeth Drive, and at Mulgoa opposite the Defence Establishment Orchard Hills
- Rural village at Luddenham, west of The Northern Road.

Residential zones (R) are mainly located at Bringelly, Luddenham and Glenmore Park. They include:

- Large lot residential areas at Luddenham, east of The Northern Road and Luddenham town centre and at Bringelly, south of The Northern Road
- Low density residential areas at Luddenham town centre, and Glenmore Park
- Environmental living and general residential areas at Glenmore Park.
Figure 4-1 | Land use zoning

The Northern Road upgrade - Mersey Road to Glenmore Parkway

The Northern Road (Existing)

Operational boundary

Local government area

Zone
- Low Density Residential
- Large Lot Residential
- Infrastructure
- Environmental Conservation
- Environmental Management
- Neighbourhood Centre
- Primary Production
- Primary Production Small Lots
- Public Recreation
- Rural Landscape
- Special Activities
- Village

The Northern Road (Existing)

Operational boundary

Local government area

Zone
- Low Density Residential
- Large Lot Residential
- Infrastructure
- Environmental Conservation
- Environmental Management
- Neighbourhood Centre
- Primary Production
- Primary Production Small Lots
- Public Recreation
- Rural Landscape
- Special Activities
- Village
Figure 4-1 | Land use zoning

The Northern Road upgrade - Mersey Road to Glenmore Parkway

- The Northern Road (Existing)
- Operational boundary
- Local government area

Zone
- Low Density Residential
- Medium Density Residential
- General Residential
- Infrastructure
- Local Centre
- Environmental Conservation
- Environmental Living

Colors:
- Environmental Management
- Primary Production Small Lots
- Public Recreation
- Private Recreation
- National Parks and Nature Reserves
- Rural Landscape
- Special Activities
Land in the study area zoned for special purposes (SP) comprises:

- Special Activities zone, including:
  - Defence Establishment Orchard Hills, located in the northern part of the study area, east of The Northern Road (this includes the land occupied by the Orchard Hills Golf Club)
  - The site of the Western Sydney Airport at Badgery’s Creek, located in the southern part of the study area, east of the proposed The Northern Road corridor.

- Infrastructure zone, including:
  - The existing The Northern Road Corridor
  - The WaterNSW supply pipelines, which crosses The Northern Road corridor at Orchard Hills and Mulgoa.

Land zoned for environment protection (E), is mainly located in the northern part of the study area. It includes:

- Environmental conservation areas, surrounding the Defence Establishment Orchard Hills and along Cosgroves Creek north of Elizabeth Drive
- Environmental management areas west of The Northern Road at Mulgoa.

Other land use zones in the study area include:

- Business zones (B), including neighbourhood centres within Luddenham town centre and local centres at Glenmore Park
- Recreation zones (RE), including public recreation areas at Glenmore Park and Luddenham, and land zoned for private recreation at Glenmore Park (Penrith Golf and Recreation Club) north of the project.

Table 4-1 provides a summary of the land use zones directly impacted by the construction footprint of the project, along with an overview of the zone objectives.

### Table 4-1 : Land use zones

<table>
<thead>
<tr>
<th>Land use zone</th>
<th>Objectives of the zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penrith LGA</td>
<td></td>
</tr>
<tr>
<td>E2 Environmental conservation</td>
<td>- To protect, manage and restore areas of high ecological, scientific, cultural or</td>
</tr>
<tr>
<td></td>
<td>aesthetic values</td>
</tr>
<tr>
<td></td>
<td>- To prevent development that could destroy, damage or otherwise have an adverse</td>
</tr>
<tr>
<td></td>
<td>effect on those values</td>
</tr>
<tr>
<td></td>
<td>- To protect, manage, restore and enhance the ecology, hydrology and scenic values of</td>
</tr>
<tr>
<td></td>
<td>riparian corridors and waterways, wetlands, groundwater resources, biodiversity</td>
</tr>
<tr>
<td></td>
<td>corridors, areas of remnant indigenous vegetation and dependent ecosystems</td>
</tr>
<tr>
<td></td>
<td>- To allow for low impact passive recreational and ancillary land uses that are</td>
</tr>
<tr>
<td></td>
<td>consistent with the retention of the natural ecological significance</td>
</tr>
<tr>
<td>E3 Environmental management</td>
<td>- To protect, manage and restore areas with special ecological, scientific, cultural or</td>
</tr>
<tr>
<td></td>
<td>aesthetic values</td>
</tr>
<tr>
<td></td>
<td>- To provide for a limited range of development that does not have an adverse effect</td>
</tr>
<tr>
<td></td>
<td>on those values</td>
</tr>
<tr>
<td></td>
<td>- To minimise conflict between land uses within the zone and land uses within adjoining</td>
</tr>
<tr>
<td></td>
<td>zones</td>
</tr>
<tr>
<td></td>
<td>- To ensure development is compatible with the environmental capabilities of the land</td>
</tr>
<tr>
<td></td>
<td>and does not unreasonably increase the demand for public services or public facilities</td>
</tr>
<tr>
<td></td>
<td>- To preserve and improve natural resources through appropriate land management practices</td>
</tr>
<tr>
<td>Land use zone</td>
<td>Objectives of the zone</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| **E4 Environmental living**       | • To provide for low-impact residential development in areas with special ecological, scientific or aesthetic values  
  • To ensure that residential development does not have an adverse effect on those values  
  • To minimise conflict between land uses within the zone and land uses within adjoining zones  
  • To ensure land uses are compatible with the available infrastructure, services and facilities and with the environmental capabilities of the land  
  • To preserve and improve natural resources through appropriate land management practices |
| **RU1 Primary production**        | • To encourage sustainable primary industry production by maintaining and enhancing the natural resource base  
  • To encourage diversity in primary industry enterprises and systems appropriate for the area  
  • To minimise the fragmentation and alienation of resource lands  
  • To minimise conflict between land uses within this zone and land uses within adjoining zones  
  • To protect and enhance the existing agricultural landscape character of the land  
  • To ensure development is compatible with the environmental capabilities of the land and does not unreasonably increase the demand for public services or public facilities  
  • To preserve and improve natural resources through appropriate land management practices |
| **RU2 Rural landscape**           | • To encourage sustainable primary industry production by maintaining and enhancing the natural resource base  
  • To maintain the rural landscape character of the land  
  • To provide for a range of compatible land uses, including extensive agriculture  
  • To minimise conflict between land uses within the zone and land uses within adjoining zones  
  • To preserve and improve natural resources through appropriate land management practices  
  • To ensure development is compatible with the environmental capabilities of the land and does not unreasonably increase the demand for public services or public facilities |
| **RU4 Primary production small lots** | • To enable sustainable primary industry and other compatible land uses  
  • To encourage and promote diversity and employment opportunities in relation to primary industry enterprises, particularly those that require smaller lots or that are more intensive in nature  
  • To minimise conflict between land uses within this zone and land uses within adjoining zones  
  • To ensure land uses are of a scale and nature that is compatible with the environmental capabilities of the land  
  • To preserve and improve natural resources through appropriate land management practices  
  • To maintain the rural landscape character of the land  
  • To ensure that development does not unreasonably increase the demand for public services or facilities |
## Socio-economic assessment

<table>
<thead>
<tr>
<th>Land use zone</th>
<th>Objectives of the zone</th>
</tr>
</thead>
</table>
| SP1 Special activities     | - To provide for special land uses that are not provided for in other zones  
- To provide for sites with special natural characteristics that are not provided for in other zones  
- To facilitate development that is in keeping with the special characteristics of the site or its existing or intended special use, and that minimises any adverse impacts on surrounding land |
| SP2 Infrastructure         | - To provide for infrastructure and related uses  
- To prevent development that is not compatible with or that may detract from the provision of infrastructure                                                                                                 |
| Liverpool LGA              |                                                                                                                                                                                                                     |
| RU1 Primary production     | - To encourage sustainable primary industry production by maintaining and enhancing the natural resource base  
- To encourage diversity in primary industry enterprises and systems appropriate for the area  
- To minimise the fragmentation and alienation of resource lands  
- To minimise conflict between land uses within this zone and land uses within adjoining zones  
- To ensure that development does not unreasonably increase the demand for public services or public facilities  
- To ensure that development does not hinder the development or operation of an airport on Commonwealth land in Badgery’s Creek  
- To preserve bushland, wildlife corridors and natural habitat |
| RU4 Primary production small lots | - To enable sustainable primary industry and other compatible land uses  
- To encourage and promote diversity and employment opportunities in relation to primary industry enterprises, particularly those that require smaller lots or that are more intensive in nature  
- To minimise conflict between land uses within this zone and land uses within adjoining zones |
| R2 Low density residential | - To provide for the housing needs of the community within a low density residential environment  
- To enable other land uses that provide facilities or services to meet the day to day needs of residents  
- To provide a suitable low scale residential character commensurate with a low dwelling density  
- To ensure that a high level of residential amenity is achieved and maintained |
| R5 Large lot residential   | - To provide residential housing in a rural setting while preserving, and minimising impacts on, environmentally sensitive locations and scenic quality  
- To ensure that large residential lots do not hinder the proper and orderly development of urban areas in the future  
- To ensure that development in the area does not unreasonably increase the demand for public services or public facilities  
- To minimise conflict between land uses within this zone and land uses within adjoining zones  
- To ensure that a high level of residential amenity is achieved and maintained  
- To provide for complementary uses that are of low impact and do not unreasonably increase the demand for public services or public facilities |
### Land use zone

<table>
<thead>
<tr>
<th>Land use zone</th>
<th>Objectives of the zone</th>
</tr>
</thead>
</table>
| **SP1 Special activities** | - To provide for special land uses that are not provided for in other zones  
- To provide for sites with special natural characteristics that are not provided for in other zones  
- To facilitate development that is in keeping with the special characteristics of the site or its existing or intended special use, and that minimises any adverse impacts on surrounding land |
| **SP2 Infrastructure** | - To provide for infrastructure and related uses  
- To prevent development that is not compatible with or that may detract from the provision of infrastructure  
- To reserve land for the provision of infrastructure                                                                                                                                                                                                                                      |

Source: Penrith LEP 2010; Liverpool LEP 2008

The Penrith LEP identifies land within the study area at Mulgoa and Glenmore Park as an urban release area (Glenmore Park Stage 2). The purpose of this land is to facilitate the sustainable development of residential, mixed use, retail and open space uses. Land within the operational footprint covered by the urban release area is currently zoned environmental conservation (E2).

#### 4.2.2 Areas of public domain

The public domain comprises the community’s public space, both functionally and visually (Roads and Maritime Services, undated). It includes shared urban areas and spaces, the structures that relate to those spaces and the infrastructure that supports and serves them, such as areas that are publicly owned and commonly accessed/used by the community (for example, parks, public squares and road verges); spaces between public and private activities (for example, outdoor eating and/or trading areas); private spaces that are visible but physically inaccessible to the public (Penrith City Council, 2014).

Key characteristics of the public domain in the study area include:

- Landscaping of the road verge for The Northern Road and other roads, which mainly comprises grassed areas and some established trees, but also includes moderately vegetated areas (for example, south of Bradley Street, near Grover Crescent and south of Luddenham town centre)
- Established trees and landscaping within properties along The Northern Road
- Rural landscapes, including grazing and cropping areas, rural residential uses, and conservation areas
- Luddenham town centre, which is characterised by its ‘village’ feel, and includes a mix of residential, commercial and community uses along The Northern Road
- Open space and recreation areas, including golf courses.

The public domain in the study area is affected by existing traffic on The Northern Road, including heavy vehicles, impacting noise, air quality, visual amenity and safety for local communities and road users. In particular, traffic volumes through the Luddenham town centre impact on the amenity and quality of the public domain.

#### 4.3 Population and housing

This section describes the key population, demographic and housing characteristics of the study area. In particular, it provides information on those groups within the community that may be most vulnerable to changes brought about by the project due to such things as their level of economic resources, age or need for assistance.

Data is provided for each of the SA2 areas within the study area along with data for the LGAs and NSW as a comparison. The information presented is primarily based on data from the ABS 2011 Census, supplemented
with information and data from other relevant sources such as NSW Government departments and Penrith and Liverpool councils. Further demographic information is also provided in Appendix B.

4.3.1 Population size, growth and mobility

The study area had a total resident population of 42,049 people at June 2015, of which more than half lived within Glenmore Park-Regentville. Mulgoa-Luddenham-Orchard Hills had the smallest resident population at 7,867 people (refer to Table 4-2). This reflects the urban, residential nature of the Glenmore Park-Regentville SA2 compared to the rural land uses within the other SA2s.

Over the 10 years to June 2015, the population of the study area grew by about 6,559 people, an average of about 1.7 per cent per annum. This was above the rate of population growth for NSW over the same period and was driven by relatively high population growth in Mulgoa-Luddenham-Orchard Hills and Badgerys Creek-Greendale, particularly between 2010 and 2015.

At a regional level, Penrith and Liverpool LGAs had a combined population of about 402,516 people at June 2015. Over the five and 10 years to 2015, average population growth in the Liverpool LGA was above the NSW average. Average population growth in the Penrith LGA was below the NSW average over the 10 years to 2015, although above the NSW average in the shorter term.

Table 4-2: Estimated resident population, 2005-2015

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2005</td>
<td>2010</td>
<td>2015</td>
</tr>
<tr>
<td>Glenmore Park-Regentville</td>
<td>20,080</td>
<td>21,461</td>
<td>23,092</td>
</tr>
<tr>
<td>Mulgoa-Luddenham-Orchard Hills</td>
<td>6,391</td>
<td>6,700</td>
<td>7,867</td>
</tr>
<tr>
<td>Badgerys Creek-Greendale</td>
<td>9,019</td>
<td>9,853</td>
<td>11,090</td>
</tr>
<tr>
<td>Study area</td>
<td>35,490</td>
<td>38,014</td>
<td>42,049</td>
</tr>
<tr>
<td>Penrith LGA</td>
<td>175,799</td>
<td>184,910</td>
<td>204,594</td>
</tr>
<tr>
<td>Liverpool LGA</td>
<td>167,472</td>
<td>184,910</td>
<td>204,594</td>
</tr>
<tr>
<td>NSW</td>
<td>6,693,206</td>
<td>7,144,292</td>
<td>7,617,684</td>
</tr>
</tbody>
</table>

Source: Commonwealth of Australia (2016a), Regional Population Growth, Australia, 2014-15 (Catalogue number 3218.0)

Information on population projections for the study area is available at an LGA level (refer to Table 4-3). The LGAs of Penrith and Liverpool are expected to experience relatively high rates of population growth over the 20 years to 2031, compared to NSW and the wider Sydney Metropolitan area. The combined population of the LGAs is projected to grow to about 550,400 people in 2031. This represents an increase of about 177,700 people from 2011, or an average annual growth rate of 2.0 per cent.

Population growth in the region is expected to focus on the Western Sydney Priority Growth Area, around the Western Sydney Airport at Badgerys Creek. The NSW Government is currently preparing a draft Land Use and Infrastructure Strategy to guide growth and investment in this area.
Table 4-3: Population projections, 2011-2031

<table>
<thead>
<tr>
<th>Locality</th>
<th>Population</th>
<th>Population change (2011-2031)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2011</td>
<td>2031</td>
<td>Number</td>
</tr>
<tr>
<td>Penrith LGA</td>
<td>184,600</td>
<td>261,450</td>
<td>76,850</td>
</tr>
<tr>
<td>Liverpool LGA</td>
<td>188,100</td>
<td>288,950</td>
<td>100,850</td>
</tr>
<tr>
<td>Metropolitan Sydney</td>
<td>4,286,200</td>
<td>5,861,750</td>
<td>1,575,550</td>
</tr>
<tr>
<td>NSW</td>
<td>7,218,550</td>
<td>9,228,350</td>
<td>2,009,800</td>
</tr>
</tbody>
</table>


The study area generally had relatively low levels of population mobility, with higher proportions of people who had lived at the same address both 12 months and five years prior to the 2011 Census compared to NSW (refer to Table 4-4). In 2011, 84.7 per cent of people in the study area lived at the same address 12 months prior to the 2011 Census, while 63.4 per cent lived at the same address five years prior to the Census. This is compared to 81.0 per cent and 57.2 per cent respectively, of people in NSW as a whole.

The population of Mulgoa-Luddenham-Orchard Hills demonstrated particularly low levels of mobility over both 12 months and five years, demonstrating relatively stable population. This is likely to reflect the more rural nature and more established communities in this area. Glenmore Park-Regentville recorded a level of population mobility above the study area average over the five years to 2011, which is likely to reflect the urban development that has occurred in this area since the 1990s.

Table 4-4: Population mobility, 2011 (%)

<table>
<thead>
<tr>
<th>Locality</th>
<th>Same address 12 months prior to 2011 Census</th>
<th>Same address five years prior to 2011 Census</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glenmore Park-Regentville</td>
<td>86.2</td>
<td>61.5</td>
</tr>
<tr>
<td>Mulgoa-Luddenham-Orchard Hills</td>
<td>86.3</td>
<td>69.1</td>
</tr>
<tr>
<td>Badgerys Creek-Greendale</td>
<td>80.7</td>
<td>63.8</td>
</tr>
<tr>
<td>Study area</td>
<td>84.7</td>
<td>63.4</td>
</tr>
<tr>
<td>Penrith LGA</td>
<td>84.1</td>
<td>62.6</td>
</tr>
<tr>
<td>Liverpool LGA</td>
<td>83.0</td>
<td>61.0</td>
</tr>
<tr>
<td>NSW</td>
<td>81.0</td>
<td>57.2</td>
</tr>
</tbody>
</table>

Source: ABS (2012a), 2011 Census of Population and Housing, Basic Community Profile (Catalogue number 2001.0)

4.3.2 Age profile

At the 2011 Census, the age profile of the study area generally reflected the age profiles for both the Penrith and Liverpool LGAs. The study area as a whole had a younger population compared to NSW, with a lower median age; higher proportion of children aged 14 years or under and people aged 25-44 years; and lower proportions of older people aged 65 years or over (refer to Figure 4-2).

The younger age profile of the study area was generally driven by a relatively young population in Glenmore Park-Regentville. At the 2011 Census, Glenmore Park-Regentville recorded a median age of 31 years, seven years below NSW as a whole. The older age profiles of Mulgoa-Luddenham-Orchard Hills and Badgerys Creek-Greendale is likely to reflect the more rural nature and more established communities in these areas.
4.3.3 Cultural diversity

Communities in the study area as a whole generally display lower levels of diversity compared with NSW, with lower proportions of Aboriginal people and people born overseas, and higher proportions of people who speak English only (refer to Table 4-5).

At the 2011 Census, about 26.3 per cent of people in the study area were born overseas. After Australia, the most common countries of birth were:

- The United Kingdom, Channel Islands and Isle of Man (4.1 per cent)
- Italy (2.2 per cent)
- Malta (1.3 per cent)
- Philippines (1.3 per cent)
- India (1.2 per cent).

About 19.3 per cent of people in the study area spoke a language other than English at home. The most common languages spoken at home after English were Italian (3.8 per cent); Arabic (2.6 per cent); and Maltese (1.3 per cent).

Nearly 10 per cent of people in the study area did not speak English well or at all, compared to 12.3 per cent in NSW as a whole. However, the population of Badgerys Creek-Greendale had relatively low levels of English proficiency, with 22.0 per cent not speaking English well or at all. People with lower levels of English proficiency represent a stakeholder group with particular communication needs and who may be more vulnerable to changes from the project.

Within the study area, the Badgerys Creek-Greendale SA2 recorded higher levels of diversity, with proportions of people who were born overseas, who spoke a language other than English and who did not speak English...
well or at all above the NSW average. At the 2011 Census, about 10.6 per cent of people in this SA2 spoke Italian and a further 6.0 per cent spoke Arabic.

At a regional level, the Liverpool LGA displayed high levels of diversity, with high proportions of people born overseas, people who speak a language other than English at home, and people with lower levels of English proficiency.

Table 4-5 : Cultural diversity, 2011 (%)

<table>
<thead>
<tr>
<th>Locality</th>
<th>Aboriginal people</th>
<th>People born overseas</th>
<th>Speaks language other than English at home</th>
<th>Does not speak English well or at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glenmore Park-Regentville</td>
<td>1.6</td>
<td>3.3</td>
<td>13.0</td>
<td>3.3</td>
</tr>
<tr>
<td>Mulgoa-Luddenham-Orchard Hills</td>
<td>1.7</td>
<td>2.1</td>
<td>14.2</td>
<td>4.7</td>
</tr>
<tr>
<td>Badgerys Creek-Greendale</td>
<td>1.4</td>
<td>3.7</td>
<td>36.1</td>
<td>22.0</td>
</tr>
<tr>
<td>Study area</td>
<td>1.6</td>
<td>3.2</td>
<td>19.3</td>
<td>9.8</td>
</tr>
<tr>
<td>Penrith LGA</td>
<td>3.0</td>
<td>3.7</td>
<td>14.6</td>
<td>5.8</td>
</tr>
<tr>
<td>Liverpool LGA</td>
<td>1.5</td>
<td>9.0</td>
<td>49.8</td>
<td>17.2</td>
</tr>
<tr>
<td>NSW</td>
<td>2.5</td>
<td>4.7</td>
<td>22.5</td>
<td>12.3</td>
</tr>
</tbody>
</table>

Source: ABS (2012a), 2011 Census of Population and Housing, Basic Community Profile (Catalogue number 2001.0)

4.3.4 Households and families

There were about 11,070 households in the study area at the 2011 Census. Compared to NSW, the study area had high proportions of family households and relatively low proportions of lone person and group households (refer to Figure 4-3).

At a regional level, there were about 112,986 households in the Penrith and Liverpool LGAs in 2011. This is projected to grow to about 191,550 by 2031, an average of about 2.2 per cent annually. This is above the projected rate of growth for both Metropolitan Sydney and NSW as a whole. A focus for growth and development within the region includes the Western Sydney Priority Growth Area, located around the Western Sydney Airport at Badgerys Creek, and the South West Priority Growth Area, located south of Bringelly Road.
There were about 10,039 families in the study area in 2011 of which, 46.1 per cent comprised families with children aged under 15 years (refer to Table 4-6). This was higher than the proportion of this family type in NSW as a whole. Compared to NSW, the study area had lower proportions of couple only families and higher proportions of families with no children aged under 15 years.

Within the study area, Glenmore Park-Regentville had very high proportions of young families, with this family type comprising more than half of all families in this SA2.

Table 4-6: Family composition, 2011

<table>
<thead>
<tr>
<th>Locality</th>
<th>Couple family with no children (%)</th>
<th>Families with children under 15 years (%)</th>
<th>Families with no children under 15 years (%)</th>
<th>Total families</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glenmore Park-Regentville</td>
<td>25.2</td>
<td>51.0</td>
<td>22.7</td>
<td>5,781</td>
</tr>
<tr>
<td>Mulgoa-Luddenham-Orchard Hills</td>
<td>33.5</td>
<td>38.4</td>
<td>27.1</td>
<td>1,748</td>
</tr>
<tr>
<td>Badgerys Creek-Greendale</td>
<td>30.4</td>
<td>40.3</td>
<td>28.2</td>
<td>2,510</td>
</tr>
<tr>
<td>Study area</td>
<td>28.0</td>
<td>46.1</td>
<td>24.9</td>
<td>10,039</td>
</tr>
<tr>
<td>Penrith LGA</td>
<td>29.6</td>
<td>42.7</td>
<td>26.2</td>
<td>48,360</td>
</tr>
<tr>
<td>Liverpool LGA</td>
<td>23.7</td>
<td>47.2</td>
<td>27.8</td>
<td>46,563</td>
</tr>
<tr>
<td>NSW</td>
<td>36.6</td>
<td>38.9</td>
<td>22.8</td>
<td>1,829,553</td>
</tr>
</tbody>
</table>

Source: ABS (2012a), 2011 Census of Population and Housing, Basic Community Profile (Catalogue number 2001.0)
4.3.5 Housing

Dwellings

There were 11,671 dwellings in the study area at the 2011 Census, of which about 95 per cent were occupied on Census night (refer to Table 4-7). Separate houses were the predominant dwelling type, accounting for about 88 per cent of dwellings in the study area. This was above the proportion of separate houses in the broader region and NSW as a whole, reflecting the outer suburban and semi-rural nature of the study area.

At a regional level, there were about 118,590 dwellings within the Penrith and Liverpool LGAs in 2011. It is projected that about 200,600 dwellings would be required to accommodate the region’s population by 2031.

Table 4-7: Dwellings, 2011

<table>
<thead>
<tr>
<th>Locality</th>
<th>Separate house (%)</th>
<th>Semi-detached dwelling, etc (%)</th>
<th>Flat, unit or apartment</th>
<th>Total private dwellings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glenmore Park-Regentville</td>
<td>88.3</td>
<td>7.6</td>
<td>0.7</td>
<td>6,574</td>
</tr>
<tr>
<td>Mulgoa-Luddenham-Orchard Hills</td>
<td>86.2</td>
<td>1.1</td>
<td>2.8</td>
<td>2,152</td>
</tr>
<tr>
<td>Badgerys Creek-Greendale</td>
<td>88.9</td>
<td>2.9</td>
<td>0.3</td>
<td>2,945</td>
</tr>
<tr>
<td>Study area</td>
<td>88.1</td>
<td>5.2</td>
<td>1.0</td>
<td>11,671</td>
</tr>
<tr>
<td>Penrith LGA</td>
<td>77.3</td>
<td>10.3</td>
<td>6.8</td>
<td>62,632</td>
</tr>
<tr>
<td>Liverpool LGA</td>
<td>72.1</td>
<td>11.4</td>
<td>12.1</td>
<td>55,958</td>
</tr>
<tr>
<td>NSW</td>
<td>62.8</td>
<td>9.6</td>
<td>17.0</td>
<td>2,736,637</td>
</tr>
</tbody>
</table>

Source: ABS (2012a), 2011 Census of Population and Housing, Basic Community Profile (Catalogue number 2001.0)

Housing cost and tenure

Overall, the study area had levels of owner occupied houses above the NSW average, and houses that were being rented below NSW as a whole (refer to Table 4-8). At the 2011 Census, about 75.8 per cent of occupied private dwellings in the study area were either owned outright or owned with a mortgage. This is compared to about 66.5 per cent in NSW as a whole. Mulgoa-Luddenham-Orchard Hills and Badgerys Creek-Greendale had higher proportions of houses that were owned outright, which is likely to reflect the older population and more established residential uses in these areas. About 58 per cent of occupied private dwellings in Glenmore Park-Regentville were owned with a mortgage, which reflects the more recent residential development that has occurred in this area over recent years.

About 22.1 per cent of occupied dwellings in the study area were being rented in 2011, which was below the regional and State averages. Sixty-five occupied private dwellings in the study area were being rented from a State housing authority. This represented less than one per cent of occupied private dwellings in the study area, which was well below the NSW average. The study area had proportions of dwellings that were being rented through an ‘other landlord type’, such as a residential park or employer, marginally above the NSW average.

Households in the study area had relatively high housing costs, with median weekly rent and monthly mortgage costs above the NSW average. Median rental and mortgage costs were also above the averages for both Penrith and Liverpool LGAs. Compared to NSW, the study area has a higher proportion of households that are likely to experience levels of housing stress due to mortgage repayments. At the 2011 Census, an average of 13.7 per cent of households in the study area were paying 30 per cent or more of their income on mortgage payments, compared to 10.5 per cent in NSW. While above the NSW average in all study area SA2s, this was at 16.7 per cent in Glenmore Park-Regentville.
Table 4-8: Housing tenure and costs, 2011

<table>
<thead>
<tr>
<th>Locality</th>
<th>Owner occupied (%)</th>
<th>Rented (%)</th>
<th>Rented (State housing authority) (%)</th>
<th>Median rental costs ($/week)</th>
<th>Median mortgage costs ($/month)</th>
<th>Rent payments are 30% or greater of household income (%)</th>
<th>Mortgage payments are 30% or greater of household income (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glenmore Park-Regentville</td>
<td>77.7</td>
<td>21.0</td>
<td>0.8</td>
<td>360</td>
<td>2,200</td>
<td>6.5</td>
<td>16.7</td>
</tr>
<tr>
<td>Mulgoa-Luddenham-Orchard Hills</td>
<td>78.5</td>
<td>18.9</td>
<td>0.2</td>
<td>290</td>
<td>2,200</td>
<td>6.2</td>
<td>12.0</td>
</tr>
<tr>
<td>Badgerys Creek-Greendale</td>
<td>69.3</td>
<td>27.1</td>
<td>0.4</td>
<td>320</td>
<td>2,358</td>
<td>11.6</td>
<td>12.4</td>
</tr>
<tr>
<td>Study area**</td>
<td>75.8</td>
<td>22.1</td>
<td>0.6</td>
<td>323</td>
<td>2,253</td>
<td>8.1</td>
<td>13.7</td>
</tr>
<tr>
<td>Penrith LGA</td>
<td>70.6</td>
<td>26.7</td>
<td>4.4</td>
<td>300</td>
<td>1,983</td>
<td>9.8</td>
<td>13.2</td>
</tr>
<tr>
<td>Liverpool LGA</td>
<td>66.0</td>
<td>30.4</td>
<td>7.9</td>
<td>295</td>
<td>2,167</td>
<td>12.2</td>
<td>16.7</td>
</tr>
<tr>
<td>NSW</td>
<td>66.5</td>
<td>30.1</td>
<td>4.4</td>
<td>300</td>
<td>1,993</td>
<td>11.6</td>
<td>10.5</td>
</tr>
</tbody>
</table>

Notes: * includes dwellings owned outright or owned with a mortgage; ** Median rental and mortgage costs and rent and mortgage payments for the study area refers to the average of SA2s in the study area

Source: ABS (2012a), 2011 Census of Population and Housing, Basic Community Profile (Catalogue number 2001.0); ABS (2013), 2011 Census QuickStats

4.3.6 Socio-economic disadvantage and need for assistance

A community’s level of socio-economic disadvantage may influence the ability of that community to cope with or respond to changes. The ABS produces a range of indices that indicate relative levels of socio-economic advantage and disadvantage (Socio-economic Indexes for Areas (SEIFA)). These include:

- The index of relative socio-economic disadvantage
- The index of relative socio-economic advantage and disadvantage
- The index of education and occupation
- The index of economic resources.

The SEIFA index of relative socio-economic disadvantage is derived from variables such as income, educational attainment, unemployment and vehicle ownership. Low decile values generally represent areas of disadvantage while high decile values generally represent areas of least disadvantage (Commonwealth of Australia, 2013a).

Figure 4.4 shows relative socio-economic disadvantage within the study area at the 2011 Census (Commonwealth of Australia, 2013d). Communities in the southern part of the study area, south of Elizabeth Drive, generally demonstrate higher levels of relative disadvantage, with some communities in the bottom 30-40 per cent of communities in NSW in relation to disadvantage. Communities in the northern part of the study area generally display lower levels of relative disadvantage, particularly in Glenmore Park and Mulgoa.
Figure 4-4 | Relative socio-economic disadvantage

The Northern Road upgrade - Mersey Road to Glenmore Parkway

- The Northern Road (existing)
- Study area
- Socio-economic data not available

Index of relative socio-economic disadvantage decile

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
</table>
| Decreasing level of disadvantage
Need for assistance refers to people who need help or assistance in at least one of the three core activity areas of self-care, mobility or communication due to disability, a long term health condition or old age. These groups may be more vulnerable to the effects of major projects, such as changes in local access; property acquisition, including loss of social and community networks; and changes in local amenity.

Overall the study area generally had levels of people needing assistance below the Penrith and Liverpool LGAs and NSW averages. At the 2011 Census, about 3.7 per cent of the study area’s population needed assistance in at least one of the three core activities, compared to 4.3 per cent and 5.4 per cent in Penrith and Liverpool LGAs respectively, and 4.9 per cent in NSW.

Within the study area, Badgerys Creek-Greendale recorded the highest level of people needing assistance at 5.9 per cent. A further 8.4 per cent of people in this SA2 did not state whether they needed assistance, which was above the NSW average (at 5.7 per cent). Glenmore Park-Regentville recorded the lowest need for assistance in the study area.

### 4.3.7 Vehicle ownership

Households in the study area generally had a high level of private vehicle access, with low proportions of households without access to a motor vehicle or only one motor vehicle, and high proportions of households with two or more motor vehicles (refer to Table 4-9). This is likely to reflect the study area’s outer suburban and semi-rural location and lack of access to alternative transport options, such as bus and rail services.

<table>
<thead>
<tr>
<th>Locality</th>
<th>No motor vehicles</th>
<th>One motor vehicle</th>
<th>Two or more motor vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glenmore Park-Regentville</td>
<td>1.9</td>
<td>24.9</td>
<td>71.8</td>
</tr>
<tr>
<td>Mulgoa-Luddenham-Orchard Hills</td>
<td>3.0</td>
<td>20.3</td>
<td>74.2</td>
</tr>
<tr>
<td>Badgerys Creek-Greendale</td>
<td>2.8</td>
<td>20.3</td>
<td>73.1</td>
</tr>
<tr>
<td>Study area</td>
<td>2.3</td>
<td>22.9</td>
<td>72.5</td>
</tr>
<tr>
<td>Penrith LGA</td>
<td>7.5</td>
<td>32.5</td>
<td>57.1</td>
</tr>
<tr>
<td>Liverpool LGA</td>
<td>9.4</td>
<td>30.6</td>
<td>56.1</td>
</tr>
<tr>
<td>NSW</td>
<td>10.4</td>
<td>37.8</td>
<td>48.6</td>
</tr>
</tbody>
</table>

Source: ABS (2012a), 2011 Census of Population and Housing, Basic Community Profile (Catalogue number 2001.0)

### 4.4 Economic profile

This section describes the key economic characteristics of the study area, including income, employment and local business and industry.

#### 4.4.1 Income and employment

**Income**

The study area recorded median personal and household incomes above the NSW average in 2011. Income levels varied across the study area, with higher median incomes for the study area as a whole generally driven by very high incomes in Glenmore Park-Regentville (refer to Table 4-10). Badgerys Creek-Greendale had a median personal income below the NSW average although household incomes were above the NSW average.

Compared to NSW, the study area generally had lower proportions of low income households (with a weekly income of less than $600) and higher proportions of high income households (with a weekly income of $2,000
or more). The higher proportion of high income households in the study area was generally due to high proportions of this household type in Glenmore Park-Regentville and Mulgoa-Luddenham-Orchard Hills.

### Table 4-10: Income, 2011

<table>
<thead>
<tr>
<th>Locality</th>
<th>Median total income ($/week)</th>
<th>Weekly household income (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Personal income</td>
<td>Household income</td>
</tr>
<tr>
<td>Glenmore Park-Regentville</td>
<td>780</td>
<td>1,920</td>
</tr>
<tr>
<td>Mulgoa-Luddenham-Orchard Hills</td>
<td>629</td>
<td>1,594</td>
</tr>
<tr>
<td>Badgerys Creek-Greendale</td>
<td>495</td>
<td>1,310</td>
</tr>
<tr>
<td>Study area</td>
<td>635*</td>
<td>1,608*</td>
</tr>
<tr>
<td>Penrith LGA</td>
<td>623</td>
<td>1,398</td>
</tr>
<tr>
<td>Liverpool LGA</td>
<td>510</td>
<td>1,299</td>
</tr>
<tr>
<td>NSW</td>
<td>561</td>
<td>1,237</td>
</tr>
</tbody>
</table>

Notes: * Average of median incomes for SA2s in the study area

Source: ABS (2012a), 2011 Census of Population and Housing, Basic Community Profile (Catalogue number 2001.0)

### Employment

There were about 19,691 people in the study area aged 15 years or over who were either employed or looking for work at the 2011 Census. This represented a labour force participation rate of 69.2 per cent, which was above the NSW average at 59.7 per cent (refer to Table 4-11). Labour force participation varied across the study area, with Glenmore Park-Regentville having high rates of participation, while Badgerys Creek-Greendale reported labour force participation below the NSW average.

The study area had a relatively low rate of unemployment, with 3.9 per cent of the study area’s labour force unemployed at the 2011 Census. This is compared to 5.9 per cent in NSW and 5.5 per cent and 7.0 per cent in Penrith LGA and Liverpool LGA respectively.

### Table 4-11: Labour force, 2011

<table>
<thead>
<tr>
<th>Locality</th>
<th>Labour force</th>
<th>Labour force participation</th>
<th>Unemployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glenmore Park-Regentville</td>
<td>11,714</td>
<td>76.0</td>
<td>3.6</td>
</tr>
<tr>
<td>Mulgoa-Luddenham-Orchard Hills</td>
<td>3,472</td>
<td>66.6</td>
<td>3.9</td>
</tr>
<tr>
<td>Badgerys Creek-Greendale</td>
<td>4,505</td>
<td>57.7</td>
<td>4.7</td>
</tr>
<tr>
<td>Study area</td>
<td>19,691</td>
<td>69.2</td>
<td>3.9</td>
</tr>
<tr>
<td>Penrith LGA</td>
<td>92,283</td>
<td>66.0</td>
<td>5.5</td>
</tr>
<tr>
<td>Liverpool LGA</td>
<td>80,188</td>
<td>58.2</td>
<td>7.0</td>
</tr>
<tr>
<td>NSW</td>
<td>3,334,857</td>
<td>59.7</td>
<td>5.9</td>
</tr>
</tbody>
</table>

Source: ABS (2012a), 2011 Census of Population and Housing, Basic Community Profile (Catalogue number 2001.0)
In 2011, key industries of employment for residents in the study area included:

- Retail trade (employing 11.3 per cent of the study area’s population aged 15 years or over)
- Manufacturing (10.5 per cent)
- Construction (10.3 per cent)
- Health care and social assistance (8.8 per cent)
- Public administration and safety (7.3 per cent).

Apart from health care and social assistance, the proportion of people employed in these industries was above the NSW average (refer to Figure 4-5).

About 445 people in the study area were employed in agriculture, forestry and fishing at the 2011 Census. This represented about 2.4 per cent of the study area’s population aged 15 years or over, which was marginally above the NSW average at 2.2 per cent. Agriculture, forestry and fishing was a particularly important industry for Badgerys Creek-Greendale, employing about 332 people or 7.7 per cent of people aged 15 years or over in this SA2.

There were approximately 946 people in the study area employed in tourism related industries, such as accommodation and food services. This represented about 5.0 per cent of people aged 15 years or over, which was below the NSW and regional averages.

Figure 4-5 : Industry of employment, 2011

Source: ABS (2012a), 2011 Census of Population and Housing, Basic Community Profile (Catalogue number 2001.0)
4.4.2 Agriculture

The distribution of agricultural land uses in the study area is shown on Figure 4.6. Land used for cropping is mainly located in the southern part of the study area, west of The Northern Road. Horticultural land is scattered across the study area, although is mainly located at Luddenham and Wallacia.

In 2010-2011, the study area had a total of 6,541 hectares of agricultural land, of which nearly 65 per cent was located in Badgerys Creek-Greendale and about 35 per cent in Mulgoa-Luddenham-Orchard Hills (refer to Table 4-12).

Land used for grazing comprised nearly three quarters of agricultural land in the study area, with cropping comprising about a further 8 per cent. Remaining agricultural land comprised a mix of conservation land, land not used for agricultural production, and land used for forestry.

Total agricultural land in the study area comprised about 67 per cent of combined agricultural land in the Penrith and Liverpool LGAs. The study area accounted for about 68.8 per cent of the region’s grazing land, and about 55.2 per cent of land used for cropping. Total agricultural land in the study area represented about 0.01 per cent of total agricultural land in NSW.

<table>
<thead>
<tr>
<th>Area of holding</th>
<th>Indicator</th>
<th>Glenmore Park-Regentville</th>
<th>Mulgoa-Luddenham-Orchard Hills</th>
<th>Badgerys Creek-Greendale</th>
<th>Study area</th>
<th>NSW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total area of holding</td>
<td>Estimated area (hectares)</td>
<td>18.0</td>
<td>2,278</td>
<td>4,245</td>
<td>6,541</td>
<td>58,326,346</td>
</tr>
<tr>
<td>Proportion of study area (%)</td>
<td>0.3</td>
<td>34.8</td>
<td>64.9</td>
<td>100.0</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Land mainly used for crops</td>
<td>Estimated area (hectares)</td>
<td>0.0</td>
<td>168</td>
<td>348</td>
<td>516</td>
<td>9,209,190</td>
</tr>
<tr>
<td>Proportion of study area (%)</td>
<td>0.0</td>
<td>32.6</td>
<td>67.4</td>
<td>100.0</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Land mainly used for grazing</td>
<td>Estimated area (hectares)</td>
<td>18.0</td>
<td>2,000</td>
<td>2,756</td>
<td>4,774</td>
<td>46,419,229</td>
</tr>
<tr>
<td>Proportion of study area (%)</td>
<td>0.4</td>
<td>41.9</td>
<td>57.7</td>
<td>100.0</td>
<td>n/a</td>
<td></td>
</tr>
</tbody>
</table>

Source: Commonwealth of Australia (2012), Agricultural Commodities, Australia 2010-11 (Catalogue number 7121.0)

The NSW Government has mapped land at a regional scale to identify areas of Biophysical Strategic Agricultural Land (BSAL) across NSW. BSAL comprises land with high quality soil and water resources capable of sustaining high levels of productivity. No land within the study area is identified at a regional level as BSAL, with the nearest areas mapped as BSAL located along the Nepean River (www.planning.nsw.gov.au/Policy-and-Legislation/Mining-and-Resources/Safeguarding-our-Agricultural-Land).

Regional land and soil capability mapping indicates that land within the study area mainly comprises areas of low to moderate capability. Land defined as moderate capability land is generally suitable for pasture cropping, grazing, some horticulture and forestry. Land defined as having moderate-low capability is generally suitable for nature conservation and limited cropping and cultivation, while low capability land is generally suitable for grazing, forestry and nature conservation (State of NSW, Hawkesbury-Nepean Catchment Management Authority, 2013).
Figure 4-6 | Agricultural land uses

The Northern Road upgrade - Mersey Road to Glenmore Parkway

- The Northern Road (Existing)
- Operational boundary
- Local government area

Agricultural land use
- River & Drainage System
- Intensive Animal Production
- Cropping
- Horticulture
- Grazing
Agricultural land use

- River & Drainage System
- Intensive Animal Production
- Cropping
- Horticulture
- Grazing

Figure 4-6 | Agricultural land uses
Table 4-13 provides information on the main agricultural commodities in the study area. In 2010-2011, there were about 338 agricultural businesses in the study area, of which about 129 businesses were farming livestock, and about 217 businesses were farming crops. About 77.2 per cent of agricultural businesses were located in Badgerys Creek-Greendale, with a further 21.9 per cent in Mulgoa-Luddenham-Orchard Hills. Agricultural businesses in Glenmore Park-Regentville accounted for less than one per cent of agricultural businesses in the study area, reflecting the increased urban development that has occurred in this area.

Vegetable farms comprised the largest number of agricultural businesses in the study area, with about 163 vegetable farms (about 48.2 per cent of agricultural businesses) in the study area in 2010-2011. Tomatoes, herbs, lettuce, capsicum and broccoli were the top five vegetables farmed in the study area by land area and number of businesses. Nearly 90 per cent of vegetable farms in the study area were located in Badgerys Creek-Greendale, with the remaining 10 per cent in Mulgoa-Luddenham-Orchard Hills. The next largest producers by number of businesses were:

- Meat (beef) cattle enterprises, which represented about 16.6 per cent of agricultural businesses (56 businesses) in the study area. About 55 per cent of beef cattle farms in the study area were located in Mulgoa-Luddenham-Orchard Hills
- Poultry meat farms, which comprised about 7.7 per cent of farming businesses (26 businesses) in the study area, nearly all of which were located in Badgerys Creek-Greendale
- Nurseries, which accounted for 16 agricultural businesses (about 4.7 per cent of total agricultural businesses) in the study area in 2010-2011. About 80 per cent of nurseries were located in Badgerys Creek-Greendale.

In 2010-2011, there were five dairy farms with a total of 4,903 dairy cattle in the study area, with all of these located in Badgerys Creek-Greendale. This represented about half of dairy farms in the combined Liverpool and Penrith LGAs, and about 91 per cent of cattle. Dairy businesses in the study area represented about 0.3 per cent of dairy businesses in NSW, and about 1.5 per cent of dairy cattle.

Table 4-14 shows the value of agricultural production in the Penrith and Liverpool LGAs in 2010-2011. The Penrith LGA had a total agricultural output of about $83 million in 2010. At the same time, total agricultural output in the Liverpool LGA was about $73 million. This represented about 0.7 per cent and 0.6 per cent of total agricultural production in NSW as a whole.

In terms of value, meat poultry was the largest commodity produced in both the Penrith and Liverpool LGAs in 2010-2011. In particular, this represented nearly 50 per cent of agricultural production value in the Liverpool LGA. Combined, the Penrith and Liverpool LGAs represented about 14.7 per cent of meat poultry production in NSW. Other important commodities in relation to agricultural production value included:

- Vegetables, which represented nearly 25 per cent of the combined value of agricultural production in the Penrith and Liverpool LGAs. Vegetables represented about 27.6 per cent of Liverpool LGA’s agricultural production value alone
- Eggs, which represented about 31 per cent of the value of agricultural production in the Penrith LGA. This comprised about 13.3 per cent of the value of egg production in NSW
- Dairy cattle, which comprised about 9.2 per cent of the value of agricultural production in the Liverpool LGA. This represented about 1.3 per cent of milk production in NSW.
### Table 4-13: Agricultural commodities, 2010-2011

<table>
<thead>
<tr>
<th>Agricultural commodity</th>
<th>Glenmore Park-Regentville</th>
<th>Mulgoa-Luddenham-Orchard Hills</th>
<th>Badgerys Creek-Greendale</th>
<th>Study area</th>
<th>NSW</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimate</td>
<td>No. of ag. businesses</td>
<td>Estimate</td>
<td>No. of ag. businesses</td>
<td>Estimate</td>
</tr>
<tr>
<td>Livestock</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beef cattle (number)</td>
<td>7</td>
<td>1</td>
<td>1,244</td>
<td>31</td>
<td>818</td>
</tr>
<tr>
<td>Dairy cattle (number)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4,903</td>
</tr>
<tr>
<td>Chickens for eggs (number)</td>
<td>0</td>
<td>0</td>
<td>22,033</td>
<td>2</td>
<td>66,661</td>
</tr>
<tr>
<td>Poultry for meat (incl chicken, duck, turkey) (number)</td>
<td>0</td>
<td>0</td>
<td>323,766</td>
<td>2</td>
<td>1,801,018</td>
</tr>
<tr>
<td>Horses non-stud (number)</td>
<td>0</td>
<td>0</td>
<td>11</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td>Horses stud (number)</td>
<td>2</td>
<td>1</td>
<td>25</td>
<td>5</td>
<td>112</td>
</tr>
<tr>
<td>Pigs (number)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>513</td>
</tr>
<tr>
<td>Sheep lambs (number)</td>
<td>0</td>
<td>0</td>
<td>46</td>
<td>2</td>
<td>61</td>
</tr>
<tr>
<td>Total livestock/ livestock businesses*</td>
<td>9</td>
<td>2</td>
<td>347,132</td>
<td>45</td>
<td>1,874,118</td>
</tr>
<tr>
<td>Cropping</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hay (hectares)</td>
<td>17</td>
<td>1</td>
<td>29</td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>Broadacre crops – cereal crops (hectares)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>154</td>
</tr>
<tr>
<td>Broadacre crops – non cereal crops (hectares)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Fruit and nuts (excl grapes) (hectares)</td>
<td>0</td>
<td>0</td>
<td>26</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>
### Table 4-14: Value of agricultural production, 2011

<table>
<thead>
<tr>
<th>Agricultural commodity</th>
<th>Penrith LGA</th>
<th>Liverpool LGA</th>
<th>NSW</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value of agricultural production ($)</td>
<td>Proportion of agricultural production (%)</td>
<td>Value of agricultural production ($)</td>
</tr>
<tr>
<td><strong>Livestock</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beef cattle</td>
<td>815,596</td>
<td>1.0</td>
<td>3,063,473</td>
</tr>
<tr>
<td>Dairy cattle</td>
<td>681,589</td>
<td>0.8</td>
<td>6,742,770</td>
</tr>
<tr>
<td>Chickens for eggs</td>
<td>25,820,703</td>
<td>31.1</td>
<td>2,734,084</td>
</tr>
</tbody>
</table>

Note * includes other livestock/ crops and businesses not in the categories listed.
Source: Commonwealth of Australia (2012), Agricultural Commodities, Australia 2010-11 (Catalogue number 7121.0)
### Socio-economic assessment

<table>
<thead>
<tr>
<th>Agricultural commodity</th>
<th>Penrith LGA</th>
<th></th>
<th>Liverpool LGA</th>
<th></th>
<th>NSW</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value of agricultural production ($)</td>
<td>Proportion of agricultural production (%)</td>
<td>Value of agricultural production ($)</td>
<td>Proportion of agricultural production (%)</td>
<td>Value of agricultural production ($)</td>
<td>Proportion of agricultural production (%)</td>
</tr>
<tr>
<td>Poultry for meat (incl chicken, duck, turkey)</td>
<td>30,127,755</td>
<td>36.2</td>
<td>36,335,618</td>
<td>49.5</td>
<td>685,989,465</td>
<td>5.9</td>
</tr>
<tr>
<td>Pigs</td>
<td>-</td>
<td></td>
<td>243,017</td>
<td>0.3</td>
<td>166,206,948</td>
<td>1.4</td>
</tr>
<tr>
<td>Sheep lambs</td>
<td>3,467</td>
<td>0.0</td>
<td>275</td>
<td>0.0</td>
<td>609,761,626</td>
<td>5.2</td>
</tr>
<tr>
<td>Cropping</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hay</td>
<td>264,362</td>
<td>0.3</td>
<td>40,372</td>
<td>0.1</td>
<td>283,630,872</td>
<td>2.4</td>
</tr>
<tr>
<td>Broadacre crops – cereal crops</td>
<td>-</td>
<td>-</td>
<td>205,933</td>
<td>0.3</td>
<td>3,508,940,995</td>
<td>30.1</td>
</tr>
<tr>
<td>Broadacre crops – non cereal crops</td>
<td>687</td>
<td>0.0</td>
<td>11,454</td>
<td>0.0</td>
<td>1,857,891,918</td>
<td>16.0</td>
</tr>
<tr>
<td>Fruit and nuts (excl grapes)</td>
<td>354,427</td>
<td>0.4</td>
<td>345,752</td>
<td>0.5</td>
<td>454,535,144</td>
<td>3.9</td>
</tr>
<tr>
<td>Fruit and nuts – grapes</td>
<td>1,407</td>
<td>0.0</td>
<td>-</td>
<td></td>
<td>142,676,426</td>
<td>1.2</td>
</tr>
<tr>
<td>Cut flowers</td>
<td>308,621</td>
<td>0.4</td>
<td>2,483,466</td>
<td>3.4</td>
<td>55,568,825</td>
<td>0.5</td>
</tr>
<tr>
<td>Cultivated turf</td>
<td>2,848,129</td>
<td>3.4</td>
<td>89,352</td>
<td>0.1</td>
<td>81,741,568</td>
<td>0.7</td>
</tr>
<tr>
<td>Nurseries</td>
<td>3,137,558</td>
<td>3.8</td>
<td>858,443</td>
<td>1.2</td>
<td>174,296,227</td>
<td>1.5</td>
</tr>
<tr>
<td>Vegetables</td>
<td>18,778,251</td>
<td>22.6</td>
<td>20,287,681</td>
<td>27.6</td>
<td>445,321,248</td>
<td>3.8</td>
</tr>
<tr>
<td>Total</td>
<td>83,147,926</td>
<td></td>
<td>73,445,638</td>
<td></td>
<td>11,639,993,575</td>
<td></td>
</tr>
</tbody>
</table>

Source: NSW Trade and Investment (undated), Value of Agricultural Production Data 2006-2011 – interactive spreadsheet (based on 2005-06 and 2010-11 Agriculture Census – data cubes from ABS CD)
Leppington Pastoral Company

The Leppington Pastoral Company (LPC) operates a dairy farm and organic fertiliser business on about 540 hectares of land at The Northern Road, Bringelly (known as LPC Base Farm). The farm comprises areas used for water storage (65 hectares), dryland farming (239 hectares), irrigation (160 hectares), and associated utilities such as housing, sheds, silage pits and irrigation infrastructure (38 hectares). The property also accommodates a number of residences and workers accommodation cottages.

The dairy milks over 2,000 cows on a 24 hour, 7 day a week basis and produces about 68,500 litres of milk daily. The dairy operations also include the rearing of calves born on the farm or nearby properties associated with the LPC. Dairy infrastructure on the farm covers about 14 hectares and comprises two free stall barns, dry weather exercise lots, milking centre, effluent treatment ponds and calf rearing sheds and pens. Wastewater from the dairy operations is used for irrigated cropping areas covering about 200 hectares. The LPC also offers educational tours of the dairy for senior school students throughout the year.

In addition to the dairy, the LPC Base Farm incorporates an organic fertiliser business, which uses manure generated from onsite farming operations and off-site poultry farms to produce organic fertiliser.

4.4.3 Local businesses

Businesses in the study area

There were 3,495 registered businesses in the study area in June 2015 (refer to Table 4-15). Construction had the most businesses accounting for about 27.2 per cent of all businesses in the study area. This was followed by transport, postal and warehousing (12.0 per cent); and rental, hiring and real estate services (9.6 per cent).

Agriculture, forestry and fishing related businesses accounted for 8.0 per cent of businesses in the study area. Badgerys Creek-Greendale had the largest number of agriculture, forestry and fishing businesses, accommodating nearly 70 per cent of agricultural, forestry and fishing related businesses in the study area. Agricultural, forestry and fishing related business comprised about 13.7 per cent of total businesses in Badgerys Creek-Greendale and 7.2 per cent of businesses in Mulgoa-Luddenham-Orchard Hills.

There were 65 tourism related businesses in the study area, providing accommodation and food services. This represented about 1.9 per cent of total businesses in the study area. Glenmore Park-Regentville had the highest number of accommodation and food services businesses within the study area.

Table 4-15: Businesses by industry, 2015 (%)
In June 2015, about 97.9 per cent of businesses in the study area comprised small businesses employing less than 20 people (refer to Figure 4-7). About 54.3 per cent of businesses comprised non-employing businesses (sole proprietorships and partnerships without employees), while 35.9 per cent had 1-4 employees, and 7.8 per cent had 5-19 employees. About 2.0 per cent of businesses (69 businesses) employed between 20 people and 200 people. The study area had a very small number of large businesses, employing 200 people or more. These were located in Badgerys Creek-Greendale and generally included manufacturing businesses.
Figure 4-7 : Business size – employees, 2015

Source: ABS (2016b), 81650 Counts of Australian Businesses, including Entries and Exits, Jun 2011 to Jun 2015 (Catalogue number 81650)

Businesses with an annual turnover of between $200,000 and $500,000 comprised the largest group, representing about 23.7 per cent of businesses in the study area. Businesses with an annual turnover of less than $50,000 comprised the second largest group, followed by businesses with an annual turnover of between $100,000 and $200,000. There were 175 businesses in the study area that had an annual turnover of $2 million or more, representing about 5.0 per cent of businesses in the study area. Construction had the largest number of businesses with a turnover above $2 million, followed by transport, postal and warehousing; and wholesale trade.

Local businesses near the project

A number of businesses are located near the project that may experience changes from the construction and/or operation of the project. Information on each of these businesses is provided in Table 4-16.

Table 4-16 : Local businesses near the project

<table>
<thead>
<tr>
<th>Locality</th>
<th>Business</th>
<th>Industry category</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glenmore Park</td>
<td>Carlo Raineri &amp; Associates</td>
<td>Building construction (residential building construction)</td>
<td>Home based business in building construction services.</td>
</tr>
<tr>
<td></td>
<td>Penrith Golf and Recreation Club</td>
<td>Sport and recreation activities (sports and physical recreation activities)</td>
<td>An 18-hole private golf course. The clubhouse and off-street car park is located immediately north of Glenmore Parkway. The car park provides parking for more than 50 vehicles. Access to the clubhouse and car park is via left-in access only and left and right out access.</td>
</tr>
<tr>
<td>Locality</td>
<td>Business</td>
<td>Industry category</td>
<td>Comment</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------------------------</td>
<td>---------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Orchard Hills</td>
<td>Vic’s Produce and Pet Centre</td>
<td>Other store based retailing</td>
<td>This business has been operating for over 10 years and provides a range of pet, gardening and rural supplies. The business provides off-street parking for up to about 20 cars, with direct left-in/ left-out access from The Northern Road.</td>
</tr>
<tr>
<td>Orchard Hills</td>
<td>Orchard Hills Golf Club</td>
<td>Sports and recreation</td>
<td>This is a private nine-hole golf course located within the Defence Establishment Orchard Hills site (i.e. is situated within Commonwealth land). Membership of the golf club is open to members of the public.</td>
</tr>
<tr>
<td>Mulgoa</td>
<td>Eireka Pty Ltd</td>
<td>Farm equipment supplier</td>
<td>The home based business provides new and used equipment to the construction, agricultural, forestry and mining industries. Access to the business is provided from Kings Hill Road. All movement access is provided at Kings Hill Road and The Northern Road intersection.</td>
</tr>
<tr>
<td></td>
<td>Classic Wedding Carriages</td>
<td>Limousine service</td>
<td>The home based business provides wedding car hire. Access to the business is provided from Kings Hill Road. All movement access is provided at Kings Hill Road and The Northern Road intersection.</td>
</tr>
<tr>
<td></td>
<td>Stones Kart Sport</td>
<td>Car repair shop</td>
<td>The home based business has been operating for about 27 years and provides services to karts. Access is provided from Longview Road, with all movement access provided at the intersection of Longview Road and The Northern Road.</td>
</tr>
<tr>
<td></td>
<td>Warratah Park Puppies</td>
<td>Dog breeders</td>
<td>Home based business breeding and raising puppies. The business sells puppies across Australia and overseas. All movement access is currently provided to The Northern Road.</td>
</tr>
<tr>
<td></td>
<td>Complete roofing</td>
<td>Roofing service</td>
<td>The home based business has been operating for over 30 years and provides a range of roofing services. All movement access is currently provided to The Northern Road.</td>
</tr>
<tr>
<td></td>
<td>GRS towing</td>
<td>Other transport</td>
<td>Towing business with associated dwelling on the site. All movement access is provided to The Northern Road.</td>
</tr>
<tr>
<td></td>
<td>Seigokan Academy Australia</td>
<td>Sports and recreation activities</td>
<td>Instruct karate classes. Off street parking is provided for up to about 20 cars. All movement access is provided from The Northern Road.</td>
</tr>
<tr>
<td>Locality</td>
<td>Business</td>
<td>Industry category</td>
<td>Comment</td>
</tr>
<tr>
<td>---------------</td>
<td>-----------------------------------</td>
<td>--------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Horse N Around</td>
<td>Retail (recreational goods)</td>
<td>Other livestock farming</td>
<td>This business has been operating for about 25 years. It offers a range of horse riding products, stables horses (overnight and long-term) and hires an obstacle course. The business provides off-street parking for about five cars. Dual access is provided from Littlefields Street, with all movement access at the intersection of Littlefields Street and The Northern Road.</td>
</tr>
<tr>
<td>Luddenham</td>
<td>The Honey Shed</td>
<td>Agriculture (other livestock farming)</td>
<td>Comprises honey production and retail outlet. The business is visited by a number of international and domestic tourists, including about 2-4 tour buses each month. All movement access is provided to The Northern Road.</td>
</tr>
<tr>
<td></td>
<td>A L Tours</td>
<td>Other transport (scenic and sightseeing transport)</td>
<td>Home based business, providing guided tours and bus charter services. At the same property as A &amp; M Excavations.</td>
</tr>
<tr>
<td></td>
<td>A &amp; M Excavations/Leonello Plant Hire</td>
<td>Equipment hire</td>
<td>Home based business. Excavation and earth moving contractors and equipment hire. At the same property as A L Tours.</td>
</tr>
<tr>
<td></td>
<td>Cut Your Own Christmas Trees (Top Shape Live Christmas Trees)</td>
<td>Nursery and floriculture production</td>
<td>Grow and sell Christmas trees on site. All movement access is provided from The Northern Road.</td>
</tr>
<tr>
<td></td>
<td>Luddenham Pet Meats</td>
<td>Meat product manufacturing</td>
<td>The business is a pet food supplier that has been operating for 50 years. Business associated with residential use. Dual access is from The Northern Road, with all movement access provided.</td>
</tr>
<tr>
<td></td>
<td>Triple A Christmas Tree Farm</td>
<td>Nursery and floriculture production</td>
<td>The business is located within Luddenham town centre. An area used for tree growing is located at Eaton Road south of Luddenham town centre.</td>
</tr>
<tr>
<td></td>
<td>Shell service station</td>
<td>Retail trade (service station)</td>
<td>The service station is located on a property comprising the service station, supermarket, café and takeaway, and speciality retail and personal services. The business has been operating for over six years. Direct access is provided to The Northern Road</td>
</tr>
<tr>
<td>Bringelly</td>
<td>LPC Base Farm</td>
<td>Dairy cattle farming</td>
<td>Dairy farm and organic fertiliser business on about 540 hectares of land. Further information on the LPC Base Farm is provided in section 4.4.2.</td>
</tr>
<tr>
<td></td>
<td>Grassington Alpacas</td>
<td>Agriculture (livestock farming)</td>
<td>Alpaca Stud.</td>
</tr>
<tr>
<td></td>
<td>Southern Cross Truck Rentals</td>
<td>Vehicle hire</td>
<td>Truck hire company. Access is provided to Dwyer Road, with all movement access at</td>
</tr>
</tbody>
</table>
Businesses within Luddenham town centre

As indicated in section 2.2.1, two separate surveys were conducted to gather information on local businesses within Luddenham town centre and the wider study area. A range of businesses are located within Luddenham that service the needs of local and regional communities, including:

- Grocery retailers, including supermarket, fruit and vegetable stall, and butcher
- Other retailers, such as pharmacy, newsagent and post office, workwear supplier and florist
- Food services, including cafes, restaurants, bakery and takeaway
- Service stations
- Personal service providers, such as hairdressers and beauty salons
- Health and medical services.

The majority of businesses surveyed had operated within Luddenham for more than six years, with three businesses indicating that they had been operating for more than 20 years. Most businesses employ up to about five people, with one indicating they employed 21-50 people.

Most of the businesses surveyed indicated that they served a predominantly 'local' catchment within about 20 km of Luddenham. The main areas identified by businesses included:

- Bringelly, Harrington Park, Oran Park, Narellan and Gregory Hills south of Luddenham
- Penrith and Glenmore Park to the north
- Mulgoa, Wallacia, Warragamba, Silverdale and the Blue Mountains west of Luddenham
- Twin Creeks and Liverpool to the east.

However, some businesses also indicated that they attracted customers from across greater Sydney and Wollongong. The number plate survey generally confirmed this feedback.

Table 4-17 shows the top 10 suburbs of origin for customers of businesses in Luddenham town centre, while Figure 4-8 shows the broader distribution of suburbs of origin. The survey found that businesses within the town centre attract customers from across the greater Sydney area, although the majority of customers generally come from suburbs within about 20 km of Luddenham. Luddenham accounted for about 12.6 per cent of customers who drove to businesses in the town, with the next most popular suburbs of origin being Bringelly (6.5 per cent) and Silverdale (6.1 per cent).

The median distance travelled by customers of businesses within Luddenham town centre was about 18 km. About six per cent of customers lived further than 100 km from Luddenham. About 23 per cent of customers of businesses in Luddenham surveyed were from suburbs located east of Luddenham, with a further 8.9 per cent from suburbs located either south-east or north-east. Customers from suburbs north of Luddenham comprised about 17.1 per cent, while customers from localities to the south comprised about 14.7 per cent.

Table 4-17 : Top 10 suburbs of origin identified by car park (number plate) survey
Socio-economic assessment

<table>
<thead>
<tr>
<th>Locality</th>
<th>Proportion of cars counted (%)</th>
<th>Approximate distance (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wallacia</td>
<td>4.4</td>
<td>5.8</td>
</tr>
<tr>
<td>Mulgoa</td>
<td>2.7</td>
<td>9.0</td>
</tr>
<tr>
<td>Penrith</td>
<td>2.4</td>
<td>17.8</td>
</tr>
<tr>
<td>Glenmore Park</td>
<td>2.0</td>
<td>16.6</td>
</tr>
<tr>
<td>Rossmore</td>
<td>1.7</td>
<td>11.7</td>
</tr>
<tr>
<td>St Marys</td>
<td>1.7</td>
<td>20.2</td>
</tr>
<tr>
<td>Warragamba</td>
<td>1.7</td>
<td>11.3</td>
</tr>
</tbody>
</table>

Source: Car park (number plate) survey conducted by Jacobs. Suburb information from Roads and Maritime.

‘Passing trade’ generally refers to customers who access a business because they see it while they are walking or driving past, as opposed to customers who have deliberately planned to use a particular business. In general, the level of reliance of a business on passing trade is likely to be influenced by the type or nature of the business. For example, passing trade is likely to be of higher importance for businesses such as service stations and some takeaway food stores and cafes, compared to speciality retail or personal service businesses.

In relation to businesses within Luddenham town centre, passing trade was identified as important to a number of businesses surveyed, although perceptions about the importance of passing trade varied between individual businesses and was not consistent between similar business types. For example, two grocery retail outlets indicated that passing trade comprised less than 10 per cent of their business, while another indicated that this was between about 25-50 per cent.

The survey identified that:

- Businesses that indicated passing trade made up a relatively small proportion of their customers (that is, less than 10 per cent) included health care, beauty salon, grocer and food store.
- Businesses that estimated between 10 per cent and 25 per cent of their customers were associated with passing trade included personal services and specialty retail.
- Businesses that indicated that passing trade accounted for up to 50 per cent of customers included grocer and food stores and retail uses (for example, newsagent and clothing/footwear store).
- Business such as the service stations and cafes, estimated that more than half of their customers were associated with passing trade, with one business indicating that more than 75 per cent of customers related to passing trade. This business also indicated that the proportion of customers from passing trade was higher on weekdays than on weekends.

Feedback from the survey indicated that for some businesses, many customers were people who came to Luddenham for other services or businesses, such as the fruit shop, supermarket or schools.

The existing business environment of the study area is expected to change over time due to such things as the development of the Western Sydney Airport and urban growth and development. This is likely to result in the diversification of businesses within the study area and broader region and changes to existing businesses and industries. Increased population density around centres is also likely to drive demand for local services and changes to local business.
Legend

The Northern Road upgrade - Mersey Road to Glenmore Parkway
Reserves and parklands
Built areas
Suburb boundaries
Origin of customers (% of cars recorded)

- 0.3%
- 0.4% - 1.5%
- 1.6% - 3.0%
- 3.1% - 7.5%
- 7.6% - 12.6%

Figure 4-8 | Origin of customers in Luddenham identified through the carpark survey
**4.5 Community values**

Community values include those values held as important to residents for quality of life and well-being. Local amenity and character in the study area is mainly influenced by rural land uses, including agriculture and rural residential uses, as well as local towns such as Luddenham and Mulgoa.

Rural uses at Orchard Hills, Luddenham, Mulgoa, Badgerys Creek and Greendale comprise a range of agricultural pursuits including market gardens, dairy, poultry farms, hobby farms, and fruit growing. These uses and rural landscapes are important to the character and identity of the study area and the amenity and lifestyle offered by these uses are valued by local communities. Protecting Penrith’s unique scenery and its mix of urban and rural landscapes was identified as a priority during engagement on the Penrith Community Plan (Penrith City Council, 2010), while protecting and preserving Liverpool’s heritage, including its rural landscape was identified as a key strategy in Growing Liverpool 2031 (Liverpool City Council, 2013). The study area has experienced an increase in the number of hobby farms and rural residential uses over recent years, which offer residents lifestyle options that bring together the ‘country feel’ of rural areas, within easy access to urban services and facilities.

As indicated in section 4.4.2, agriculture is also an important contributor to the Penrith and Liverpool economies, supporting local business and employment. Supporting agriculture and local food production as a significant contributor to the region’s economy was identified as a key strategy for the Penrith Community Plan (Penrith City Council, 2010). The study area has undergone change in recent decades, with the increasing urban development and development of residential estates such as Glenmore Park. These areas offer residents a range of urban residential uses, as well as access to open space, recreation and conservation areas. Proposed development of a Western Sydney Airport is also likely to drive further growth in urban development in the study area and wider region over the coming years. Increasing urban development has resulted in the loss of agricultural land within the study area, which is likely to continue over time. Managing the loss of this agricultural land will be important in maintaining community values associated with these uses. Ensuring development is appropriately supported by roads and infrastructure was identified as important during consultation on the Penrith Community Plan (Penrith City Council, 2010).

Protection and conservation of the environment, biodiversity and natural assets such as rivers, creeks, and bushland areas is also important to communities in the study area, as is protection and respect of the area’s heritage values. Consultation for the project identified the need to give consideration to The Cumberland Conservation Corridor and Aboriginal heritage needs. Community concerns relating to potential changes in air quality and noise levels were also identified. In particular, consultation identified that some people had moved to the area for its ‘quiet rural life’. Potential increased noise from the project is likely to be a concern.

Protecting the area’s heritage and ‘heritage nature’ were also identified as important during consultation for the project. This included buildings such as churches and other community facilities such as the Luddenham Showgrounds.

Maintaining high levels of access and connectivity is valued by communities, with community members identifying issues around traffic flow and congestion, maintenance of local roads to cope with increased traffic and ensuring infrastructure keeps up with growth and the airport as being key issues during consultation on the Penrith Community Plan (Penrith City Council, 2013). The need for improved public transport, walking and cycling opportunities were also identified during consultation on Liverpool City Council’s Growing Liverpool 2023 strategy (Liverpool, 2013). Support for improved road and public transport access was also reflected in consultation for this project, along with the need for improved cycling and pedestrian access. Consultation for the project also identified access for people with disability as important, with the need to ensure sufficient time is allowed for people with disability with crossing roads raised as an issue. This was also raised as a key issue in consultation on the Penrith Community Plan (Penrith City Council, 2013).

The importance of a balanced local economy, local employment and creating jobs to keep the community working locally were identified through previous planning and consultation by Penrith and Liverpool councils as key issues in planning for the future. Securing infrastructure that improves economic opportunities for existing and new businesses and the efficient movement of freight are important to building a strong economy (Penrith City Council, 2013).
As indicated in section 4.3.1, the study area generally had relatively low levels of population mobility, particularly in rural areas such as Mulgoa-Luddenham-Orchard Hills. Consultation for the project also identified strong family heritage and connections to the study area with some families having lived in the area over several generations. In particular, some rural properties have been held by the same families over several generations.

The existing amenity of communities along The Northern Road are currently impacted by traffic, including heavy vehicles, impacting noise, air quality, visual amenity and safety for pedestrians, cyclists and motorists. In particular, the character, and amenity and public realm of Luddenham town centre is influenced by traffic volumes through the town, impacting local access and connectivity, and the local environment for residents, businesses and visitors.

4.6 Social infrastructure

4.6.1 Social infrastructure in the study area

A number of regional and state level community services and facilities are located within the Penrith and Liverpool LGAs that cater for communities in the study area as well as in the broader western Sydney region. These include:

- Major hospitals such as Nepean public and private hospitals at Penrith, and Liverpool Hospital at Liverpool
- Tertiary education facilities, including University of Western Sydney campuses at Kingswood and Werrington, TAFE Western Sydney Institute – Nepean College campuses at Kingswood and Penrith; TAFE South Western Sydney Institute – Liverpool College
- Regional, state and national sport and recreation facilities, such as Penrith Lakes Regional Park, including Sydney International Regatta Centre and Penrith Whitewater Stadium; Nepean Aquatic Centre; Penrith Park, including Penrith (Pepper) Stadium and Howell Oval; and Western Sydney Parklands, including Sydney International Shooting Centre, Eastern Creek International Raceway and Sydney International Equestrian Centre
- Major retail, commercial uses, cultural and community support facilities located in the Penrith and Liverpool CBDs.

The study area also includes a range of community facilities and services that principally cater for communities in the study area or surrounding region. These are listed in Table 4-18. Facilities located adjacent to the project are described in section 4.6.2.

Table 4-18: Social infrastructure in the broader study area

<table>
<thead>
<tr>
<th>Type of facility</th>
<th>Facility</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultural facilities</td>
<td>Glenmore Park Anglican Church</td>
<td>William Howell Drive, Glenmore Park</td>
</tr>
<tr>
<td></td>
<td>Padre Pio Parish Glenmore Park</td>
<td>William Howell Drive, Glenmore Park</td>
</tr>
<tr>
<td></td>
<td>Jehovah’s Witness Kingdom Hall</td>
<td>Homestead Road, Orchard Hills</td>
</tr>
<tr>
<td></td>
<td>Luddenham Uniting Church</td>
<td>The Northern Road, Luddenham</td>
</tr>
<tr>
<td></td>
<td>St James Anglican Church</td>
<td>The Northern Road, Luddenham</td>
</tr>
<tr>
<td></td>
<td>Catholic Church</td>
<td>Willowdene Avenue, Luddenham</td>
</tr>
<tr>
<td></td>
<td>Sacred Heart Luddenham-Warrangamba Parish, Holy Family Centre Luddenham</td>
<td>Willowdene Avenue, Luddenham</td>
</tr>
<tr>
<td></td>
<td>Floribunda Community Centre</td>
<td>Floribunda Avenue, Glenmore Park</td>
</tr>
<tr>
<td>Education facilities</td>
<td>University of Western Sydney Farm</td>
<td>Greendale Road, Greendale</td>
</tr>
<tr>
<td></td>
<td>Regentville Public School</td>
<td>Schoolhouse Road, Regentville</td>
</tr>
<tr>
<td></td>
<td>Bethany Catholic Primary School</td>
<td>William Howell Drive, Glenmore Park</td>
</tr>
</tbody>
</table>
### Social infrastructure near the project

Some community facilities and services are located next to the project that may be subject to direct or indirect impacts from the construction and/or operation of the project. Social infrastructure near the project is described in **Table 4-19** and shown in **Figure 4-9**.

**Table 4-19 : Social infrastructure near the project**

<table>
<thead>
<tr>
<th>Facility type</th>
<th>Facility</th>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education facilities</td>
<td>Penrith Anglican College</td>
<td>Wentworth Road, Orchard Hills</td>
<td>The school offers primary and secondary education for students in Kindergarten to Year 12. In 2015, the school had an enrolment of 1,236 students. The school provides after hour care for students until 6.00pm. The Junior School Performing Arts Centre (the Lighthouse Theatre) is located at the school. It includes a 550 seat theatre</td>
</tr>
</tbody>
</table>
and associated café, which is used for College and professional productions, for example play and music concerts. The theatre is also home to Christ Church @ the College, which holds services at 9.30am each Sunday.

<table>
<thead>
<tr>
<th>Facility type</th>
<th>Facility</th>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sport, recreation and leisure facilities</strong></td>
<td><strong>Penrith Golf and Recreation Club</strong></td>
<td><strong>The Northern Road, South Penrith</strong></td>
<td>An 18-hole private golf course. The clubhouse is located near to The Northern Road boundary. Access to the clubhouse is via left-in access only and left and right out access.</td>
</tr>
<tr>
<td><strong>Orchard Hills Golf Club</strong></td>
<td><strong>The Northern Road, Orchard Hills</strong></td>
<td><strong>Surveyors Creek Nature Reserve</strong></td>
<td>Golf course is located in the Defence Establishment Orchard Hills (i.e. is situated within Commonwealth land).</td>
</tr>
<tr>
<td><strong>Windmill Park</strong></td>
<td><strong>Saddler Way, Glenmore Park</strong></td>
<td><strong>Windmill Park</strong></td>
<td>The park provides informal recreation opportunities, including playground and open space areas.</td>
</tr>
</tbody>
</table>
Figure 4-9 | Social infrastructure near the project
The Northern Road upgrade - Mersey Road to Glenmore Parkway

Type of facility
- Cultural facilities
- Education facilities
- Sport, recreation and leisure facilities

Figure 4-9 | Social infrastructure near the project
The Northern Road upgrade - Mersey Road to Glenmore Parkway

Type of facility

- Cultural facilities
- Education facilities
- Sport, recreation and leisure facilities

Figure 4-9 | Social infrastructure near the project
4.7 Transport and access

4.7.1 Transport infrastructure and facilities

The study area is serviced by a range of transport infrastructure and facilities, including major roads, public transport and active transport.

Roads

The Northern Road is a key north-south connection, linking Richmond Road and South Windsor in the north with Camden Valley Way at Narellan in the south. The road provides an important radial connection across western Sydney for residents, business and industry.

Locally, The Northern Road provides access to residential, rural and commercial properties along The Northern Road and in surrounding areas. Right turn access is currently provided to/from properties fronting The Northern Road and at intersections with The Northern Road.

Other key roads servicing the study area include:

- Mulgoa Road, which is a north-south route located west of The Northern Road and connecting High Street at Penrith with Park Road at Wallacia
- The M4 Motorway, which connects the Blue Mountains with Parramatta Road at Strathfield, providing an important connection between the Sydney CBD and western Sydney for residents, business and industry
- Elizabeth Drive, which is an east-west route, connecting the Hume Highway at Liverpool with The Northern Road at Luddenham. The road provides a connection between the Sydney CBD and western Sydney for residents, business and industry
- Badgerys Creek Road, which is a north-south corridor connecting The Northern Road at Bringelly with Elizabeth Drive at Badgerys Creek.

Further information on roads within the study area is included in the Traffic and Transport Working Paper.

Public transport

The study area is serviced by a number of bus routes, of which two services operate along The Northern Road. Only one operates along The Northern Road between Mersey Road and Glenmore Parkway. This is Route 789, which connects Penrith to Luddenham.

A number of school bus routes also connect to schools within the study area, some of which use The Northern Road for part of the route. A number of bus stops are located along The Northern Road between Luddenham and the M4 Motorway.

The Western rail line crosses under The Northern Road to the north of the project area. The rail line connects central Sydney to Emu Plains and further to the Blue Mountains. Stations are located at Kingswood and Penrith.

Further information on public transport services in the study area is included in the Traffic and Transport Working Paper.

Active transport

Existing pedestrian and cyclist facilities along The Northern Road are limited. Pedestrian or cycle facilities along The Northern Road between Mersey Road and Glenmore Parkway are generally located within Luddenham.

In relation to local roads that intersect with the project corridor, formal pedestrian facilities are located on Glenmore Parkway, including for a short distance on the northern side, before crossing to the southern side, or within Luddenham. No formal cycling facilities are located on the local roads intersecting with the project corridor. Further information on active transport facilities is included in the Traffic and Transport Working Paper.
4.7.2 Journey to work

Table 4-20 shows information on travel to work for residents in the study area in 2011. Car travel was the predominant mode of travel to work for residents in the study area, with about 74.3 per cent of people aged 15 years or over using the car for all or part of their journey to work. This is above the regional and NSW averages. Within the study area, Glenmore Park-Regentville had the highest proportion of residents who travelled to work by car. Badgerys Creek-Greendale had the lowest proportion of residents who used a car for all or part of their journey to work, although this was still about the NSW average.

Public transport was used for travel to work by about 7.3 per cent of people in the study area aged 15 years or over. This was well below the NSW average and is likely to reflect the limited public transport access in parts of the study area (for example, Mulgoa-Luddenham-Orchard Hills and Badgerys Creek-Greendale). Glenmore Park-Regentville had the highest proportion of public transport users, with the majority of these trips taken by train.

About 1.7 per cent of people in the study area aged 15 years or over walked or cycled to work, which was below the NSW average (at 4.8 per cent). This is likely to reflect the more rural nature of the study area and distance to employment centres.

Table 4-20 : Travel to work, 2011 (%)

<table>
<thead>
<tr>
<th>Method of travel</th>
<th>Glenmore Park-Regentville</th>
<th>Mulgoa-Luddenham-Orchard Hills</th>
<th>Badgerys Creek-Greendale</th>
<th>Study area</th>
<th>Penrith LGA</th>
<th>Liverpool LGA</th>
<th>NSW</th>
</tr>
</thead>
<tbody>
<tr>
<td>One method:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Train only</td>
<td>3.7</td>
<td>1.5</td>
<td>1.2</td>
<td>2.8</td>
<td>5.4</td>
<td>5.7</td>
<td>6.2</td>
</tr>
<tr>
<td>Bus only</td>
<td>0.7</td>
<td>0.5</td>
<td>0.5</td>
<td>0.6</td>
<td>0.8</td>
<td>1.6</td>
<td>3.7</td>
</tr>
<tr>
<td>Car only (as driver or passenger)</td>
<td>74.2</td>
<td>69.7</td>
<td>65.4</td>
<td>71.4</td>
<td>70.2</td>
<td>69.8</td>
<td>62.6</td>
</tr>
<tr>
<td>Other motor vehicle only</td>
<td>1.6</td>
<td>4.9</td>
<td>7.2</td>
<td>3.5</td>
<td>2.5</td>
<td>2.1</td>
<td>1.9</td>
</tr>
<tr>
<td>Bicycle only</td>
<td>0.2</td>
<td>0.2</td>
<td>0.1</td>
<td>0.2</td>
<td>0.3</td>
<td>0.3</td>
<td>0.7</td>
</tr>
<tr>
<td>Walked only</td>
<td>0.8</td>
<td>2.0</td>
<td>2.9</td>
<td>1.5</td>
<td>1.6</td>
<td>2.2</td>
<td>4.1</td>
</tr>
<tr>
<td>Other (one method)</td>
<td>0.3</td>
<td>0.5</td>
<td>0.9</td>
<td>0.5</td>
<td>0.5</td>
<td>0.7</td>
<td>1.0</td>
</tr>
<tr>
<td>Two methods:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Train and car (as driver or passenger)</td>
<td>3.2</td>
<td>1.9</td>
<td>2.0</td>
<td>2.7</td>
<td>2.4</td>
<td>2.7</td>
<td>1.2</td>
</tr>
<tr>
<td>Train and one other method</td>
<td>1.0</td>
<td>0.1</td>
<td>0.1</td>
<td>0.7</td>
<td>1.4</td>
<td>1.6</td>
<td>1.6</td>
</tr>
<tr>
<td>Bus and car (as driver or passenger)</td>
<td>0.1</td>
<td>0.0</td>
<td>0.2</td>
<td>0.1</td>
<td>0.1</td>
<td>0.2</td>
<td>0.3</td>
</tr>
<tr>
<td>Bus and one other method</td>
<td>0.0</td>
<td>0.0</td>
<td>0.1</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>Other two methods</td>
<td>0.4</td>
<td>0.4</td>
<td>0.5</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.5</td>
</tr>
<tr>
<td>Three methods:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Train and two other</td>
<td>0.5</td>
<td>0.3</td>
<td>0.1</td>
<td>0.4</td>
<td>0.5</td>
<td>0.5</td>
<td>0.4</td>
</tr>
</tbody>
</table>
## Method of travel

<table>
<thead>
<tr>
<th>Method of travel</th>
<th>Glenmore Park-Regentville</th>
<th>Mulgoa-Luddenham-Orchard Hills</th>
<th>Badgerys Creek-Greendale</th>
<th>Study area</th>
<th>Penrith LGA</th>
<th>Liverpool LGA</th>
<th>NSW</th>
</tr>
</thead>
<tbody>
<tr>
<td>methods</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bus and two other methods (excl train)</td>
<td>0.0</td>
<td>0.0</td>
<td>0.1</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Other three methods</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Worked at home</td>
<td>2.9</td>
<td>7.1</td>
<td>9.5</td>
<td>5.1</td>
<td>2.8</td>
<td>2.5</td>
<td>4.6</td>
</tr>
<tr>
<td>Did not go to work</td>
<td>9.2</td>
<td>8.5</td>
<td>6.5</td>
<td>8.5</td>
<td>9.4</td>
<td>7.3</td>
<td>9.5</td>
</tr>
<tr>
<td>Method of travel not stated</td>
<td>1.0</td>
<td>2.3</td>
<td>2.6</td>
<td>1.6</td>
<td>1.7</td>
<td>2.2</td>
<td>1.5</td>
</tr>
<tr>
<td>Total</td>
<td>11,298</td>
<td>3,336</td>
<td>4,295</td>
<td>18,929</td>
<td>87,227</td>
<td>74,568</td>
<td>3,138,330</td>
</tr>
</tbody>
</table>

Source: ABS (2012a), 2011 Census of Population and Housing, Basic Community Profile (Catalogue number 2001.0)
5. Issues raised during consultation

This assessment has been informed by the outcomes of consultation for the project. Individuals and communities may experience the effects of the project as positive, neutral or negative, depending on individual circumstances and attitudes in relation to particular changes from the project.

This section provides a summary of the key socio-economic issues raised during consultation for the project. Information from community and stakeholder consultation for the project identified a range of views relating to the socio-economic effects of the project’s construction and operation, including both positive and negative impacts. More detailed information on the consultation process, including stakeholders consulted and key issues raised, is provided in Chapter 6 of the EIS.

Table 5-1 summarises the key issues raised by communities and stakeholders relevant to the socio-economic assessment.

Table 5-1: Summary of community issues

<table>
<thead>
<tr>
<th>Issue</th>
<th>Summary of issues raised</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property impacts</td>
<td>• Impact to property values along The Northern Road</td>
</tr>
<tr>
<td></td>
<td>• Uncertainty around the property acquisition process, including property compensation</td>
</tr>
<tr>
<td></td>
<td>• Concern about lack of affordable alternate land in the area and level of compensation for impacted property owners</td>
</tr>
<tr>
<td></td>
<td>• Impact of property severance and internal property access</td>
</tr>
<tr>
<td></td>
<td>• Changes to property access arrangements along the corridor</td>
</tr>
<tr>
<td></td>
<td>• Potential cumulative property impacts due to other road projects (e.g. M12 Motorway)</td>
</tr>
<tr>
<td>Land use impacts</td>
<td>• Consideration of land use changes along the corridor</td>
</tr>
<tr>
<td></td>
<td>• Potential impact on future development potential due to changes in road access and property severance</td>
</tr>
<tr>
<td>Impacts on agricultural uses</td>
<td>• Management of weeds</td>
</tr>
<tr>
<td></td>
<td>• Need to minimise impact on good quality cropping land</td>
</tr>
<tr>
<td></td>
<td>• Need to consider impacts on access for farm gate sales</td>
</tr>
<tr>
<td></td>
<td>• Potential impact on farm infrastructure, including need to relocate infrastructure, due to property acquisition (e.g. dams, underground irrigation, fencing, garden beds, etc)</td>
</tr>
<tr>
<td></td>
<td>• Potential impacts on access for articulated vehicles (for the transport of livestock) to farming properties</td>
</tr>
<tr>
<td></td>
<td>• Potential impacts on dams and water retention for farming activities</td>
</tr>
<tr>
<td>Business impacts</td>
<td>• Concern about potential impact on the local community and businesses during construction</td>
</tr>
<tr>
<td></td>
<td>• Compensation to businesses to cover loss of trade during construction</td>
</tr>
<tr>
<td></td>
<td>• Potential impact on home-based business due to property acquisition</td>
</tr>
<tr>
<td></td>
<td>• Need for signage at junctions near Luddenham advertising businesses in the town and to attract passing traffic</td>
</tr>
<tr>
<td>Impacts on social infrastructure</td>
<td>• Impacts of traffic congestion on health facilities</td>
</tr>
<tr>
<td></td>
<td>• Traffic volumes would make the road unsafe for pedestrians that will be closer to the road edges during school times</td>
</tr>
<tr>
<td>Impacts on community values</td>
<td>• Impacts on environmental values, such as Cumberland Plain woodlands, and flora and fauna near Willowdene Avenue.</td>
</tr>
</tbody>
</table>
### Socio-economic assessment

#### Summary of issues raised

<table>
<thead>
<tr>
<th>Issue</th>
<th>Concerns about impacts on Aboriginal heritage (including cultural and archaeological significance)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Concerns about security of properties during construction and once the road is operational</td>
</tr>
<tr>
<td>Local amenity impacts</td>
<td>Impact of the project on local amenity and ‘quiet rural life’ (e.g. noise, pollution, increased traffic)</td>
</tr>
<tr>
<td></td>
<td>Impact on wellbeing due to increased traffic</td>
</tr>
<tr>
<td></td>
<td>Concern about the potential noise impacts at houses from the upgrades</td>
</tr>
<tr>
<td></td>
<td>Concern about the potential increase in pollution resulting from the upgrades</td>
</tr>
<tr>
<td></td>
<td>What mitigation measures will be made for issues such as dust and noise during construction?</td>
</tr>
<tr>
<td></td>
<td>Concerns about noise and air quality impacts on local communities at Luddenham and Mulgoa</td>
</tr>
<tr>
<td>Access and connectivity</td>
<td>Changes to traffic conditions</td>
</tr>
<tr>
<td></td>
<td>Potential impacts of the road on congestion and travel times</td>
</tr>
<tr>
<td></td>
<td>Traffic demand from the planned western Sydney airport.</td>
</tr>
<tr>
<td></td>
<td>The cycleway infrastructure should consider not only existing users, but also the likely future users who may choose to commute in and around the airport precinct; bike tracks should be separated from roadways and safe crossings and be well lit, and footpaths should be regularly inspected and maintained, and effectively lit</td>
</tr>
<tr>
<td></td>
<td>Ensure sufficient time is allowed for those with a disability when crossing roads</td>
</tr>
<tr>
<td></td>
<td>Construction work zones are safe for motorists and workers</td>
</tr>
<tr>
<td></td>
<td>Congestion on other arterial roads in the area during construction</td>
</tr>
<tr>
<td>Community consultation</td>
<td>Need for ongoing consultation</td>
</tr>
<tr>
<td></td>
<td>Need for consultation with bicycle clubs on the design, facility and treatment of cycle ways</td>
</tr>
<tr>
<td></td>
<td>Consultation should consider the need for appropriate documentation in languages other than English</td>
</tr>
</tbody>
</table>
6. Impact assessment

This section provides an assessment of impacts on the socio-economic environment of the study area from the construction and operation of the project.

6.1 Property impacts

6.1.1 Directly affected properties

The upgrade of The Northern Road would require the acquisition, either totally or in part, of some properties for:

- Widening of the existing road at the southern and northern ends of the project
- Construction of the new road corridor, west of the Western Sydney Airport site at Badgerys Creek and east of Luddenham town centre
- Construction of new and upgraded intersections
- Establishment of temporary construction compounds, laydown sites and ancillary facilities.

The project would result in the acquisition of 10 houses, and the partial acquisition of land from 83 owners across 142 lots, including privately owned land, land owned by Roads and Maritime and other NSW Government agencies, and Commonwealth land. The majority of land to be partially or fully acquired for the project comprises residential uses. Other properties affected by property acquisition would include:

- Department of Defence uses, particularly land within the Defence Establishment Orchard Hills
- Commonwealth land (Department of Infrastructure and Regional Development) identified for the Western Sydney Airport
- Commercial and business uses, including agricultural businesses and home based businesses
- Vacant land
- Land used for water infrastructure.

Generally, affected properties would be partially acquired by Roads and Maritime where only part of the property would be directly impacted by the project. In some instances Roads and Maritime would give consideration to total acquisition (dual offer) or acquisition of any residual parcels created by the location and design of the project. This would provide affected property owners with a level of flexibility or choice during the property acquisition process in relation to property decisions. For example, some property owners may want to retain residual parcels for future use. Roads and Maritime would continue to consult with land owners through the detailed design about these land parcels.

Negotiations to date have identified that severance of some properties would occur, which would potentially impact the current use of those properties. This would mainly affect properties currently used for agricultural uses. Access to residual property parcels would be maintained with the current design via new service roads being constructed as part of the project. Roads and Maritime will continue to consult with property owners to mitigate potential land use impacts where possible through detail design.

Where partial acquisition of rural properties occurs, infrastructure such as fencing, dams, sheds and other structures within the project footprint would need to be demolished or relocated prior to construction. Consultation would be undertaken with property owners about potential impacts on rural infrastructure and adjustments required. Where infrastructure is impacted, this would be considered through the property acquisition process. Any relocation of rural infrastructure for the project would be undertaken in consultation with the property owner, prior to the removal of the infrastructure.

Details of properties to be acquired are outlined in Table 6-1. Further information on properties to be acquired, including figures showing the location of properties to be acquired is provided in Appendix C. Impacts of property acquisition on local business, agricultural businesses and social infrastructure are discussed in section 6.5.1, section 6.6.2 and section 6.7.1 respectively.
Table 6.1: Summary of property acquisition

<table>
<thead>
<tr>
<th>Property Id</th>
<th>Property (lot number)</th>
<th>Existing land use*</th>
<th>Acquisition type</th>
<th>Dwellings affected</th>
<th>Buildings (sheds) affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lot 1 DP235845</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>Lot 97 DP27550</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>Lot 1 DP250684</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>Lot 96 DP27550</td>
<td>Residential/business</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>Lot 95 DP27550</td>
<td>Residential/business</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td>Lot 94 DP27550</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>Lot 93 DP654182</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>Lot 92 DP27550</td>
<td>Business</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>Lot 102 DP812653</td>
<td>Rural/ residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>Lot 1 DP838361</td>
<td>Rural/ Western Sydney Airport site/ Commonwealth land</td>
<td>Partial</td>
<td>-</td>
<td>Yes (2)</td>
</tr>
<tr>
<td>11</td>
<td>Lot 11 DP1092165</td>
<td>Rural residential</td>
<td>Partial</td>
<td>-</td>
<td>Yes (2)</td>
</tr>
<tr>
<td>12</td>
<td>Lot 27 DP259698</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>13</td>
<td>Lot 28 DP259698</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>14</td>
<td>Lot 33 DP259698</td>
<td>Rural residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>15</td>
<td>Lot 22 DP258581</td>
<td>Rural residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>16</td>
<td>Lot 21 DP258581</td>
<td>Residential</td>
<td>Dual offer/ partial</td>
<td>Yes (1)</td>
<td>-</td>
</tr>
<tr>
<td>17</td>
<td>Lot 20 DP258581</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>18</td>
<td>Lot 2 DP851626</td>
<td>Business</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>19</td>
<td>Lot 1 DP851626</td>
<td>Rural</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>20</td>
<td>Lot 2 DP623457</td>
<td>Business</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>21</td>
<td>Lot 21 DP614481</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>22</td>
<td>Lot 1 DP250030</td>
<td>Residential</td>
<td>Dual offer/ partial</td>
<td>Yes (1)</td>
<td>Yes (1)</td>
</tr>
<tr>
<td>23</td>
<td>Lot 1 DP90157</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>24</td>
<td>Lot 2 DP250030</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>25</td>
<td>Lot 3 DP250030</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>26</td>
<td>Lot 2 DP519034</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>27</td>
<td>Lot 104 DP846962</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>28</td>
<td>Lot 3 DP827223</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>29</td>
<td>Lot 103 DP846962</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>30</td>
<td>Lot 102 DP846962</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>31</td>
<td>Lot 1 DP232996</td>
<td>Rural residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Property Id</td>
<td>Property (lot number)</td>
<td>Existing land use*</td>
<td>Acquisition type</td>
<td>Dwellings affected</td>
<td>Buildings (sheds) affected</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------------------</td>
<td>-------------------</td>
<td>------------------</td>
<td>-------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>32</td>
<td>Lot 101 DP846962</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>33</td>
<td>Lot 100 DP846962</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>34</td>
<td>Lot 5 DP232324</td>
<td>Crown land (road reserve)</td>
<td>Full</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>35</td>
<td>Lot 4 DP232324</td>
<td>Crown land (road reserve)</td>
<td>Full</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>36</td>
<td>Lot 3 DP911607</td>
<td>Crown land (road reserve)</td>
<td>Full</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>37</td>
<td>Lot 1 DP517853</td>
<td>Residential</td>
<td>Partial</td>
<td>Yes (2)</td>
<td>Yes (4)</td>
</tr>
<tr>
<td>38</td>
<td>Lot 2 DP517853</td>
<td>Rural residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>39</td>
<td>Lot 6 DP32026</td>
<td>Rural</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>40</td>
<td>Lot 5 DP32026</td>
<td>Rural</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>41</td>
<td>Lot 4 DP32026</td>
<td>Rural</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>42</td>
<td>Lot 1 DP1169433</td>
<td>Residential/business</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>43</td>
<td>Lot 3 DP32026</td>
<td>Residential/business</td>
<td>Partial</td>
<td>Yes (1)</td>
<td>-</td>
</tr>
<tr>
<td>44</td>
<td>Lot 504 DP581138</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>45</td>
<td>Lot 2 DP32026</td>
<td>Residential/business</td>
<td>Partial</td>
<td>Yes (1)</td>
<td>Yes (1)</td>
</tr>
<tr>
<td>46</td>
<td>Lot DP160890</td>
<td>Residential/business</td>
<td>Partial</td>
<td>Yes (1)</td>
<td>-</td>
</tr>
<tr>
<td>47</td>
<td>Lot 5 DP599382</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>48</td>
<td>Lot 1 DP200435</td>
<td>Residential/business</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>49</td>
<td>Lot 501 DP580982</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>50</td>
<td>Lot 12 DP249113</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>51</td>
<td>Lot 11 DP249113</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>52</td>
<td>Lot 10 DP249113</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>53</td>
<td>Lot 9 DP249113</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>54</td>
<td>Lot 1 DP109697</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>55</td>
<td>Lot 8 DP249113</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>Yes (1)</td>
</tr>
<tr>
<td>56</td>
<td>Lot 7 DP249113</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>57</td>
<td>Lot 101 DP580082</td>
<td>Business</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>58</td>
<td>Lot 11 DP30775</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>59</td>
<td>Lot 12 DP30775</td>
<td>Sydney Water pumping station</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>60</td>
<td>Lot 9 DP232322</td>
<td>Rural**</td>
<td>Full</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>61</td>
<td>Lot 13 DP30775</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>Yes (1)</td>
</tr>
<tr>
<td>62</td>
<td>Lot 8 DP232322</td>
<td>Rural residential**</td>
<td>Full</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>63</td>
<td>Lot 14 DP30775</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>64</td>
<td>Lot 22 DP32053</td>
<td>Rural</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Property Id</td>
<td>Property (lot number)</td>
<td>Existing land use*</td>
<td>Acquisition type</td>
<td>Dwellings affected</td>
<td>Buildings (sheds) affected</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------------------</td>
<td>--------------------</td>
<td>------------------</td>
<td>-------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>65</td>
<td>Lot 15 DP30775</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>66</td>
<td>Lot 23 DP207317</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>67</td>
<td>Lot 2 DP32053</td>
<td>Residential/rural</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>68</td>
<td>Lot 1 DP420840</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>69</td>
<td>Lot 16 DP30775</td>
<td>Residential</td>
<td>Partial</td>
<td>Yes (1)</td>
<td>-</td>
</tr>
<tr>
<td>70</td>
<td>Lot DP341893</td>
<td>Water NSW asset maintenance</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>71</td>
<td>Lot A DP341629</td>
<td>Crown land (road reserve)</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>72</td>
<td>Lot 22 DP843123</td>
<td>Residential</td>
<td>Partial</td>
<td>Yes (1)</td>
<td>-</td>
</tr>
<tr>
<td>73</td>
<td>Lot 68 DP651114</td>
<td>Residential</td>
<td>Partial</td>
<td>Yes (2)</td>
<td>-</td>
</tr>
<tr>
<td>74</td>
<td>Lot 71 DP668758</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>75</td>
<td>Lot 73 DP2120</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>76</td>
<td>Lot 1 DP1064093</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>77</td>
<td>Lot 1 DP232322</td>
<td>Crown land (road reserve)</td>
<td>Full</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>78</td>
<td>Lot 77 DP659462</td>
<td>Business</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>79</td>
<td>Lot 79 DP1085461</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>80</td>
<td>Lot 1 DP1085051</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>81</td>
<td>Lot 211 DP2255</td>
<td>Vacant</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>82</td>
<td>Lot 210 DP2255</td>
<td>Vacant</td>
<td>Full</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>83</td>
<td>Lot 80 DP2120</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>84</td>
<td>Lot 10 Sec H DP2234</td>
<td>Vacant</td>
<td>Full</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>85</td>
<td>Lot 3 DP202647</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>86</td>
<td>Lot 36 DP959167</td>
<td>Vacant</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>87</td>
<td>Lot 101 Sec H DP2234</td>
<td>Vacant</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>88</td>
<td>Lot 100 Sec H DP2234</td>
<td>Vacant</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>89</td>
<td>Lot 99 Sec H DP2234</td>
<td>Vacant</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>90</td>
<td>Lot 2 DP202647</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>91</td>
<td>Lot 98 Sec H DP2234</td>
<td>Vacant</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>92</td>
<td>Lot 97 Sec H DP2234</td>
<td>Vacant</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>93</td>
<td>Lot 96 Sec H DP2234</td>
<td>Vacant</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Property Id</td>
<td>Property (lot number)</td>
<td>Existing land use*</td>
<td>Acquisition type</td>
<td>Dwellings affected</td>
<td>Buildings (sheds) affected</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------</td>
<td>--------------------</td>
<td>------------------</td>
<td>-------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>94</td>
<td>Lot 37 DP959167</td>
<td>Vacant</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>95</td>
<td>Lot 84 Sec H DP2234</td>
<td>Vacant</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>96</td>
<td>Lot 83 Sec H DP2234</td>
<td>Vacant</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>97</td>
<td>Lot 38 DP959167</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>98</td>
<td>Lot 75 Sec H DP2234</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>99</td>
<td>Lot 74 Sec H DP2234</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>100</td>
<td>Lot 73 Sec H DP2234</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>101</td>
<td>Lot 72 Sec H DP2234</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>102</td>
<td>Lot 71 Sec H DP2234</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>103</td>
<td>Lot 70 Sec H DP2234</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>104</td>
<td>Lot 69 Sec H DP2234</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>105</td>
<td>Lot 1 DP202647</td>
<td>Business</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>106</td>
<td>Lot 68 Sec H DP2234</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>107</td>
<td>Lot 67 Sec H DP2234</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>108</td>
<td>Lot 66 Sec H DP2234</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>109</td>
<td>Lot 65 Sec H DP2234</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>110</td>
<td>Lot 64 Sec H DP2234</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>111</td>
<td>Lot 63 Sec H DP2234</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>112</td>
<td>Lot 42 DP878814</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>113</td>
<td>Lot 62 Sec H DP2234</td>
<td>Residential</td>
<td>Full</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>114</td>
<td>Lot 23 DP29081</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>115</td>
<td>Lot 61 Sec H DP2234</td>
<td>Residential</td>
<td>Full</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>116</td>
<td>Lot 60 Sec H DP2234</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Property Id</td>
<td>Property (lot number)</td>
<td>Existing land use*</td>
<td>Acquisition type</td>
<td>Dwellings affected</td>
<td>Buildings (sheds) affected</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------------------</td>
<td>--------------------</td>
<td>------------------</td>
<td>-------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>117</td>
<td>Lot 24 DP29081</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>118</td>
<td>Lot 28 DP29081</td>
<td>Rural residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>119</td>
<td>Lot 1 DP569729</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>120</td>
<td>Lot 11 DP29081</td>
<td>Rural residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>121</td>
<td>Lot 10 DP29081</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>122</td>
<td>Lot 3 DP238092</td>
<td>Commonwealth</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Department of Defence uses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>123</td>
<td>Lot 31 DP244610</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>124</td>
<td>Lot 32 DP244610</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>125</td>
<td>Lot 30 DP244610</td>
<td>Rural residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>126</td>
<td>Lot 8 DP29081</td>
<td>Residential/ business</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>127</td>
<td>Lot 1 DP1088989</td>
<td>Rural residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>128</td>
<td>Lot 6 DP29081</td>
<td>Rural residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>129</td>
<td>Lot 2 DP224861</td>
<td>Rural residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>130</td>
<td>Lot 1 DP224861</td>
<td>Residential</td>
<td>Partial</td>
<td>Yes (1)</td>
<td>-</td>
</tr>
<tr>
<td>131</td>
<td>Lot 7 DP4832</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>132</td>
<td>Lot 500 DP1133119</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>133</td>
<td>Lot 1 DP551558</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>134</td>
<td>Lot 1 DP238092</td>
<td>Commonwealth</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Department of Defence uses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>135</td>
<td>Lot 5 DP26658</td>
<td>Rural residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>136</td>
<td>Lot 6 DP26658</td>
<td>Rural residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>137</td>
<td>Lot 7 DP26658</td>
<td>Rural residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>138</td>
<td>Lot 1 DP711076</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>139</td>
<td>Lot 2 DP711076</td>
<td>Vacant</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>140</td>
<td>Lot 132 DP1002668</td>
<td>Residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>141</td>
<td>Lot 113 DP1015911</td>
<td>Rural</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>142</td>
<td>Lot 3 DP711076</td>
<td>Rural residential</td>
<td>Partial</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Notes:
* Information on existing land use is based on a review of aerial photography and visual inspection
** Strip of land located along road reserve

Temporary leases of land would also be required during construction to accommodate ancillary construction facilities such as worksites, compounds and laydown areas. Properties identified for temporary lease mainly
comprise areas of rural or vacant land, but also include residential and commercial uses. Use and access to those areas affected by temporary leases would be temporarily disrupted during construction. Following construction, land occupied by construction works but not required for the ongoing operation of the project would be reinstated to its pre-construction use. This would include reinstatement of any affected infrastructure such as fencing, etc as agreed with the property owner. While these impacts are likely to be important to affected property owners and tenants, impacts associated with the temporary lease of land would be short-term and are not expected to be significant in the context of the project as a whole.

Details of temporary leases of land required for construction compounds are outlined in Table 6-2. The location of construction compounds are also shown on Figure 6-1. Impacts on the temporary use of rural land and land accommodating social infrastructure are discussed in section 6.6 and section 6.7.1 respectively.

Table 6-2: Summary of temporary leases

<table>
<thead>
<tr>
<th>Compound number</th>
<th>Property (lot number)</th>
<th>Existing land use</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>Lot 3 DP234403</td>
<td>Rural/residential</td>
</tr>
<tr>
<td>C2</td>
<td>Lot 6 DP249262</td>
<td>Rural/residential</td>
</tr>
<tr>
<td>C3/C5</td>
<td>Lot 11 DP1092165</td>
<td>Rural/commercial</td>
</tr>
<tr>
<td>C4</td>
<td>Lot 102 DP812653</td>
<td>Rural/commercial</td>
</tr>
<tr>
<td>C6</td>
<td>Lot 2 DP851626</td>
<td>Rural/commercial</td>
</tr>
<tr>
<td>C7</td>
<td>Lot 1 DP851626</td>
<td>Rural</td>
</tr>
<tr>
<td>C8</td>
<td>Lot 1 DP250030</td>
<td>Rural</td>
</tr>
<tr>
<td>C9</td>
<td>Lot 2 DP519034</td>
<td>Rural</td>
</tr>
<tr>
<td>C10</td>
<td>Lot 105 DP846962</td>
<td>Rural</td>
</tr>
<tr>
<td>C11</td>
<td>-</td>
<td>Crown land (road reserve)</td>
</tr>
<tr>
<td>C12</td>
<td>Lot 1 DP517853</td>
<td>Residential/commercial</td>
</tr>
<tr>
<td>C13</td>
<td>Lot 5 DP599382</td>
<td>Rural</td>
</tr>
<tr>
<td>C14</td>
<td>Lot 9 DP249113</td>
<td>Rural/residential</td>
</tr>
<tr>
<td>C15/C16</td>
<td>Lot 1 DP109697</td>
<td>Rural</td>
</tr>
<tr>
<td>C17</td>
<td>Lot 1 DP232322</td>
<td>Crown land (road reserve)</td>
</tr>
<tr>
<td>C18</td>
<td>Lot 1 DP202647</td>
<td>Residential/commercial</td>
</tr>
<tr>
<td>C19</td>
<td>Lot 1 DP224861</td>
<td>Rural/residential</td>
</tr>
<tr>
<td>C20</td>
<td>Lot 5 DP26658/ Lot 6 DP26658</td>
<td>Rural residential</td>
</tr>
<tr>
<td>C21</td>
<td>Lot 2 DP711076</td>
<td>Rural/residential</td>
</tr>
<tr>
<td>C22</td>
<td>Lot 1 DP711076</td>
<td>Rural/residential</td>
</tr>
</tbody>
</table>

Roads and Maritime would acquire properties for the project in accordance with the provisions of the NSW Property Acquisition (Just Terms Compensation) Act 1991. Among other things, the Act provides the basis for assessing compensation.

Roads and Maritime has commenced consultation with potentially affected property owners about the acquisition process and potential adjustments required to properties for the project. Consultation will continue during the detailed design and construction phases of the project.
Figure 6-1 | Potential locations of construction ancillary facilities
Figure 6-1 | Potential locations of construction ancillary facilities
The Northern Road upgrade - Mersey Road to Glenmore Parkway

Western Sydney Airport site (Commonwealth Land)

Defence Establishment Orchard Hills (Commonwealth Land)

Construction compound sites

Construction footprint

Commonwealth Land
6.1.2 Impact of property acquisition

The project would demolish about 13 dwellings located on properties to be acquired for the project. This includes dwellings on rural and rural residential properties as well as some dwellings used for home based businesses. Prior to construction, these dwellings would be demolished and residents would need to relocate.

Some residents, business owners and employees facing changes such as relocation may experience stress and anxiety about these changes, potentially impacting on individual’s health, wellbeing and quality of life. This effect is currently being experienced by some community members, with consultation for the project indicating that some people were currently experiencing levels of stress due to perceptions about potential impacts and uncertainty about decisions around property and business. While these impacts are likely to be important to affected individuals, the impact in the context of the project as a whole is expected to be minor given the relatively small number of properties affected and that these effects are likely to change over time as more certainty around impacts is provided.

The relocation of residents due to acquisition may also impact on community cohesion through disruption to social networks and community relationships, if residents are required to move away from the area and from existing social and support networks. These impacts are likely to have the greatest effect on groups such as the elderly, people with disability, longer term residents and people on lower incomes who are often more reliant on personal and community networks. As indicated in section 4.2 and section 4.4.1, communities in the rural area of Badgerys Creek-Greendale were generally characterised by older populations, relatively high proportions of people needing assistance and with lower levels of English proficiency, and people with lower incomes. Communities in Mulgoa-Luddenham-Orchard Hills also comprise older populations, and relatively high proportions of longer term residents. These areas would generally experience higher levels of partial or total property acquisitions for the project.

Some properties in the study area have also been held in the same family over several generations, particularly rural or farming properties. The owners of these properties are likely to have increased emotional attachment to their farms and the local area. As such, impacts associated with property acquisition and relocation may be felt more acutely, due to the associated loss of family heritage.

The need for decisions about property acquisition to be made as quickly as possible was identified during consultation for the project. This would help to reduce uncertainty for some community members. Roads and Maritime will continue to consult with property owners and other stakeholders who may be affected by property acquisition through the detailed design and construction phase of the project about specific property impacts, including the acquisition process and possible compensation.

Widening of The Northern Road impacts on a small area of land used for the maintenance of the WaterNSW supply pipelines corridor. This land includes an access road that connects from The Northern Road and runs parallel to the pipeline corridor. Access to this land would be maintained and the impact is not expected to impact on the ongoing operation or maintenance access to the pipeline. Consultation and approval from Water NSW would be undertaken prior to construction.

Widening of The Northern Road also impacts on an area of land identified as a Sydney Water pumping station. A review of aerial photography indicates that this land is currently vacant. Road widening would impact on a small area of land along The Northern Road and would not affect the ongoing use of this land.

As indicated in section 6.1.1, the operational footprint of the project would directly impact on Commonwealth land within the Defence Establishment Orchard Hills and land identified for the Western Sydney Airport. This land within the Defence Establishment Orchard Hills is located along the existing The Northern Road frontage, while land identified for the Western Sydney Airport is located primarily east of The Northern Road corridor. The project is not expected to impact on the current or future operation or use of land, either within the Defence site or the planned airport site.

The project’s potential land use impacts are addressed below in section 6.2.
6.1.3 Other property impacts

Consultation for the project identified a range of other issues of concern for property owners and local communities near the project.

A number of concerns were raised around the project’s impacts on property values. This included potential changes to property values along The Northern Road due to the road widening and changes to local amenity (for example, visual amenity, air and noise pollution) for those properties affected by partial acquisition. Concerns around the project’s effects on overall land values in the area were also raised.

Property values are driven by a range of factors. It is likely that external factors, such as the Western Sydney Airport and future urban development, would influence property values more than perceived or actual impacts as a result of road upgrades, including the project.

Potential impacts of the project associated with changes to local amenity are discussed in section 6.8. Detailed assessment of potential amenity related impacts such as visual impacts, and changes to noise and air quality, are addressed in the respective Working Papers, along with measures to avoid, minimise or manage potential impacts. Roads and Maritime will continue to consult with property owners and other stakeholders who may be affected by property impacts through the planning and development of the project about specific impacts on their properties. This would include discussion around property (land) values and the process for property acquisition. Where properties are identified for acquisition, the owner may choose to engage their own registered valuer to conduct a valuation of the property (Roads and Maritime Services, 2014).

Concerns about changes to property access for properties along The Northern Road were also identified during consultation for the project. These included:

- Concerns that removing the right turn into properties will prevent access to driveways, particularly for caravans and other large vehicles
- Use of the bus lane for property access.

Access to individual properties along The Northern Road would be maintained, although some permanent changes may be required. This includes the removal of right turns to/ from properties located along The Northern Road. The removal of right turns to/ from properties along The Northern Road would improve safety around property access and help to reduce disruptions to traffic flows. However, this would require some property owners and visitors to travel further to access properties. Further information on changes to local access and connectivity is provided in section 6.9.

The bus lane can be used for up to 100 metres by motorists entering or exiting a property. Consultation will be undertaken with property owners during the detailed design and construction phases about potential property access changes, including individual driveway access.

Permanent adjustments would be required to some private properties for the project. This would generally involve adjustments to driveways, fencing and farm infrastructure due to partial property acquisition. Any adjustments to properties required for the project would be undertaken in consultation with the property owner. While adjustments to properties may be a concern for affected property owners, the impact is not expected to be significant in the context of the overall project.

Impacts of property acquisition on local business, agricultural businesses and social infrastructure are discussed in section 6.5.1, section 6.6.2 and section 6.7.1 respectively.

6.2 Land use impacts

Table 6-3 provides an overview of land use directly impacted by the operational footprint for the project. Once operational, the project footprint would consist of the land required to accommodate the operation of The Northern Road, the upgraded local roads and any drainage and ancillary infrastructure. The total operational footprint (including compound and laydown sites) is estimated at about 202 hectares which would incorporate about 45 hectares of land currently owned by the Commonwealth.
Primary production uses comprise the largest area of land uses directly impacted by the project, with over 100 hectares of land used for primary production impacted by the operational footprint of the project. This represents about 0.48 per cent of land used for primary production in the Penrith and Liverpool region. This land would become transport infrastructure and would no longer be available for primary production. The majority of affected primary production land is located within the Liverpool LGA. Farm infrastructure within the operational footprint of the project would need to be relocated prior to construction. Further discussion about impacts on agricultural land uses is provided in section 6.6.

About 58.05 hectares of land impacted by the project comprises land used for infrastructure, mainly transport or other infrastructure corridors. This includes The Northern Road corridor, local roads and land within the WaterNSW supply pipeline corridor. This represents about 1.91 per cent of land used for infrastructure in the Penrith and Liverpool regions. The WaterNSW supply pipelines under The Northern Road. The project is not expected to impact on the operation of the pipeline. Consultation and approval from Water NSW would be undertaken prior to construction.

Land identified as ‘special category’ uses comprises nearly 25 hectares of directly affected land within the operational footprint for the project. This would mainly include land within the Defence Establishment Orchard Hills used for recreation, conservation, dams, or open space buffer. This land would be transferred to road infrastructure and would no longer be available for Department of Defence use. This land is located along The Northern Road frontage and is not expected to impact on the ongoing operations of the Defence Establishment Orchard Hills.

The land purchased by the Commonwealth for the Western Sydney Airport at Badgerys Creek is also identified (and zoned) as ‘special category’ as shown in Figure 4-1. A narrow strip of this land would be impacted by the upgrade of The Northern Road, between Mersey Road and Willowdene Avenue, south of Luddenham and west of the existing The Northern Road alignment. That part of the planned airport site which would be impacted by the road upgrade is mostly under cultivation or pastoral use (Leppington Pastoral Company). A very small portion of the affected land currently supports some naturally vegetated areas and drainage lines. The current uses would largely be unaffected by the project.

The operational footprint of the project would impact about 7.73 hectares of land used for environmental uses, such as river and drainage systems, and tree and shrub cover. This represents about 0.14 per cent of land used for environmental purposes within the wider Penrith and Liverpool region. Areas of tree and shrub cover within the operational footprint would be cleared prior to construction. Further discussion about impacts on flora and fauna in the study area, including conservation values in the Defence Establishment Orchard Hills, is in the Biodiversity Assessment Report (Appendix I of the EIS).

Table 6.3: Land uses within the operational footprint

<table>
<thead>
<tr>
<th>Land use</th>
<th>Penrith LGA</th>
<th>Liverpool LGA</th>
<th>Total region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Land in operational footprint (hectares)</td>
<td>Proportion of land in LGA</td>
<td>Land in operational footprint (hectares)</td>
</tr>
<tr>
<td>Environmental uses</td>
<td>1.39</td>
<td>0.03%</td>
<td>6.34</td>
</tr>
<tr>
<td>River and drainage system</td>
<td>1.39</td>
<td>0.13%</td>
<td>3.60</td>
</tr>
<tr>
<td>Tree and shrub cover</td>
<td>-</td>
<td>0.00%</td>
<td>2.74</td>
</tr>
<tr>
<td>Primary production uses</td>
<td>28.38</td>
<td>0.22%</td>
<td>77.34</td>
</tr>
<tr>
<td>Cropping</td>
<td>0.07</td>
<td>0.68%</td>
<td>17.30</td>
</tr>
<tr>
<td>Grazing</td>
<td>27.45</td>
<td>0.25%</td>
<td>53.45</td>
</tr>
<tr>
<td>Horticulture</td>
<td>0.76</td>
<td>0.10%</td>
<td>5.02</td>
</tr>
</tbody>
</table>
Land use zonings directly affected by the operational footprint are summarised in Table 6-4.

About 102 hectares of land zoned for rural uses (RU) would be directly affected by the operational footprint of the project. This includes land zoned for primary production (RU1), rural landscape (RU2) and primary production small lots (RU4).

Land zoned for residential uses (R) comprises about 4.72 hectares of land within the operational footprint of the project, the majority of which is land zoned for low density residential (R2). Areas zoned for low density residential that are impacted by the operational footprint of the project are mainly located in the Liverpool LGA. This represents a very small proportion of land (about 0.10 per cent) within the Liverpool LGA zoned for low density residential.

About 30.17 hectares of land zoned for environment protection (E) would be impacted by the operational footprint of the project, all of which is located within the Penrith LGA. This mainly includes land zoned for environmental conservation (E2) located within the Defence Establishment Orchard Hills, and comprises land with varying density of native vegetation cover, and ephemeral natural drainage lines. Further discussion of the project’s impacts on flora and fauna is provided in the biodiversity assessment report (Appendix I of the EIS).

The operational footprint of the project would not directly affect land zoned for recreational use, although land within the Defence Establishment Orchard Hills that is zoned for special activities and used for a nine-hole golf course would be directly affected by the operational footprint of the project. As indicated previously, this land would be transferred to road infrastructure. Potential impacts on the golf course are discussed in section 6.7.1.

Overall, impacts associated with changes to land use and land use zoning are expected to be minor given the area of land affected in the context of the broader Penrith and Liverpool LGAs.

Table 6-4: Land use zones within the operational footprint

<table>
<thead>
<tr>
<th>Land use zone</th>
<th>Penrith LGA</th>
<th>Proportion of LEP zoned land in LGA (%)</th>
<th>Liverpool LGA</th>
<th>Proportion of LEP zoned land in LGA (%)</th>
<th>Total region</th>
<th>Proportion of LEP zoned land in the region (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental conservation</td>
<td>19.88</td>
<td>0.46%</td>
<td>-</td>
<td>0.00%</td>
<td>19.88</td>
<td>0.46%</td>
</tr>
<tr>
<td>Environmental management</td>
<td>9.57</td>
<td>0.28%</td>
<td>-</td>
<td>0.00%</td>
<td>9.57</td>
<td>0.28%</td>
</tr>
</tbody>
</table>
6.3 Population and demography

Project related factors affecting population and demography generally relate to the acquisition of residential properties. Population and demography changes in the study area are also affected by external factors such as land use changes and urban development. By 2031, population in the Penrith and Liverpool LGAs is projected to grow to about 550,400 people, an increase of about 50 per cent from 2011. This is likely to be driven by growth and development within the Western Sydney Priority Growth Area and in areas near to the Western Sydney Airport.

The relocation of residents associated with the acquisition of residential properties and rural properties with dwellings may result in minor changes to local populations. This may include residents who have lived in the area for long periods or whose families have held properties for several generations. While these changes may result in local changes, these changes are expected to be minor as they would represent a very small proportion of the regional population and are not expected to impact on the population and demography of the study area as a whole. These impacts are likely to add to population changes in the study area associated with property impacts for the Western Sydney Airport and current and planned urban development.

During construction, the construction workforce would generally be sourced from across the wider Sydney region and is not expected to change population and demography in the study area. Further, any potential changes would be relatively minor in the context of construction associated with broader investment and development planned to occur in the wider Sydney region in coming years.

6.4 Employment impacts

Increasing local employment was identified through previous planning and consultation by both Penrith and Liverpool councils as a key issue in planning for the future of the LGAs. The project would impact positively on employment through the creation of direct employment opportunities through the construction phase. The project would also generate a number of indirect jobs in local, regional and national businesses and industries that support the construction phase, such as retailers who provide goods and services to support the day-to-day...
needs of the construction workforce, suppliers of construction materials and equipment, and transport operators. It is estimated that the WSIP as a whole, of which the project is one element, would create about 4,000 direct and indirect jobs during the 10 year lifetime of the program. Based on the expected project cost it is estimated that around 928 of these jobs would be associated with the project (indicative only). Furthermore, in accordance with the NSW Government Policy on Aboriginal Participation in Construction (NSW Finance and Services 2016) a percentage of the project value would be spent to support Aboriginal participation during construction.

As indicated in section 4.4.1, unemployment in the study area at the 2011 Census was generally below the NSW average, while at a regional level, rates of unemployment were similar to or above NSW. It is expected that there would be some capacity in the regional labour force for the project.

During operation, the project would support improved access and connectivity to employment areas in the study area and the western Sydney region. Some loss of local employment may be associated with the acquisition of some businesses for the project. This is most likely to affect those businesses that would experience changes to business operations or that would be required to relocate, particularly if alternative properties are not able to be found locally. While the potential loss of local employment would be a concern for employees of affected businesses, this is not expected to impact on the overall levels of employment in the study area.

Potential impacts on employment associated with the bypass of Luddenham town centre are described in section 6.5.2.

6.5 Local business impacts

This section assesses potential impacts on local businesses in the study area, including those businesses within the Luddenham town centre. It describes potential impacts on businesses directly affected by property acquisition for the project as well as other businesses in the study area that may experience changes due to such things as changes in local access or changes in local amenity. This assessment provides a qualitative assessment of potential impacts and does not quantify the impacts on the individual businesses or on levels of expenditure.

Potential impacts on agricultural businesses are described in section 6.4.

6.5.1 Directly affected businesses

Property acquisition and temporary leases of land for the project would impact about 17 properties that currently contain non-agricultural businesses. Many of these comprise home-based business. They include construction related businesses, transport and equipment hire businesses, retail and tourist related businesses.

Potential short and long-term impacts on businesses affected by property acquisition or the temporary lease of land for construction would generally be associated with:

- Direct loss of business from property acquisition
- Demolition of dwellings associated with some home based businesses and infrastructure such as sheds and dams
- Loss of land used for some business activities (for example, areas used for tree growing, display or storage of goods)
- Changes in access due to restriction of right turns to/from The Northern Road, increasing travel distances for some customers, employees and delivery drivers.

For most businesses, property acquisition for the project is not expected to impact on ongoing business operations for individual businesses and impacts are generally not expected to be significant. However, there are a small number of businesses that may experience impacts associated with the demolition of dwellings and other infrastructure (for example sheds, growing areas). This may require changes to business operations or the need for some businesses to relocate. Impacts on these businesses are expected to be greater, although the level of impact on individual businesses would be dependent on factors such as the ability of the business to
continue operating in the existing location; the nature of the business; location and site requirements; and the ability to relocate to a new property locally (if required).

Short-term disruptions to business operations may also occur for businesses that are required to relocate due to acquisition or where infrastructure is required to be relocated within the property. Where business properties are impacted by property acquisition, compensation for reasonable disturbance costs likely to arise would be considered by Roads and Maritime (Roads and Maritime, 2014). This would include compensation for any temporary disruption to business operations.

**Table 6-5** summarises potential impacts on individual businesses that would be directly impacted by property acquisition, while **Figure 6-1** shows the extent of land within the operational footprint and land temporarily leased for construction compounds. Potential impacts on agricultural businesses are described in **section 6.6**. Further information about broader impacts of construction and operation on businesses in the study area is provided in **section 6.5.2**.

**Table 6-5: Impacts on directly affected businesses**

<table>
<thead>
<tr>
<th>Business</th>
<th>Location</th>
<th>Summary of Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eireka Pty Ltd</td>
<td>Corner of Kings Hill Road and The Northern Road, Mulgoa</td>
<td>Widening of The Northern Road and upgrade of the Kings Hill Road/ The Northern Road intersection would require the strip acquisition of land fronting The Northern Road and Kings Hill Road. Additional land would also be temporarily leased for a construction compound. Land affected by construction and not required for operation, would be reinstated following construction. Affected land mainly includes grassed areas along the boundary with Kings Hill Road and The Northern Road. The project would not impact on any buildings or structures. Access would be maintained to Kings Hill Road, with all movement access provided at the Kings Hill Road/ The Northern Road intersection. These impacts are not expected to impact on the ongoing operation of the business.</td>
</tr>
<tr>
<td>Stones Kart Sport</td>
<td>Longview Road, Mulgoa</td>
<td>Widening of The Northern Road would require the strip acquisition of land fronting The Northern Road. This land mainly includes landscaping (grass/trees). The existing property access arrangements to Longview Road would be maintained. Changes to The Northern Road intersection would restrict right turns to/from Longview Road. All turn access to The Northern Road would be provided at Kings Hill Road, which would be accessed via Longview Road and the Vineyard Road extension. This would increase the distance customers would be required to travel by about one kilometre (further discussion about proposed local access changes is provided in <strong>section 6.9</strong>). These impacts are not expected to impact on the ongoing operation of the business.</td>
</tr>
<tr>
<td>Complete Roofing</td>
<td>The Northern Road, Mulgoa</td>
<td>Widening of The Northern Road would require the strip acquisition of land fronting The Northern Road. This land mainly includes landscaping (grass/trees). The existing driveway access would be maintained, although changes to The Northern Road would restrict right turns to/from the business. This would require a u-turn to be performed at either Kings Hill Road or Littlefields Road. This would increase the distance required to be travelled by up to about 4.3 km. U-turn</td>
</tr>
</tbody>
</table>
facilities would be designed to accommodate movements by large vehicles (further discussion about proposed local access changes is provided in section 6.9). These impacts are not expected to impact the ongoing operation of the business.

**GRS Towing**

The Northern Road, Mulgoa

Widening of The Northern Road would require the acquisition of land at the north east and south east corners of the property. This land mainly includes grassed areas. The existing driveway access would be maintained, although changes to The Northern Road would restrict right turns to/from the business. This would require a U-turn to be performed at either Kings Hill Road or Littlefields Road. This would increase the distance required to be travelled by up to about 4.3 km. U-turn facilities would be designed to accommodate movements by large vehicles (further discussion about proposed local access changes is provided in section 6.9). These impacts are not expected to affect the operation of the business.

**Warratah Park Puppies**

The Northern Road, Mulgoa

Widening of The Northern Road would require the strip acquisition of land fronting The Northern Road. This would impact on the dwelling associated with the business as well as sheds and dam. These impacts would likely require the business to relocate. This may result in temporary disruptions to business operations. The nature of the business means that this business is likely to be less dependent on specific locational requirements (for example, access to a main road) and could relocate to new premises elsewhere. Roads and Maritime is continuing to consult with the business owner to identify measures to manage any disruptions to business operations.

**Horse N Around**

Corner of Littlefields Road and The Northern Road, Mulgoa

The upgrade of the intersection at Littlefield Road and The Northern Road would require the strip acquisition of land fronting Littlefields Road and The Northern Road. Affected land is located along the property boundary with Littlefields Road and The Northern Road. This land mainly includes landscaped areas (grass/ trees).

Partial acquisition would not impact on buildings or car parking areas. Widening would result in the northbound lanes being within about 27 m of the nearest building on the property. This building is used as a retail outlet.

Changes to property access would be needed for the project. In particular, the driveway at Littlefields Road closest to The Northern Road intersection would need to be closed for safety. Roads and Maritime would continue to consult with the property owner and business owner about possible management measures, including alternative access if required.

Full access would be provided at the Littlefields Road/ The Northern Road intersection. These impacts are not expected to impact the ongoing operation of the business.

Roads and Maritime is continuing to consult with the business owner about specific management measures to be considered in the detailed design phase.
### Socio-economic assessment

<table>
<thead>
<tr>
<th>Business</th>
<th>Location</th>
<th>Summary of impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Honey Shed</td>
<td>The Northern Road,</td>
<td>Widening of The Northern Road would require the strip acquisition of land fronting The Northern Road. The business is accommodated on a portion of a much larger agricultural property used for livestock grazing and cropping. The affected land is currently used for cropping and grazing purposes. Access to The Northern Road would be maintained, including for tour buses, although changes to The Northern Road would restrict right turns to/from the business. This would require u-turns to be performed at Elizabeth Drive and Littlefields Road. U-turn facilities would be designed to accommodate movements by large vehicles. This change would also increase the distance customers would be required to travel by up to about 4.4 km (further discussion about proposed local access changes is provided in section 6.9). It was suggested during consultation for this assessment that between 25-50 per cent of customers were associated with passing trade. While the additional travel may be a deterrent for some ‘passing’ customers this is likely to be outweighed by the projected increase in traffic using The Northern Road in the future. A number of issues were raised during consultation for this assessment about potential impacts of the project on this business. These included uncertainty relating to the project and impacts of this uncertainty on future business decisions. Impacts on access during construction were also raised as an issue, particularly as the business attracts both domestic and international tourists, including tour buses (refer to section 4.4.3). Access to the business would be maintained during construction, including for tour buses. Where temporary changes are required, consultation would be undertaken with the business owner to ensure potential impacts are managed. Overall, these impacts are not expected to impact on the ongoing operation of the business.</td>
</tr>
<tr>
<td></td>
<td>Luddenham</td>
<td></td>
</tr>
<tr>
<td>Luddenham Pet Meat</td>
<td>The Northern Road,</td>
<td>Widening of The Northern Road would require the strip acquisition of land fronting The Northern Road. This would potentially impact a dwelling located on the property as well as grassed areas (grass/ trees). The adjoining shed would not be impacted by the project. Access to The Northern Road would be maintained, although changes to The Northern Road would restrict right turns to/from the business. This would require u-turns to be performed at Elizabeth Drive and Littlefields Road. This would increase the distance customers would be required to travel by up to about 4.9 km. U-turn facilities would be designed to accommodate movements by large vehicles (further discussion about proposed local access changes is provided in section 6.9). Roads and Maritime has commenced consultation with potentially affected property owners about the acquisition process. Consultation will continue during the detailed design and construction phases of the project about possible management measures.</td>
</tr>
<tr>
<td></td>
<td>Luddenham</td>
<td></td>
</tr>
<tr>
<td>AL Tours and A &amp; M Excavation</td>
<td>The Northern Road, Luddenham</td>
<td>Widening of The Northern Road would require the strip acquisition of land fronting The Northern Road. This would potentially impact a dwelling located on the property as well as grassed areas. The</td>
</tr>
</tbody>
</table>
### Business

<table>
<thead>
<tr>
<th>Business</th>
<th>Location</th>
<th>Summary of impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top Shape Live Christmas Trees</td>
<td>Corner of The Northern Road and Elizabeth Drive, Luddenham</td>
<td>Partial acquisition of this property would be required for the realignment of Elizabeth Drive. The realignment would sever land containing two dwellings, sheds and areas used for tree growing. This would result in the permanent loss of land used for growing trees. Dwellings and sheds within the operational footprint would also be demolished prior to construction. Additional land would also be temporarily leased for a construction compound. Land affected by construction and not required for operation, would be reinstated following construction. These impacts are likely to affect business operations. Roads and Maritime is continuing to consult with the business owner to identify measures to manage any disruptions to business operations associated with any requirement to relocate.</td>
</tr>
<tr>
<td>Shell service station</td>
<td>The Northern Road, Luddenham</td>
<td>The realignment of Eaton Road would require the strip acquisition of a small area of land fronting Eaton Road. This land does not appear to be used apart from a small area of garden bed. Strip acquisition may result in the loss of part of the garden bed. The loss of this land is not expected to impact on the ongoing operation of the business. Access to the service station would be maintained to the existing The Northern Road alignment in Luddenham town centre. Potential business impacts associated with the bypass of Luddenham town centre are described in section 6.5.2.</td>
</tr>
<tr>
<td>Triple A Christmas Tree Farm</td>
<td>Between The Northern Road and Eaton Road, Luddenham</td>
<td>The route alignment around the Luddenham town centre would require the partial acquisition of land used for growing trees at Eaton Road. This would result in the permanent loss of this land for tree growing. The remaining part of this property not within the operational footprint would continue to be available for tree growing. The route realignment south west of the existing The Northern Road would also impact on an associated property adjacent to the Luddenham town centre. The affected land mainly comprises grazing land and dam infrastructure. This would result in the loss of this grazing land. Dam infrastructure affected by the project would need to be relocated. The project is not expected to impact on areas used for tree growing or Christmas tree sales on this property. The project would change access between Eaton Road and Luddenham town centre, with the existing right turn to/ from Eaton</td>
</tr>
</tbody>
</table>
### Business | Location | Summary of impact
---|---|---
**Grassington Alpacas**<br>Corner Dwyer Road and The Northern Road, Bringelly | Widening of The Northern Road would require the strip acquisition of land fronting The Northern Road. Affected land mainly includes grassed areas. The project would not impact on any buildings or structures. Access would be maintained to Dwyer Road. Right turn access to/from The Northern Road would be restricted at Dwyer Road. This would require u-turns to be performed at either the Western Sydney Airport access or Mersey Road. This would increase the distance to be travelled by up to about 1.6 km. U-turn facilities would be designed to accommodate movements by large vehicles. These impacts are not expected to impact on the ongoing operation of the business. |
**Southern Cross Truck Rentals**<br>Corner Dwyer Road and The Northern Road, Bringelly | Widening of The Northern Road would require the strip acquisition of land fronting The Northern Road. Affected land mainly includes grassed areas. The project would not impact on any buildings or structures. Access would be maintained to Dwyer Road. Right turn access to/from The Northern Road would be restricted at Dwyer Road. This would require u-turns to be performed at either the Western Sydney Airport access or Mersey Road. This would increase the distance to be travelled by up to about 1.6 km. U-turn facilities would be designed to accommodate movements by large vehicles. These impacts are not expected to impact on the ongoing operation of the business. |

Issues were raised during consultation for the project about the availability of financial compensation where business operations become unviable due to property impacts. In particular, feedback identified concerns that partial acquisition of land may impact negatively on the operations of existing businesses. Roads and Maritime would continue to consult with business owners during the detailed design phase to inform the detailed design and any further management measures. As indicated in section 6.1.1, compensation for land and/or interests in land acquired by Roads and Maritime is assessed in accordance with the NSW Property Acquisition (Just Terms Compensation) Act 1991. As previously indicated, where business properties are impacted by property acquisition, compensation for reasonable disturbance costs likely to arise would be considered by Roads and Maritime (Roads and Maritime, 2014).
The Northern Road upgrade - Mersey Road to Glenmore Parkway

Affected businesses

Southern Cross Truck Rentals

Grassington Alpacas

Operational boundary
Figure 6-2 | Directly affected businesses
Figure 6-2 | Directly affected businesses
Figure 6-2 | Directly affected businesses

The Northern Road upgrade - Mersey Road to Glenmore Parkway

Affected businesses

The Northern Road (Existing)

Operational boundary
6.5.2 Impacts on businesses in the study area

Construction impacts

During construction, potential impacts on local businesses in the study area may result from:

- Increased expenditure by construction workers on local goods and services, resulting in beneficial impacts for local businesses
- Changes in local access to businesses, and traffic disruptions and delays due to construction activities, resulting in adverse impacts for local businesses
- Increased noise, dust and construction traffic, impacting on business amenity at businesses near the project.

These impacts would be temporary and short-term in the context of the project.

Compensation for businesses to cover loss of trade during construction was raised as a concern during consultation for the project. As indicated in section 6.1.1, compensation for the project would be determined in accordance with the NSW Property Acquisition (Just Terms Compensation) Act 1991. Roads and Maritime does not pay compensation to properties that are not directly impacted. Mitigation measures would be implemented during construction to manage potential impacts on local businesses (refer to section 7). Roads and Maritime will also continue to consult with affected business owners through detailed design and construction to inform further management measures.

The construction phase may have a positive effect for some local businesses through increased demand for local goods and services. This includes local shops and food outlets near construction works and in Luddenham town centre that may benefit from increased business in response to day-to-day needs of construction workers. Businesses supplying goods and services to construction may also experience benefits from increased construction activities locally.

Access to businesses near the project would be maintained during construction. Where temporary changes are required, these would be determined in consultation with individual business to ensure that potential impacts are appropriately managed.

A detailed assessment of potential impacts associated with construction traffic changes and impacts affecting local business amenity is provided in the traffic, noise, and air quality working papers. Ongoing consultation with business owners and managers during construction would also be undertaken to assist in managing potential impacts. Without management, potential impacts on local business access and amenity during construction may have a moderate level of impact for businesses near the project.

Operational impacts

At a regional level, the project would have long-term beneficial impacts on business and industry through improved access and connectivity to growth areas in Western Sydney. The upgraded corridor would cater for the substantial traffic growth expected along The Northern Road corridor associated with increased residential and commercial development in the South West Priority Growth Area, Western Sydney Priority Growth Area and nearby areas, by improving road and intersection capacity. Additionally, the project would provide connectivity to the Western Sydney Airport through the provision of high capacity traffic and freight links between the airport and the M4 Western Motorway and south western Sydney, including Campbelltown and the M12 Motorway. This would have beneficial impacts for regional and national business and industry. The project would also improve road safety and provide improvements to public and active transport facilities, promoting sustainable and efficient journeys.

Locally, the project would improve road safety and accessibility, supporting general improvements to local business and industry in the study area. However, the project would involve the bypass of Luddenham town centre, restrictions to right turns to/ from businesses along The Northern Road and some local streets, and upgrade of some intersections. Access to businesses along The Northern Road would be provided by left-in/ left-out access only. U-turn facilities would be provided at locations along The Northern Road alignment or on
nearby roads. This would require changes in how some customers access individual businesses in the study area and would result in increases in travel distances for some businesses, and their customers and suppliers. For many businesses, the additional travel distance required would be up to about 3.0 km (or about three minutes), although for some businesses, this would be up to about 5.9 km (or about five minutes). Outside of Luddenham town centre, the majority of businesses affected by access changes include home based businesses. They comprise construction related businesses, transport services, plant and equipment hire, agricultural businesses, recreational uses, and specialist retail (for example, equestrian, pet and rural supplies), which are likely to be less reliant on passing trade. Further discussion about potential impacts for businesses in Luddenham town centre is provided in the following section. While the additional travel may be a deterrent for some ‘passing’ customers of businesses outside of Luddenham town centre, any possible reduction in passing trade is likely to be minor and would be off-set in part, by the increased long-term exposure to potential customers associated with the projected increase in traffic using The Northern Road in the future.

Ensuring local communities and business customers are aware of changes in access to local businesses would be important in minimising potential business impacts associated with local road changes, particularly during the initial operational phase. This may include measures such as the use of appropriate road signage or advertising by the businesses (for example, through business websites or other publications) prior to and following the commencement of access changes. It is likely that any potential impacts on businesses associated with changes in customer access would reduce over time as customers and local and regional communities become familiar with the new access arrangements and are not expected to be significant in the context of the project as a whole.

Some businesses near to the project may experience changes to business amenity from changes in traffic noise and visual values, including removal of existing vegetation in the road corridor. These impacts and possible management measures are discussed in the noise, visual amenity and urban design and landscape working papers. With the implementation of mitigation measures, overall impacts on business amenity are not expected to be significant.

**Bypass of the Luddenham town centre**

The project would involve diverting The Northern Road east of Luddenham, close to the Western Sydney Airport site boundary. This would reduce through traffic within the Luddenham town centre and would change access for some customers of businesses located within the town.

A review of literature undertaken for Roads and Maritime (Roads and Maritime Services, 2012), identified three main factors that influence the degree of impact on local businesses from a bypass. These included:

- **Town size**, with smaller towns generally more at risk of adverse economic impacts from a bypass.
- **Existing business environment**, including the nature of businesses and the level of dependence on ‘highway generated trade’
- **Distance from a larger centre**.

The literature review also identified that other factors such as the state of the national and regional economy, and restructuring of industry and services, may have more of an impact on the economy of the town than the introduction of a bypass (Roads and Maritime Services, 2012).

As discussed in section 4.4.3, the business survey and car park survey indicated that businesses in the Luddenham town centre attract customers from across the study area and wider region. The majority of customers are generally drawn from localities within about 20 km of Luddenham, although some customers travel much further to access particular businesses. For example, the fruit and vegetable shop (David’s Stall) was identified as a key attractor for the town, with customers coming from across Sydney to access this business. Following the implementation of the bypass, businesses in the town are likely to continue to be attractive for customers from across the study area and wider region. Access to Luddenham town centre would include a northern and southern access, which would support access for customers from these areas. Customers to the west would continue to access the town via Park Road, while a realigned Elizabeth Drive would provide improved access for customers to the east.
Feedback from the survey of business owners identified passing trade as important to a number of businesses, such as service stations and cafes. It was estimated by these business owners that passing trade accounted for more than about 75 per cent of their customers. A small number of businesses also indicated that ‘passing trade’ made up a relatively small proportion of their customers. These mainly included service industries, such as hairdresser, beautician and medical centre.

Concerns raised by businesses through the business survey about the bypass of Luddenham town centre, included:

- Some customers would need to find a less direct route to businesses
- Not having a direct route would mean that people would need to decide to turn off The Northern Road
- Loss of passing trade would impact on level of customers. It was suggested that if there was a quicker way for people to get to work, they would bypass businesses in the town centre
- People would not come into the town for small purchases as it would not be convenient.

With the project, traffic volumes within the Luddenham town centre are expected to reduce in the short term (2021) from existing traffic volumes. However, over the longer term (2031), traffic volumes are expected to return to levels similar to existing traffic volumes, mainly due to growth and development associated with the Western Sydney Airport and urban development within the region. Without the bypass, traffic levels in Luddenham town centre would continue to increase, impacting on business amenity within the town centre and customer access to local businesses. This may reduce the attractiveness of businesses within the town for some customers, who currently value the ease of access offered by local businesses. Further information about traffic impacts during operation is provided in the traffic and transport working paper.

A short-term reduction in traffic within the town centre may reduce levels of trade for those businesses that currently rely on passing traffic for their customers. The extent of impact on individual businesses is unknown and would depend on a range of factors for example, existing business operations and viability, any proposed future plans, and the nature of the business. Businesses surveyed for this assessment that felt most at risk from a reduction in traffic included service stations, cafés and some retail uses. Reduced trade associated with reductions in traffic may have flow on effects on local employment for some businesses. However, reduced trade associated with a reduction in traffic in the short-term may be off-set in part by increased construction activity within the study area associated with the development of the Western Sydney Airport and urban development projects. This would result in an increase in construction workers in areas within or near to the study area and potentially demand for goods and services locally and regionally.

Feedback from the business survey also suggested that people often preferred to access some services in Luddenham rather than Penrith as businesses tend to provide easier parking, are more accessible and the town is less busy. A reduction in through traffic, particularly heavy vehicles, would help to enhance business amenity and improve local access within the town. This was seen as a benefit for customer access by some business owners, as was improved road safety provided by the project.

Access to Luddenham town centre would be maintained from the new The Northern Road alignment from the north and south. This would allow motorists, including potential passing trade, to continue to travel through the town centre, without needing to ‘back-track’. In addition, the realignment of Elizabeth Drive would provide improved and more direct access for customers east of Luddenham. This is likely to contribute to businesses in the Luddenham town centre remaining accessible and attractive to customers who prefer to access services within the town centre and assist in maintaining a level of passing trade.

A comment was made through the business survey that ensuring people’s awareness of businesses within the town would assist in reducing the effects of the bypass. Comments made during consultation for the project also indicated that increased development and population growth occurring more broadly in the study area would have a positive impact on businesses and support increased customers over time. In the longer term, this would assist in off-setting in part, the impacts of the bypass. In the short term, ensuring local communities and business customers are aware of changes in access to local businesses would be important to minimising potential business impacts associated with local road changes. Use of signage and advertising were identified through consultation for the project and by business owners during the business survey as important to letting customers know about businesses in the town centre. In particular, consultation for the project identified the
need for signage at both junctions where the existing The Northern Road joins the new alignment advertising goods and services in the town. As indicated in section 7, appropriate road signage would be provided in accordance with the Roads and Maritime guidelines *Tourist Signposting* (2012) to provide guidance to passing patrons on access to shops and services.

During construction, an increase in the number of workers in the area was generally seen as a positive for businesses in the Luddenham town centre. Potential impacts around changes to local access, potential delays and disruptions for people accessing Luddenham town centre were considered the main impacts associated with the construction. These impacts would be short-term for the duration of construction. Ensuring customers are aware of possible delays and disruptions so they could allow for these in their travel times was identified as important in managing potential impacts on some businesses. With these measures, potential impacts associated with temporary changes in local access during construction are not expected to be significant.

### 6.6 Agricultural impacts

This section assesses potential impacts on agricultural uses in the study area, including agricultural businesses. It describes potential impacts on agricultural businesses directly affected by property acquisition for the project as well as other agricultural uses in the study area that may experience changes due to such things as changes in local access or changes in local amenity.

#### 6.6.1 Loss of agricultural land

Table 6-6 shows the area of agricultural land within the operational footprint for the project. This land would change to transport use and would no longer be available for agricultural production.

The project would directly acquire a total of about 104.2 hectares of agricultural land in the study area, including land used for cropping, grazing, horticulture and intensive animal production. This represents about 0.5 per cent of agricultural land in the wider Penrith and Liverpool region. Land used for grazing is the largest area of agricultural land that would be acquired by the project. This would represent a small proportion of this land use within the wider region, at 0.4 per cent. About 18 hectares of land used for cropping would be directly affected by the project footprint, representing about 5.5 per cent of this agricultural use in the region.

The project would not impact on any land identified as strategic agricultural land, as identified by the NSW Department of Planning and Environment.

**Table 6-6 : Agricultural land within the operational footprint**

<table>
<thead>
<tr>
<th>Agricultural land use</th>
<th>Penrith LGA</th>
<th>Liverpool LGA</th>
<th>Total region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Agricultural land in operational footprint (hectares)</td>
<td>Proportion of agricultural land in LGA</td>
<td>Agricultural land in operational footprint (hectares)</td>
</tr>
<tr>
<td>Cropping</td>
<td>0.07</td>
<td>0.68%</td>
<td>18.22</td>
</tr>
<tr>
<td>Grazing</td>
<td>25.10</td>
<td>0.23%</td>
<td>52.62</td>
</tr>
<tr>
<td>Horticulture</td>
<td>0.83</td>
<td>0.11%</td>
<td>5.44</td>
</tr>
<tr>
<td>Intensive animal production</td>
<td>0.16</td>
<td>0.02%</td>
<td>1.77</td>
</tr>
<tr>
<td>Total</td>
<td>99.35</td>
<td>0.25%</td>
<td>99.56</td>
</tr>
</tbody>
</table>

Note: the areas of land presented have been calculated based on a review of spatial data

Urban development is placing pressure on agricultural land in the study area and wider region and impacts on land available for agriculture. Acquisition of land for the planned Western Sydney Airport has also impacted on farming land in the region. While this land continues to be used for farming purposes, future development of the airport would result in the loss of land currently being used for agricultural purposes.
6.6.2 Directly affected agricultural uses

Some rural properties impacted by property acquisition comprise agricultural businesses. These include businesses that sell produce direct from the property. This section describes potential impacts on agricultural businesses that would be directly impacted by property acquisition. Further information about broader impacts of construction and operation on agricultural uses and businesses in the study area is provided in section 6.6.3.

Acquisition for the project would impact on land used for dairy farming, honey production, grazing, cropping and horticulture production. Potential impacts on directly affected agricultural businesses would generally be associated with:

- Loss of productive land, including land used for pasture, feed crop and horticulture production
- Direct impact on farm infrastructure such as dams, irrigation, fencing, sheds and storage areas, and other facilities, resulting in the loss of this infrastructure or the requirement for this infrastructure to be relocated
- Severance or fragmentation of larger agricultural properties, potentially isolating some parts of agricultural properties and impacting on the efficiency of farm management, and farming operations associated with the movement of livestock and/or farm machinery and equipment
- Changes to the movement of farm equipment and livestock, including between different areas of farming properties
- Changes to farm access, including for vehicles transporting produce or delivering farming equipment and supplies.

Potential severance impacts or fragmentation of larger rural properties are most likely to occur from the bypass of Luddenham where the project moves away from the existing The Northern Road corridor and due to the realignment of the road for the Western Sydney Airport. Severance impacts have mainly been avoided by locating the realigned road corridor near property boundaries. The main location where the realigned corridor has resulted in the severance of agricultural land is at the LPC Base Farm property at Bringelly. The project would maintain internal property access to the isolated land parcel east of The Northern Road corridor through the provision of an underpass of The Northern Road. This would be constructed prior to the construction of The Northern Road to ensure access is maintained during construction and would allow for the movement of livestock, and farm machinery and equipment. This would assist in minimising potential severance impacts on the farm operations. While these changes are likely to be important to the operators of LPC Base Farm, the impacts are not expected to be significant in the context of the project as a whole. Further discussion about specific impacts on LPC is provided in Table 6-7.

Concerns were raised during consultation for the project about the potential for partial acquisition to impact on the operations of existing agricultural businesses such as market gardens. As indicated in section 6.1.1, compensation for properties directly impacted by the project would be assessed in accordance with the NSW Property Acquisition (Just Terms Compensation) Act 1991.

Where partial acquisition of agricultural properties occurs, farm infrastructure such as fencing, dams, sheds and other structures, within the operational footprint would need to be demolished or relocated prior to construction. As indicated in section 6.1.3, while adjustments to properties may be a concern for affected property owners, the impact is not expected to be significant in the context of the overall project. Consultation would be undertaken with agricultural property owners to inform the detailed design about adjustments required to such things as fencing, farm infrastructure and relocation of impacted structures. Further information about potential impacts for specific businesses is provided in Table 6-7.

Access to agricultural properties would be maintained by the project, although permanent changes may be required for some properties due to intersection changes and restrictions on some turning movements. Further information about potential changes to access for specific agricultural businesses is provided in Table 6-7, while potential access changes within the study area generally are discussed in section 6.9.2.

Table 6-7 summarises potential impacts on individual agricultural businesses that would be directly impacted by property acquisition. Figure 6-2 shows the extent of impacts on individual businesses. Potential impacts on The Honey Shed, Top Shape Live Christmas Trees and Triple A Christmas Tree Farm are described in
section 6.5.1. Further information about broader impacts of construction and operation on agricultural uses is provided in section 6.6.3.

Table 6-7 : Impacts on directly affected agricultural businesses

<table>
<thead>
<tr>
<th>Business</th>
<th>Location</th>
<th>Summary of impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strawberry farm</td>
<td>The Northern Road, Luddenham (north of Elizabeth Drive)</td>
<td>Widening of The Northern Road would require the strip acquisition of land fronting The Northern Road. This would impact on a dwelling, shed and growing area next to The Northern Road. This infrastructure would need to be demolished and where practicable, relocated within the property prior to construction. The growing area to be acquired for the project would represent a relatively small area used for growing on the property (that is, less than about 5 per cent). Growing areas within the remaining part of this property not within the operational footprint could continue to be available for growing. Property access to The Northern Road would be maintained, although changes would be required. These changes would be made in consultation with the property owner. Right turns to/ from The Northern Road into the property would be restricted. This would require u-turns to be performed at Elizabeth Drive and Littlefields Road. This would increase the distance required to be travelled by up to about 4.4 km. U-turn facilities would be designed to accommodate movements by large vehicles (further discussion about proposed local access changes is provided in section 6.9). Roads and Maritime has commenced consultation with potentially affected property owners about the acquisition process. Consultation will continue during the detailed design and construction phases to identify the best outcome for ensuring the ongoing viability and effective operational management of businesses.</td>
</tr>
</tbody>
</table>
| Leppington Pastoral Company | The Northern Road, Bringelly | The route alignment around the Western Sydney Airport would require the strip acquisition of land within the LPC Base Farm. As indicated in section 4.4.2, the farm comprises a dairy operation as well as organic fertiliser business. Acquisition for the project would affect land located immediately west of the Western Sydney Airport site. This area of the farm currently accommodates:
  - Three sheds
  - Land used for irrigated cropping and associated irrigation infrastructure
  - Private utilities such as communication cables, water, irrigation and power.
This infrastructure would be demolished and where practicable, relocated within the Base Farm, prior to construction. This would occur in consultation with the farm owners. The project would also result in the severance of two areas of land on the eastern side of The Northern Road from the main area of the Base Farm. The farm owners have identified that these areas of land are proposed to be used for ongoing farm operations. The project would include an underpass of The Northern Road connecting the main area of the Base Farm to one of the land areas east of the road corridor that would allow access for dairy |
<table>
<thead>
<tr>
<th>Business</th>
<th>Location</th>
<th>Summary of impact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>cattle. Farm machinery will be able to cross The Northern Road at the southern airport signalised intersection, which can be accessed from the Leppington driveway. Both these measures would assist in managing potential impacts associated with the severance of this land from the main farm area. Roads and Maritime have consulted and agreed with LPC the design and location of the underpass. Vehicle access to the remaining area of land would be maintained from The Northern Road. The project would maintain existing access arrangements to the LPC Base Farm, with a new signalised intersection would be provided connecting the existing The Northern Road at the southern boundary of the Western Sydney Airport also providing access to the LPC Base Farm. This would provide all movement access for motorists accessing the farm.</td>
</tr>
</tbody>
</table>
Figure 6-3 | Directly affected agricultural businesses (Sheet 1)
Figure 6-3  |  Directly affected agricultural businesses (Sheet 2)

The Northern Road upgrade - Mersey Road to Glenmore Parkway

- Affected agricultural businesses
- The Northern Road (Existing)
- Operational boundary
6.6.3 Impacts on agricultural uses in the study area

Construction impacts

During construction, short-term impacts on rural land may be associated with:

- Location of construction compounds, temporarily disrupting use and access to rural land
- Changes to farm infrastructure near to the construction footprint, such as fencing and internal roads
- Changes in local access to rural properties, and traffic delays and disruptions due to construction activities
- Increased construction traffic and movement of construction vehicles within the construction footprint, increasing the risk of the spread of weeds and pests between properties
- Increased noise, dust and construction traffic, temporarily impacting the amenity of agricultural properties near the project.

Following construction, land occupied by construction works but not required for the ongoing operation of the project would be reinstated, including any affected infrastructure such as fencing, etc. This would assist in minimising any potential permanent or long-term impacts on agricultural land.

Access to rural properties near the project would be maintained during construction. Where temporary changes are required, these would be determined in consultation with individual property owners to ensure that potential impacts are appropriately managed. This includes short-term changes that may impact on access and movement of farm equipment, machinery and livestock between internal property areas or to other properties. A detailed assessment of potential impacts associated with traffic and transport changes during construction is provided in the Traffic and Transport Working Paper.

Environmental management measures and procedures would be established to minimise the risk of spreading weeds and pests between rural properties. With appropriate measures, potential impacts on rural properties are not expected to be significant. Further information on these measures is provided in the biodiversity assessment report prepared for the project.

Increased noise, dust and construction traffic may result in short-term changes to local amenity at some agricultural properties near to construction works. These impacts are discussed in detail in section 6.8.1. Detailed assessment of noise, dust and construction traffic impacts is also provided in the respective Working Papers.

Operational impacts

At a regional level, the project would have long-term beneficial impacts on rural uses and industries through improved access and connectivity, including to freight links and regional growth areas. Locally, the project would improve road safety to destinations within the study area.

Access to rural properties would be maintained by the project, although permanent changes may be required for some properties due to intersection changes and restrictions on some turning movements. This would increase travel distances to some rural properties. Further discussion about potential impacts is provided in section 6.9.2.

Increased traffic noise, light spill from the roadway, and changes to the visual environment may impact on the use and enjoyment of rural properties near to the realigned road for the bypass of Luddenham town centre. This may particularly impact the night-time amenity given the existing relatively low night-time noise and light environment. While these changes may be a concern for affected property owners, they are not expected to be significant in the context of the project as a whole. Further discussion about possible amenity related impacts is provided in section 6.8.2.
6.7 Social infrastructure

This section assesses potential impacts on social infrastructure in the study area. It describes potential impacts on social infrastructure directly affected by property acquisition as well as other community services and facilities in the study area that may experience changes due to such things as changes in local access or changes in local amenity.

6.7.1 Directly affected social infrastructure

Potential impacts of acquisition on community infrastructure would generally be limited to the Orchard Hills Golf Course, located next to The Northern Road, within the Defence Establishment Orchard Hills. Widening of The Northern Road would require the strip acquisition of land within the golf course fronting The Northern Road. This impact may require changes to the layout of some holes (for example, some tee blocks or greens).

Roads and Maritime would continue to consult with the golf club during the detailed design phase of the project about the layout changes and management of impacts to the golf course.

Potential impacts of the project’s construction and operation on amenity for users of this facility are discussed in section 6.8.

6.7.2 Impacts on social infrastructure in the study area

Construction impacts

During construction, potential impacts on social infrastructure near the project may result from:

- Increased noise, dust and construction traffic, impacting on amenity for users and workers of some community services and facilities
- Changes in local access and traffic disruptions and delays due to construction activities.

Impacts on amenity may be experienced by users of community services and facilities located close to construction works and compounds due to increased noise and dust from construction activities and increased traffic, including heavy vehicles. Overall, potential impacts on social infrastructure from construction activities would be short-term and are not expected to be significant given that the majority of social infrastructure is located away from construction activities.

Further discussion about impacts of construction on local amenity and access and connectivity is provided in section 6.8.1 and section 6.9.1. Detailed assessment of noise, dust and construction traffic impacts is also provided in the respective Working Papers.

Operational impacts

During operation, the project would contribute to improved access and connectivity to regional, State and national level community services and facilities within or near to the study area through improved travel time savings and improved travel time reliability. This includes:

- Regional level community services and facilities, such as
  - Education uses such as the University of Western Sydney, TAFE Western Sydney Institute
  - Major medical and health care facilities, including hospitals and facilities at the Nepean Hospital campus
  - Regional open space, sport and recreational uses, at Western Sydney Parklands and within central Penrith
  - Community support services and service organisations at Penrith
- The Western Sydney Airport
Socio-economic assessment

- Schools near the project, including Penrith Anglican College, and schools at Glenmore Park and Luddenham
- Community services and facilities at Glenmore Park, including sport and recreation facilities, cultural facilities, and community support services
- Services and facilities within the Luddenham town centre, including open space, recreation and cultural facilities.

This would have long-term beneficial impacts for local communities as well as communities across the broader western Sydney region.

Users of some social infrastructure located near to the project may experience impacts associated with changes in local access and amenity.

Access to properties near the project containing social infrastructure would be maintained during operation, although some permanent changes to local access may be required for some users due to the bypass of Luddenham town centre; changes to existing intersections; and establishment of a median along The Northern Road. Overall, this would provide safer access for motorists accessing community facilities, but may require users of some facilities to drive longer distances to access some facilities.

Most social infrastructure within the study area is located at Glenmore Park or Luddenham town centre. There is limited community infrastructure fronting The Northern Road outside of Luddenham town centre, or the new road alignment.

The project would include a full access intersection at the entry to the Defence Establishment Orchard Hills. As such, the existing access arrangements to the Orchard Hills Golf Club would be maintained. People attending the Seigokan (karate) Academy Australia at Mulgoa would be restricted from making right turn movements to/from the property and would be required to use u-turn facilities at the intersection with the access to the Defence Establish Orchard Hills or at Chain-O-Ponds Road. This would result in increases in travel distances of up to 2.1 km (2 minutes and 20 seconds) for some motorists.

The bypass of Luddenham town centre would help to reduce through traffic within the town centre, including heavy vehicles. This would support improved access and connectivity to community facilities within the town centre, including schools, churches, recreation and open space uses. This would also help to enhance safety for facilities located along The Northern Road in Luddenham town centre, including Luddenham Public School.

Overall, it is considered that the impacts associated with the longer travel distances to some facilities would be outweighed by the improved safety outcomes for motorists and users of these community facilities. As such, any adverse impacts associated with increased travel distances are not expected to be significant in the overall context of the project.

As indicated in section 6.8.1, the bypass of Luddenham town centre would enhance local amenity due to reduced traffic noise and improved local air quality. This would have a positive effect on local amenity at community facilities along The Northern Road, including Luddenham Public School, Luddenham Uniting Church, and St James Anglican Church.

6.8 Community values

6.8.1 Construction impacts

Construction of the project would impact positively on short-term local employment opportunities through the creation of direct construction related employment on the project and indirect employment opportunities in businesses and industries that support the construction works.

Potential impacts on community values during construction may be experienced due to:

- Temporary adverse changes in local amenity for residents, businesses, facilities and natural areas near to construction worksites and work areas due to noise and dust generated from construction activities
Temporary changes in local access and connectivity, including for motorists, public transport users, pedestrians and cyclists, resulting in delays and disruptions

Adverse changes in visual amenity due to the presence of construction works.

These impacts would be short-term and are not expected to be significant in the context of the project overall.

During construction, areas closest to construction compounds and construction works may experience temporary adverse changes to local amenity due to:

- Noise and dust from construction works for the realignment and widening of The Northern Road and upgrade of intersections
- Changes in visual amenity and local character due to the presence of construction compounds, infrastructure and activities, and clearing of vegetation within the project footprint
- Increased construction traffic and temporary changes to local access and connectivity
- Light spill from any night-time construction works.

These impacts would be short-term and may potentially impact on the use and enjoyment of some homes, businesses, facilities and natural areas, particularly of outdoor areas. Impacts on night-time amenity may also be experienced should works need to be carried out outside of standard day-time hours. Further discussion about potential amenity related impacts such as noise, air quality and construction traffic are discussed in the respective Working Papers. Potential impacts of the project’s construction on conservation and biodiversity values of natural areas are described in the Biodiversity Assessment Report (Appendix I of the EIS).

If unmanaged, noise, light spill, and dust from construction activities may impact on the health and wellbeing of some residents and occupants of buildings nearest to construction works. In particular, the potential for dust from construction activities to impact on health of some sections of the community who may be more sensitive to changes in air quality (such as children or elderly people who suffer asthma or similar conditions), is likely to be of concern for some community members near to construction activities. This impact is most likely to occur where night-time work results in sleep disturbance over extended periods or where construction activities create extended periods of high noise or dust levels. Environmental management measures and procedures would be established to help manage potential impacts on communities near to construction works. Possible management measures are discussed in the noise and air quality working papers. While these impacts may be a concern for some individuals, overall they are not expected to be significant.

As indicated in section 4.2.2, vegetation within road verges for The Northern Road and other local roads, and nearby properties, contributes to the quality of the public domain within the study area. Clearing of existing established trees within the project footprint, including trees within road reserves and in properties adjoining The Northern Road, is likely to impact on visual amenity for road users, property owners and local communities and influence people’s perceptions about the public domain. This includes naturally vegetated areas and natural ephemeral drainage lines on Commonwealth land, at the Defence Establishment Orchard Hills and on land purchased for the Western Sydney Airport at Badgerys Creek. Landscaping would be established along the road corridor following construction, which is likely to assist in reducing the significance of potential visual amenity impacts over time.

6.8.2 Operational impacts

Overall, the project would support improved travel and accessibility to work, business and leisure activities in the study area and broader western Sydney region. At a regional level, improved access and more efficient travel is likely to provide long-term benefits for community cohesion. Travel facilitates social interactions and economic transactions across the wider region. Where access on major routes is constrained, people avoid making trips that have unacceptable travel times. The project would assist in decreasing travel times for these trips, helping to facilitate community interaction.

The design of the project has also sought to minimise potential impacts to community cohesion. In particular, the selection of the eastern option around Luddenham town centre, assists in delineating between Luddenham’s rural amenity with the Western Sydney Airport and surrounding employment and residential developments.
In addition to improved access for private, commercial and freight vehicles, the project would support better access for public transport users, pedestrians and cyclists. This would have positive long-term benefits around access to local employment, community services and facilities, and recreation.

The widening of The Northern Road may present a perceived barrier to local access and connectivity for some community members. In particular, changes to local access and increased width of crossing for pedestrians may discourage some people from making some local trips. The project would improve pedestrian crossings at intersections, providing safer access for pedestrians and cyclists across The Northern Road. Restrictions on turning movements would change access and impact people who travel certain routes. While these impacts would be permanent, they would be balanced by safer access for motorists and other road users and are not expected to be significant in the context of the project.

The project would include the realignment of The Northern Road around the Western Sydney Airport site and east of Luddenham town centre as well as widening of the existing The Northern Road. Adverse long-term changes to local amenity may be experienced at those properties where The Northern Road moves closer to homes, businesses or community facilities due to the realignment or widening of the road corridor. Increased traffic noise, light spill from the roadway, and changes to the visual environment may impact on the use and enjoyment of these properties, as well as the rural character and environmental and visual amenity of local areas. This impact is likely to have the greatest effect on residents and communities in those areas that are currently removed from The Northern Road or other major roads. These include residents of rural and rural residential properties at Greendale, west of the Western Sydney Airport site, and at Luddenham, south and east of the Luddenham town centre.

Increased traffic noise and light spill may impact the night-time amenity for residents near the project. This is likely to have the greatest impact on those residents who are currently away from the existing The Northern Road corridor, due to the relatively low existing night-time noise and light environment of these areas.

The bypass of Luddenham town centre would result in The Northern Road moving away from homes, businesses and facilities in the Luddenham town centre, reducing through traffic, including heavy vehicles, within the town centre. As indicated in section 4.5, the amenity and quality of the public domain within the Luddenham town centre is currently affected by existing traffic on The Northern Road, impacting noise, air quality, visual amenity and safety for local communities and road users. Reducing through traffic and heavy vehicles within the town centre would help to reduce traffic noise and improve local air quality, impacting positively on local amenity and the public domain within the town. This is likely to have benefits to the use and enjoyment of the town by residents and visitors. A reduction in through traffic would also support an improved pedestrian environment and safer and improved access for pedestrians, cyclists and motorists within the town centre and to adjoining areas, further improving local amenity in the town. These long-term positive impacts were supported through consultation for the project, with less noise pollution for Luddenham, and better connectivity identified by the community as benefits of the bypass.

As discussed in section 6.5.2, concerns were raised during consultation for the project about the potential for the bypass to negatively impact the Luddenham town centre. In particular, concerns were raised that the bypass would reduce through traffic within the town, particularly impacting local businesses. It was also suggested that changes in local access may make it less convenient for some people, discouraging them from accessing businesses and services within the town. Access to Luddenham town centre would include a northern and southern access, which would support access for communities from these directions. Communities to the west would continue to access the town via Park Road, while the realignment of Elizabeth Drive would provide improved and more direct access for communities east of Luddenham. As such, many people who currently access businesses, services and facilities within the town centre, including schools, churches, medical facilities, shops, and personal services businesses, are likely to continue to do so and the project is not expected to have any significant long-term impacts on any community values associated with these places as community ‘meeting places’. Impacts on changes in traffic through Luddenham town centre are discussed in section 6.5.2.

Amenity related impacts raised during consultation for the project included concerns about predicted traffic noise levels, air quality impacts and potential increase in pollution from the upgrade. Detailed assessment of potential changes to noise and air quality from the project is provided in the respective Working Papers.
6.9 Access and connectivity

Operation and construction of the project has the potential to affect access and connectivity at a regional local and property level. This section provides a summary of potential impacts of the project on access and connectivity at a local and regional level. Potential changes to property access are described in section 6.1.3.

A detailed description of the project’s impacts on traffic and transport is provided in the Traffic and Transport Working Paper.

6.9.1 Construction impacts

During construction, potential short-term impacts on local access and connectivity would generally result from:

- Increased construction traffic on roads within the study area, including heavy vehicles used to deliver materials and equipment, and construction worker vehicles, potentially impacting on road safety for motorists, pedestrians and cyclists
- Temporary changes to road conditions near to construction works, including reductions in speed limits, temporary traffic lane closures, and temporary diversions and access changes, resulting in delays and disruptions for motorists and other road users and potentially impacting on road safety
- Potential changes to bus services, including from changes to road conditions and the temporary relocation of some bus stops near to construction works for safety, resulting in possible delays and disruptions for bus users and changes in bus access for some people
- Changes to pedestrian and cycle access near to construction works, resulting in possible disruptions or impacts on safety for users.

Some residents in the study area currently have long commuting times to work. Any additional delays or disruptions are likely to be of concern for these people, although these impacts are not expected to be significant in the context of the project.

As indicated in section 4.7.1, some school bus routes servicing schools in the study area use The Northern Road for part of their route. During construction, potential impacts on school bus routes would include delays due to temporary changes to road condition near to construction works, and possible safety risks for students and impacts on community perceptions about safety for children, due to increased construction traffic, construction works near to school bus stops.

Access to private properties near to proposed works is expected to be maintained during construction. Where temporary changes are required, suitable access arrangements would be implemented in consultation with affected property owners.

A detailed assessment of potential construction traffic impacts is included in the Traffic and Transport Working Paper. Possible impacts of construction traffic on local businesses near the project are discussed in section 6.5.2, while impacts on social infrastructure are described in section 6.7.

6.9.2 Operational impacts

During operation, the project would improve regional access and connectivity for motorists and other road users, through reduced travel times and improved connections to the regional road network, major centres, the Western Sydney Airport, and key growth areas in the western Sydney region; and improved road safety and improved driving conditions. This would have positive long-term impacts for private motorists as well as commercial and business travellers.

At a local level, the project would improve access and connectivity to/from areas surrounding the project, including within the Luddenham town centre. This would be achieved through upgrading key intersections, including installing traffic lights and providing separate turning lanes, where appropriate; and providing a central median to separate opposing traffic and restrict right turns to and from properties fronting The Northern Road and some local roads. The existing The Northern Road will continue to provide local access for residents, businesses and visitors and for motorists wanting to connect to the new road.
The realignment of The Northern Road to bypass Luddenham town centre would help to reduce through traffic within the town centre. This would support improved access and connectivity to homes, businesses and facilities within the town centre and to surrounding areas, including for motorists, pedestrians and cyclists.

These changes may require some motorists to travel further distances to access residential properties, businesses and other facilities near to the project and within surrounding areas. For many properties, the additional travel distance required would be up to about 2.0-3.0 km (or about two-four minutes), although for some properties, this would be up to about 6.6 km (or about six minutes). Further detail about impacts of access changes on travel is provided in the Traffic and Transport Working Paper. Concerns were raised during consultation for the project about the removal of right turns to properties and local roads. While it is recognised that these impacts are likely to be a concern for directly affected motorists and owners of properties, businesses and facilities affected by these changes, on balance it is considered that the impacts associated with increased travel distances would be outweighed by the improved safety outcomes for motorists and local communities.

As indicated in section 6.5.2, consultation for the project identified the need for signage at both junctions where the existing The Northern Road joins the new alignment advertising goods and services in the town. Further, the need for signage showing access to Park Road and to Wallacia township and Warragamba Dam was also identified during consultation for the project.

Further discussion about potential impacts of access changes for businesses near the project are discussed in section 6.5, while impacts on specific social infrastructure are discussed in section 6.7.

Once operational, the project would improve active transport opportunities within the study area by providing a new shared path for pedestrians and cyclists on the western side of the road and new pedestrian footpath on the eastern side of the road. Pedestrian crossings would also be provided at upgraded intersections, which would also support improved access and safety outcomes for pedestrians and cyclists. The bypass of Luddenham would also provide opportunities to improve access for pedestrians and cyclists within the town centre. In particular, the separation of through trips from local trips would help to reduce heavy vehicles and high traffic volumes in the town centre, supporting improved safety and access to local services and facilities. This includes improved access to local schools and between community facilities on the western side of The Northern Road and residential areas on the eastern side of The Northern Road.

As indicated in section 4.7.2, all SA2s within the study area had proportions of people who walked or cycled to work below the NSW average. Improved pedestrian and cycle access provided by the project would help to make these transport modes more attractive to local and regional communities and increase the use of these modes, which in turn would support improved community health outcomes.

Additional issues raised during consultation for the project about pedestrian and cycle access included:

- Need to ensure that sufficient time is allowed for people with disability when crossing roads
- Preference for a separate continuous on-road cycle facility
- Bus and bicycle lanes should be combined
- Cycle infrastructure should consider needs of likely future users.

Signalised pedestrian crossings would be provided at upgraded intersections where traffic lights are provided. Pedestrian crossings would be designed to meet current safety standards. Consideration would also be given to staged pedestrian crossings through the design development process. The project would provide for an off-road shared path for pedestrians and cyclists, which will connect to the existing cycle network path and provide a framework for future local connections. The kerbside bus lanes could also be used by on road cyclists.

Opportunity for improved public transport access for local and regional communities would be provided through the provision of kerbside bus lanes in each direction, bus priority at traffic lights and indented bus bays where required. This would improve travel times and reliability for bus users to destinations in the study area and wider region. As shown in section 4.7.2, bus use in the study area for travel to work is well below the NSW average, which is likely to reflect the existing lack of public transport access in part of the study area. Improved bus access provided by the project as well as future growth and development in the region would provide opportunities to increase the level of bus services and use in the study area.
6.10 Cumulative impacts

Cumulative impacts include the incremental effects of an action when added to other past, present or reasonably foreseeable future actions.

A range of other transport infrastructure and urban development projects have commenced or are planned in or near to the study area. These include such things as major road infrastructure upgrades associated with the Western Sydney Infrastructure Plan, the western Sydney airport, urban development at Glenmore Park, and the planned future development of the South West Priority Growth Area and Western Sydney Priority Growth Area. Interaction with these projects may change the social impacts or benefits of the project.

During construction, potential cumulative impacts may be associated with:

- **Prolong duration of construction impacts**, resulting in:
  - Extended periods of traffic disruptions for motorists, public transport users, pedestrians and cyclists, and commercial vehicle movements
  - Extended periods of impacts on amenity for communities in the study area, associated with increased noise, dust and traffic
  - Construction fatigue, particularly for communities closest to the construction works
- **Increase in construction traffic**, associated with haulage of materials, plant and equipment for the various construction projects, impacting on community perceptions of safety
- **Increased demand for construction workers**, providing benefits for local workers

As indicated in section 6.5.2, an influx of construction workers in the study area associated with construction of various projects and potential increased demand for goods and services locally and regionally, may off-set in part, reduced trade for businesses in Luddenham town centre associated with reductions in traffic.

Acquisition of rural land for the project is also likely to further diminish the availability of land for agriculture in the study area and the wider region. As indicated in section 6.1.1, urban development, including residential and industrial developments and acquisition of land for the Western Sydney Airport has resulted in the loss of land available for agricultural purposes.

Completion of the realigned road corridor prior to construction for the Western Sydney Airport would support construction access to the airport. This would assist in minimising potential impacts on residents, businesses and facilities within Luddenham town centre associated with construction traffic for the airport. This would assist in reducing perceptions of safety associated with increased construction traffic through the town.

During operation, potential cumulative impacts would be associated with improved travel benefits for regional communities, business and industry, including freight, associated with the completion of the whole The Northern Road program of works.

Mitigation measures would be implemented for each project to manage the impacts of the individual projects. Coordination between the various projects in the planning of major works and possible disruptions, if possible, would assist in minimising potential cumulative impacts. Refer to Chapter 9 of the EIS, Cumulative Impacts.
7. Environmental management measures

This section provides an overview of the measures to manage the socio-economic impacts of the project’s construction and operation. It provides an overview of the broad objectives for management of socio-economic impacts, as well as key strategies for addressing various issues.

7.1 Expected environmental outcomes

Project-specific environmental management measures have been developed with the aim of minimising or mitigating, as far as practical, potential socio-economic impacts of the project’s construction and operation. These are described in Table 7-1.

Broadly, the expected environmental outcomes of the environmental management measures are to avoid or minimise impacts on communities, businesses and social infrastructure from the construction and operation of the project. Broad outcomes that would be achieved through:

- Implementation of environmental management measures, for example noise and dust mitigation, and traffic management strategies
- Early and ongoing consultation and communication to ensure local and regional communities, businesses, transport users and managers of community facilities are informed about the project’s construction and operation
- Relocation of affected farm infrastructure prior to construction and in consultation with affected property owners.

7.2 Expected effectiveness

Roads and Maritime have experience in managing potential impacts on local and regional communities and businesses as a result of road developments of a similar scale and scope to this project. As such, the environmental management measures outlined in Table 7-1 are expected to be effective.

A Construction Environmental Management Plan (CEMP) will be prepared prior to construction to address the requirements of the project approvals, the environmental management measures outlined in the EIS and all applicable legislation.

Audits and reporting on the effectiveness of environmental management measures is generally carried out to show compliance with management plans and other relevant approvals and would be outlined in detail in the CEMP prepared for the project.

7.3 Socio-economic environmental management measures

The recommended measures to mitigate or manage socio-economic impacts generated during the construction and operation of the project are summarised in Table 7-1.

Table 7-1: Summary of environmental management measures

<table>
<thead>
<tr>
<th>Impact</th>
<th>Environmental management measures</th>
<th>Responsibility</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>General impacts</td>
<td>• A draft Community Involvement Plan has been prepared to guide community engagement during the construction phase of the project. Refer to Appendix R of the EIS. Communication will be with the local community, stakeholders and the wider region</td>
<td>Construction contractor and Roads and Maritime</td>
<td>Construction</td>
</tr>
<tr>
<td></td>
<td>• Areas affected by construction will be</td>
<td>Construction</td>
<td>Construction</td>
</tr>
</tbody>
</table>

109
<table>
<thead>
<tr>
<th>Impact</th>
<th>Environmental management measures</th>
<th>Responsibility</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>reinstated and restored in accordance with the urban design and landscape strategy.</td>
<td>contactor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cumulative impacts</td>
<td>Mitigation measures specific to cumulative impacts can be found in Chapter 9 of the EIS for this project.</td>
<td>Refer to EIS Chapter 9.</td>
<td>Refer to EIS Chapter 9.</td>
</tr>
<tr>
<td>Noise and vibration during construction and operation</td>
<td>Mitigation measures specific to construction noise and vibration can be found in Section 7-2 of the EIS for this project.</td>
<td>Refer to EIS Section 7-2</td>
<td>Refer to EIS Section 7-2</td>
</tr>
<tr>
<td>Air quality during construction and operation</td>
<td>Mitigation measures specific to construction and operational air quality can be found in Section 8-5 of the EIS for this project.</td>
<td>Refer to EIS Section 8-5</td>
<td>Refer to EIS Section 8-5</td>
</tr>
<tr>
<td>Impacts on conservation/natural areas</td>
<td>Mitigation measures specific to biodiversity impacts can be found in Section 7-3 of the EIS for this project.</td>
<td>Refer to EIS Section 7-3.</td>
<td>Refer to EIS Section 7-3.</td>
</tr>
<tr>
<td>Property acquisition</td>
<td>Provide appropriate compensation in accordance with the (NSW) Land Acquisition (Just Terms Compensation) Act 1991 for properties and businesses to be partially or fully acquired for the project.</td>
<td>Roads and Maritime</td>
<td>Pre-construction</td>
</tr>
<tr>
<td></td>
<td>Impact from the acquisition on owners remaining holdings will be considered in the land acquisition process. As required and in consultation with owners, Roads and Maritime will engage the use of appropriately qualified professionals to carry out property assessments and identify alternate opportunities for any remaining land holdings</td>
<td>Roads and Maritime</td>
<td>Pre-construction</td>
</tr>
<tr>
<td></td>
<td>Undertake property adjustments and relocation of infrastructure (for example, fencing, dams, property access) prior to construction and in consultation with the property owner.</td>
<td>Construction contractor</td>
<td>Construction</td>
</tr>
<tr>
<td></td>
<td>Undertake any adjustments to the Orchard Hills golf course, prior to construction and in consultation with the managers of the Orchard Hills Golf Club.</td>
<td>Roads and Maritime/Construction contractor</td>
<td>Construction</td>
</tr>
<tr>
<td>Business and economic activity</td>
<td>On-going consultation with local business owners, including owners of agricultural businesses, located close to construction works about the timing, duration and likely impact of construction activities on their business operations will be carried out</td>
<td>Construction contractor</td>
<td>Construction</td>
</tr>
<tr>
<td></td>
<td>Relocate farm infrastructure, including</td>
<td>Construction</td>
<td>Construction</td>
</tr>
<tr>
<td>Impact</td>
<td>Environmental management measures</td>
<td>Responsibility</td>
<td>Timing</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------</td>
<td>----------------</td>
<td>--------</td>
</tr>
<tr>
<td>Impact</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>farm dams, prior to construction and in consultation with property owners/business managers.</td>
<td>contractor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Maintain a business impact risk register to identify and manage the specific impacts associated with construction related works for individual businesses.</td>
<td>Construction contractor</td>
<td>Construction</td>
</tr>
<tr>
<td></td>
<td>• Access to existing businesses will be provided on a continuous basis throughout the construction of the project</td>
<td>Construction contractor</td>
<td>Construction</td>
</tr>
<tr>
<td></td>
<td>• Roads and Maritime will, in consultation with Liverpool Council, provide appropriate support for preparation of plans to revitalises Luddenham town centre, for the purpose of encouraging motorists to continue to pass through or visit the town. Any streetscape and landscape treatments will be determined after finalisation of any town centre revitalisation plans.</td>
<td>Roads and Maritime</td>
<td>Construction</td>
</tr>
<tr>
<td></td>
<td>• Appropriate road signage will be provided in accordance with the Roads and Maritime Services guidelines <em>Tourist Signposting</em> (2012) to provide guidance to passing patrons on access to shops and services, including within Luddenham town centre</td>
<td>Construction contractor</td>
<td>Construction</td>
</tr>
<tr>
<td>Access and connectivity</td>
<td>• The Traffic Management Plan would include a signage strategy (consistent with Roads and Maritime policy) to provide guidance to passing patrons on access to shops, services and businesses during construction</td>
<td>Construction contractor</td>
<td>Construction</td>
</tr>
<tr>
<td></td>
<td>• Access to properties will be provided on a continuous basis throughout the construction of the project Where temporary changes to property access are required, alternate access will be determined in consultation with affected property owners and tenants</td>
<td>Construction contractor</td>
<td>Construction</td>
</tr>
<tr>
<td></td>
<td>• Access for pedestrians and cyclists near construction works will be maintained, including consideration of pedestrian access needs for elderly people, children and people with disability</td>
<td>Construction contractor</td>
<td>Construction</td>
</tr>
<tr>
<td></td>
<td>• Mitigation measures specific to Traffic and Transport can be found in Chapter 7-1 of the EIS for this project.</td>
<td>Refer to EIS Section 7-1</td>
<td>Refer to EIS Section 7-1</td>
</tr>
</tbody>
</table>
8. Residual impacts

The environmental management measures identified in section 7 would generally be effective in mitigation potential socio-economic impacts of the project, during both construction and operation to an acceptable level. However, it is expected that some residual impacts would remain following implementation of management measures. It is likely that these residual impacts would be minor in the context of the project as a whole. A summary of these residual impacts is presented below, including reasoning as to why avoidance or mitigation of these impacts would not be achieved.

8.1 Construction

Potential residual impacts that may occur as a result of construction include:

- Short-term changes to traffic and access, including reduced travel speeds, increased delays near construction works and temporary changes to accessibility for pedestrians and cyclists. This may require some motorists, pedestrians or cyclists to travel further to reach their destination. This would be necessary to ensure construction work is carried out safely.

- Short-term changes in local amenity for some residents, businesses and visitors near the project, associated with increased noise and dust. Overall, these impacts would be temporary and are expected to be managed to an acceptable level, although, some people may experience ongoing amenity impacts that affect the use and enjoyment of their property.

8.2 Operation

Potential residual impacts that may occur during the project's operation may include:

- Impacts on community cohesion through disruption to social networks and community relationships. This impact would be associated with property acquisition for the project and would mainly relate to individuals who are required to move away from the area. It is not expected to impact on levels of community cohesion in the socio-economic study area as a whole.

- Permanent loss of some land used for agricultural, commercial and residential uses, associated with acquisition of property and change in land use to transport corridor. This would be necessary due to the design of the project and is not expected to be significant in the context of the region as a whole. Changes in local access and connectivity for local residents, businesses and visitors. These changes may require some motorists to travel further to access residential properties, businesses and other facilities near the project and within surrounding areas. This would be necessary due to the design of the project.
9. References


Commonwealth of Australia (2012), *Agricultural Commodities, Australia 2010-11* (Catalogue number 7121.0) (71210DO013_201011and 71210DO005_201011), released 9 November 2012

Commonwealth of Australia (2013a), *Census of Population and Housing Socio-Economic Indexes for Areas (SEIFA), Statistical Area Level 1 2011* (Catalogue number 2033.0.55.001), available from www.abs.gov.au


Department of Infrastructure and Regional Development, 2015, *Western Sydney Airport Draft Environmental Impact Statement 2015*

Liverpool City Council (2013), *Growing Liverpool 2023, The 10-year Plan to Move Liverpool Forward*


Socio-economic assessment

Penrith City Council (2015), *Penrith Community Plan*, Adopted 24 June 2013/ Amendment No. 1 29 June 2015

Roads and Maritime Services (2014), Property acquisition, April 2014

NSW Roads and Maritime Services (2012), Economic Evaluation of Town Bypasses, Final Report, October 2012, prepared by Bruno Parolin, Faculty of Built Environment, University of New South Wales

NSW Roads and Maritime Services (2014), Property acquisition, April 2014


State of NSW Hawkesbury-Nepean Catchment Management Authority, 2013, Greater Sydney Local Land Service Transition Catchment Action Plan, 2013-2023

Websites:


http://www.lpcmilk.com/index.html


http://producedirect.net.au/

http://profile.id.com.au/liverpool/about

http://profile.id.com.au/penrith/about
Appendix A. Business survey
The Northern Road Upgrade – Business survey

Business details:

Business name (optional): ................................................................................................................

Business address (optional): ................................................................................................................

Contact details (optional): ................................................................................................................

Survey questions

Question 1: Where is your business located?

- Bringelly
- Mulgoa
- Luddenham
- Glenmore Park
- Orchard Hills
- Other (please specify)

Question 2: Which of the following industries best describes your business?

- Agriculture, forestry and fishing
- Mining
- Manufacturing
- Electricity, gas, water and waste services
- Construction
- Wholesale trade
- Retail trade
- Accommodation and food services
- Transport, postal and warehousing
- Information, media and telecommunications
- Financial and insurance services
- Rental, hiring and real estate services
- Professional, scientific and technical services
- Administrative and support services
- Public administration and safety
- Education and training
- Health care and social assistance
- Arts and recreation services
- Other services (please specify)
### Question 3: What is the nature of your business?

- **Agricultural business**
  - Crop growing
  - Livestock farming
  - Other (please describe)

- **Manufacturing**
  - Food products
  - Metal products
  - Machinery and equipment
  - Other (please describe)

- **Construction**
  - Building construction
  - Construction services
  - Other (please describe)

- **Wholesaling**
  - Agricultural products
  - Machinery and equipment
  - Other (please describe)

- **Service station**
  - Supermarket/ grocery store/ food store
  - Hardware, building, garden supplies
  - Household/ electrical goods
  - Clothing/ footwear
  - Recreational goods
  - Chemist, newsagent
  - Other (please describe)

- **Accommodation**
  - Take-away
  - Café/ restaurant
  - Pub/ club/ tavern
  - Real estate
  - Machinery/ equipment hire
  - Repair and maintenance (for example, crash repair, mechanic, machinery/ equipment repair)
  - Personal services (for example, hairdresser)
  - Medical/ health care
  - Other (please describe)
Question 4: How long has your business been operating in its current location?

- Less than 12 months
- 1-2 years
- 3-5 years
- 6-10 years
- 11-20 years
- More than 20 years

Question 5: How many people does your business employ (including yourself)?

- One
- 2-5 people
- 6-10 people
- 11-20 people
- 21-50 people
- More than 50 people

Question 6: Where do most of your customers come from?

- Local (for example, local suburb)
- Penrith region (north)
- Liverpool region (east)
- Campbelltown region (south)
- Other (please describe)

Question 7: Approximately, what proportion of your business/customers would you estimate to be from passing motorists?

- None
- Less than 10 per cent
- 10 – 25 per cent
- 25 – 50 per cent
- 50 – 75 per cent
- More than 75 per cent

Question 8: How do most customers travel to your business?

- Car
- Foot
- Cycle
- Public transport (bus)
- Other (please describe)
- Not sure
Question 9: What benefits do you think The Northern Road Upgrade will have for your business?

Construction: ..........................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................

Operation: ............................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................

Question 10: What impacts do you think The Northern Road Upgrade will have for your business?

Construction: ..........................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................

Operation: ............................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................
Question 11: What measures do you think could be put in place to maximise benefits/ minimise impacts of The Northern Road Upgrade?

Construction: ..........................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................

Operation: ............................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................

Question 12: Are there any other matters that the socio-economic assessment should consider in relation to local business impacts?
...................................................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................
...................................................................................................................................................................................
### Appendix B. Demographic information

#### Table A-9-1: Age profile, 2011

<table>
<thead>
<tr>
<th>Locality</th>
<th>0-14 years</th>
<th>15-24 years</th>
<th>25-44 years</th>
<th>45-64 years</th>
<th>65 years +</th>
<th>Total</th>
<th>Median age (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glenmore Park-Regentville</td>
<td>26.2</td>
<td>14.5</td>
<td>31.5</td>
<td>22.6</td>
<td>5.2</td>
<td>20,888</td>
<td>31</td>
</tr>
<tr>
<td>Mulgoa-Luddenham-Orchard Hills</td>
<td>20.2</td>
<td>15.7</td>
<td>23.8</td>
<td>28.0</td>
<td>12.3</td>
<td>6,519</td>
<td>38</td>
</tr>
<tr>
<td>Badgerys Creek-Greendale</td>
<td>20.9</td>
<td>14.3</td>
<td>26.7</td>
<td>25.0</td>
<td>13.0</td>
<td>9,876</td>
<td>36</td>
</tr>
<tr>
<td>Study area</td>
<td>23.8</td>
<td>14.7</td>
<td>28.9</td>
<td>24.2</td>
<td>8.5</td>
<td>37,283</td>
<td>35*</td>
</tr>
<tr>
<td>Penrith (City)</td>
<td>21.7</td>
<td>14.8</td>
<td>28.9</td>
<td>25.0</td>
<td>9.6</td>
<td>178,465</td>
<td>34</td>
</tr>
<tr>
<td>Liverpool (City)</td>
<td>23.5</td>
<td>14.5</td>
<td>29.6</td>
<td>23.2</td>
<td>9.2</td>
<td>180,142</td>
<td>33</td>
</tr>
<tr>
<td>NSW</td>
<td>19.3</td>
<td>12.9</td>
<td>27.7</td>
<td>25.5</td>
<td>14.7</td>
<td>6,917,660</td>
<td>38</td>
</tr>
</tbody>
</table>

Notes: * Average of median ages for SA2s in the study area
Source: ABS (2012a), 2011 Census of Population and Housing, Basic Community Profile (Catalogue number 2001.0)

#### Table A-9-2: Households, 2011

<table>
<thead>
<tr>
<th>Locality</th>
<th>Family households</th>
<th>Lone person households</th>
<th>Group households</th>
<th>Total households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glenmore Park-Regentville</td>
<td>88.2</td>
<td>10.5</td>
<td>1.3</td>
<td>6,354</td>
</tr>
<tr>
<td>Mulgoa-Luddenham-Orchard Hills</td>
<td>83.3</td>
<td>15.2</td>
<td>1.5</td>
<td>1,994</td>
</tr>
<tr>
<td>Badgerys Creek-Greendale</td>
<td>85.4</td>
<td>13.2</td>
<td>1.4</td>
<td>2,722</td>
</tr>
<tr>
<td>Study area</td>
<td>86.6</td>
<td>12.0</td>
<td>1.3</td>
<td>11,070</td>
</tr>
<tr>
<td>Penrith (City)</td>
<td>78.3</td>
<td>19.2</td>
<td>2.5</td>
<td>59,391</td>
</tr>
<tr>
<td>Liverpool (City)</td>
<td>82.1</td>
<td>16.0</td>
<td>1.8</td>
<td>53,595</td>
</tr>
<tr>
<td>NSW</td>
<td>71.9</td>
<td>24.2</td>
<td>3.8</td>
<td>2,471,296</td>
</tr>
</tbody>
</table>

Source: ABS (2012a), 2011 Census of Population and Housing, Basic Community Profile (Catalogue number 2001.0)

#### Table A-9-3: Housing tenure, 2011

<table>
<thead>
<tr>
<th>Locality</th>
<th>Owned outright</th>
<th>Owned with a mortgage</th>
<th>Rented</th>
<th>Real estate agent</th>
<th>State housing authority</th>
<th>Person not in same household*</th>
<th>Other landlord type**</th>
<th>Total rented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glenmore Park-Regentville</td>
<td>19.7</td>
<td>58.0</td>
<td>15.4</td>
<td>0.8</td>
<td>3.2</td>
<td>1.1</td>
<td>21.0</td>
<td></td>
</tr>
<tr>
<td>Mulgoa-Luddenham-Orchard Hills</td>
<td>40.8</td>
<td>37.7</td>
<td>9.2</td>
<td>0.2</td>
<td>6.6</td>
<td>1.0</td>
<td>18.9</td>
<td></td>
</tr>
</tbody>
</table>
### Socio-economic assessment

<table>
<thead>
<tr>
<th>Locality</th>
<th>Owned outright</th>
<th>Owned with a mortgage</th>
<th>Rented</th>
<th>Real estate agent</th>
<th>State housing authority</th>
<th>Person not in same household*</th>
<th>Other landlord type**</th>
<th>Total rented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Badgerys Creek-Greendale</td>
<td>39.4</td>
<td>30.0</td>
<td>15.2</td>
<td>0.4</td>
<td>8.2</td>
<td>1.7</td>
<td></td>
<td>27.1</td>
</tr>
<tr>
<td>Study area</td>
<td>28.3</td>
<td>47.4</td>
<td>14.3</td>
<td>0.6</td>
<td>5.1</td>
<td>1.3</td>
<td></td>
<td>22.1</td>
</tr>
<tr>
<td>Penrith LGA</td>
<td>26.8</td>
<td>43.8</td>
<td>15.7</td>
<td>4.4</td>
<td>5.0</td>
<td>0.6</td>
<td></td>
<td>26.7</td>
</tr>
<tr>
<td>Liverpool LGA</td>
<td>24.1</td>
<td>41.9</td>
<td>15.6</td>
<td>7.9</td>
<td>4.0</td>
<td>1.8</td>
<td></td>
<td>30.4</td>
</tr>
<tr>
<td>NSW</td>
<td>33.2</td>
<td>33.4</td>
<td>17.4</td>
<td>4.4</td>
<td>5.8</td>
<td>1.1</td>
<td></td>
<td>30.1</td>
</tr>
</tbody>
</table>

Notes: * comprises dwellings being rented from a parent/other relative or other person; ** comprises dwellings being rented through a ‘residential park’ (includes caravan park and marina), ‘employer’ (including Defence Housing Authority).

Source: ABS (2012a), 2011 Census of Population and Housing, Basic Community Profile (Catalogue number 2001.0)

### Table A-9-4 : Housing costs, 2011

<table>
<thead>
<tr>
<th>Locality</th>
<th>Median rent ($/ week)</th>
<th>Median mortgage repayment ($/ month)</th>
<th>Rent payments as proportion of household income*</th>
<th>Mortgage payments as a proportion of household income*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Less than 30 per cent</td>
<td>30 per cent or greater</td>
</tr>
<tr>
<td>Glenmore Park-Regentville</td>
<td>360</td>
<td>2,200</td>
<td>93.5</td>
<td>6.5</td>
</tr>
<tr>
<td>Mulgoa-Luddenham-Orchard Hills</td>
<td>290</td>
<td>2,200</td>
<td>93.8</td>
<td>6.2</td>
</tr>
<tr>
<td>Badgerys Creek-Greendale</td>
<td>320</td>
<td>2,358</td>
<td>88.4</td>
<td>11.6</td>
</tr>
<tr>
<td>Study area**</td>
<td>323</td>
<td>2,253</td>
<td>91.9</td>
<td>8.1</td>
</tr>
<tr>
<td>Penrith LGA</td>
<td>300</td>
<td>1,983</td>
<td>90.2</td>
<td>9.8</td>
</tr>
<tr>
<td>Liverpool LGA</td>
<td>295</td>
<td>2,167</td>
<td>87.8</td>
<td>12.2</td>
</tr>
<tr>
<td>NSW</td>
<td>300</td>
<td>1,993</td>
<td>88.4</td>
<td>11.6</td>
</tr>
</tbody>
</table>

Notes: * Proportions are calculated by taking the number of households whose rent/ mortgage payments were 30 per cent or more of an imputed income measure and expressing this number as a proportion of the total number of households in an area (excluding the small proportion of visitor only and other non-classifiable households). The reported proportion may significantly overstate the true proportion. ** Median rental and mortgage costs and rent and mortgage payments for the study area refers to the average of SA2s in the study area


### Table A-9-5 : Need for assistance, 2011

<table>
<thead>
<tr>
<th>Locality</th>
<th>Has need for assistance</th>
<th>Does not have need for assistance</th>
<th>Need for assistance not stated</th>
<th>Total population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glenmore Park-Regentville</td>
<td>2.6</td>
<td>94.4</td>
<td>3.0</td>
<td>20,889</td>
</tr>
<tr>
<td>Mulgoa-Luddenham-Orchard Hills</td>
<td>3.8</td>
<td>92.2</td>
<td>4.0</td>
<td>6,520</td>
</tr>
<tr>
<td>Badgerys Creek-Greendale</td>
<td>5.9</td>
<td>85.7</td>
<td>8.4</td>
<td>9,878</td>
</tr>
<tr>
<td>Study area</td>
<td>3.7</td>
<td>91.7</td>
<td>4.6</td>
<td>37,287</td>
</tr>
</tbody>
</table>
## Socio-economic assessment

<table>
<thead>
<tr>
<th>Locality</th>
<th>Has need for assistance</th>
<th>Does not have need for assistance</th>
<th>Need for assistance not stated</th>
<th>Total population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penrith LGA</td>
<td>4.3</td>
<td>90.5</td>
<td>5.2</td>
<td>178,466</td>
</tr>
<tr>
<td>Liverpool LGA</td>
<td>5.4</td>
<td>88.1</td>
<td>6.6</td>
<td>180,144</td>
</tr>
<tr>
<td>NSW</td>
<td>4.9</td>
<td>89.4</td>
<td>5.7</td>
<td>6,917,658</td>
</tr>
</tbody>
</table>

Source: ABS (2012a), 2011 Census of Population and Housing, Basic Community Profile (Catalogue number 2001.0)

### Table A-9-6 : Industry of employment, 2011

<table>
<thead>
<tr>
<th>Industry</th>
<th>Glenmore Park-Regentville</th>
<th>Mulgoa-Luddenham-Orchard Hills</th>
<th>Badgerys Creek-Greendale</th>
<th>Study area</th>
<th>Penrith LGA</th>
<th>Liverpool LGA</th>
<th>NSW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, forestry and fishing</td>
<td>0.3</td>
<td>2.4</td>
<td>7.7</td>
<td>2.4</td>
<td>0.6</td>
<td>0.7</td>
<td>2.2</td>
</tr>
<tr>
<td>Mining</td>
<td>0.1</td>
<td>0.4</td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
<td>0.1</td>
<td>1.0</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>10.5</td>
<td>11.1</td>
<td>10.1</td>
<td>10.5</td>
<td>11.8</td>
<td>14.0</td>
<td>8.4</td>
</tr>
<tr>
<td>Electricity, gas, water and waste services</td>
<td>1.6</td>
<td>1.7</td>
<td>1.2</td>
<td>1.5</td>
<td>1.5</td>
<td>0.9</td>
<td>1.1</td>
</tr>
<tr>
<td>Construction</td>
<td>7.9</td>
<td>14.7</td>
<td>13.5</td>
<td>10.3</td>
<td>9.4</td>
<td>8.5</td>
<td>7.3</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>5.3</td>
<td>5.2</td>
<td>6.8</td>
<td>5.6</td>
<td>5.5</td>
<td>5.5</td>
<td>4.4</td>
</tr>
<tr>
<td>Retail trade</td>
<td>11.7</td>
<td>10.7</td>
<td>10.5</td>
<td>11.3</td>
<td>11.4</td>
<td>10.4</td>
<td>10.3</td>
</tr>
<tr>
<td>Accommodation and food services</td>
<td>5.5</td>
<td>4.7</td>
<td>4.0</td>
<td>5.0</td>
<td>5.5</td>
<td>5.3</td>
<td>6.7</td>
</tr>
<tr>
<td>Transport, postal and warehousing</td>
<td>6.4</td>
<td>7.2</td>
<td>8.5</td>
<td>7.0</td>
<td>7.4</td>
<td>7.9</td>
<td>4.9</td>
</tr>
<tr>
<td>Information media and telecommunications</td>
<td>1.5</td>
<td>1.1</td>
<td>1.0</td>
<td>1.3</td>
<td>1.4</td>
<td>1.6</td>
<td>2.3</td>
</tr>
<tr>
<td>Financial and insurance services</td>
<td>6.1</td>
<td>2.8</td>
<td>2.2</td>
<td>4.6</td>
<td>4.4</td>
<td>4.7</td>
<td>5.0</td>
</tr>
<tr>
<td>Rental, hiring and real estate services</td>
<td>1.5</td>
<td>2.1</td>
<td>1.4</td>
<td>1.6</td>
<td>1.5</td>
<td>1.3</td>
<td>1.6</td>
</tr>
<tr>
<td>Professional, scientific and technical services</td>
<td>4.5</td>
<td>4.6</td>
<td>4.9</td>
<td>4.6</td>
<td>4.1</td>
<td>4.5</td>
<td>7.9</td>
</tr>
<tr>
<td>Administrative and support services</td>
<td>2.6</td>
<td>2.5</td>
<td>2.6</td>
<td>2.6</td>
<td>3.0</td>
<td>3.4</td>
<td>3.3</td>
</tr>
<tr>
<td>Public administration and safety</td>
<td>9.5</td>
<td>4.9</td>
<td>3.2</td>
<td>7.3</td>
<td>7.4</td>
<td>6.9</td>
<td>6.1</td>
</tr>
<tr>
<td>Education and training</td>
<td>7.8</td>
<td>6.9</td>
<td>5.5</td>
<td>7.1</td>
<td>6.7</td>
<td>5.8</td>
<td>7.9</td>
</tr>
<tr>
<td>Health care and social assistance</td>
<td>9.7</td>
<td>8.3</td>
<td>6.9</td>
<td>8.8</td>
<td>10.2</td>
<td>10.1</td>
<td>11.6</td>
</tr>
<tr>
<td>Arts and recreation</td>
<td>1.2</td>
<td>1.5</td>
<td>1.1</td>
<td>1.3</td>
<td>1.3</td>
<td>1.1</td>
<td>1.5</td>
</tr>
</tbody>
</table>
## Socio-economic assessment

### Industry

<table>
<thead>
<tr>
<th>Industry</th>
<th>Glenmore Park-Regentville</th>
<th>Mulgoa-Luddenham-Orchard Hills</th>
<th>Badgerys Creek-Greendale</th>
<th>Study area</th>
<th>Penrith LGA</th>
<th>Liverpool LGA</th>
<th>NSW</th>
</tr>
</thead>
<tbody>
<tr>
<td>services</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other services</td>
<td>3.9</td>
<td>4.3</td>
<td>5.4</td>
<td>4.3</td>
<td>4.2</td>
<td>3.9</td>
<td>3.7</td>
</tr>
<tr>
<td>Inadequately</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>described/Not</td>
<td>2.3</td>
<td>3.0</td>
<td>3.4</td>
<td>2.7</td>
<td>2.7</td>
<td>3.4</td>
<td>2.5</td>
</tr>
<tr>
<td>stated</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>11,297</td>
<td>3,338</td>
<td>4,294</td>
<td>18,929</td>
<td>87,227</td>
<td>74,568</td>
<td>3,138,330</td>
</tr>
</tbody>
</table>

Source: ABS (2012a), 2011 Census of Population and Housing, Basic Community Profile (Catalogue number 2001.0)

### Table A-9-7: Local business characteristics, 2015

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Glenmore Park-Regentville</th>
<th>Mulgoa-Luddenham-Orchard Hills</th>
<th>Badgerys Creek-Greendale</th>
<th>Study area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total businesses (number)</td>
<td>1,039</td>
<td>1,046</td>
<td>1,410</td>
<td>3,495</td>
</tr>
<tr>
<td>Number of employees</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-employing (per cent)</td>
<td>54.4</td>
<td>55.5</td>
<td>53.3</td>
<td>54.3</td>
</tr>
<tr>
<td>1-4 employees (per cent)</td>
<td>37.3</td>
<td>33.1</td>
<td>36.8</td>
<td>35.9</td>
</tr>
<tr>
<td>5-19 employees (per cent)</td>
<td>6.7</td>
<td>9.1</td>
<td>7.6</td>
<td>7.8</td>
</tr>
<tr>
<td>20-199 employees (per cent)</td>
<td>1.5</td>
<td>2.3</td>
<td>2.1</td>
<td>2.0</td>
</tr>
<tr>
<td>200+ employees (per cent)</td>
<td>0.0</td>
<td>0.0</td>
<td>0.2</td>
<td>0.1</td>
</tr>
<tr>
<td>Turnover</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zero to $50,000 (per cent)</td>
<td>23.8</td>
<td>21.7</td>
<td>18.4</td>
<td>21.0</td>
</tr>
<tr>
<td>$50,000 to less than $100,000 (per cent)</td>
<td>18.5</td>
<td>14.2</td>
<td>16.1</td>
<td>16.2</td>
</tr>
<tr>
<td>$100,000 to less than $200,000 (per cent)</td>
<td>20.0</td>
<td>18.2</td>
<td>20.7</td>
<td>19.7</td>
</tr>
<tr>
<td>$200,000 to less than $500,000 (per cent)</td>
<td>23.2</td>
<td>24.0</td>
<td>23.9</td>
<td>23.7</td>
</tr>
<tr>
<td>$500,000 to less than $2M (per cent)</td>
<td>12.8</td>
<td>15.9</td>
<td>14.3</td>
<td>14.3</td>
</tr>
<tr>
<td>$2M or more (per cent)</td>
<td>1.8</td>
<td>5.9</td>
<td>6.7</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Source: ABS (2016b), 81650 Counts of Australian Businesses, including Entries and Exits, Jun 2011 to Jun 2015 (Catalogue number 81650)
Appendix C. Properties to be acquired
Figure C.1 | Properties to be acquired

Legend

- The Northern Road Upgrade between Glenmore Parkway and Jamison Road
- Operational boundary
- Impacted properties
- The Northern Road
Legend

- The Northern Road Upgrade between Glenmore Parkway and Jamison Road
- Operational boundary
- Impacted properties

Figure C.1 | Properties to be acquired
Figure C.1 | Properties to be acquired

Legend

- The Northern Road Upgrade between Glenmore Parkway and Jamison Road
- Operational boundary
- Impacted properties

The Northern Road Upgrade

0 50 100 m

Liverpool
Blacktown
Penrith
Liverpool
Brigelly
Greendale
Figure C.1 | Properties to be acquired

Legend

- The Northern Road Upgrade between Glenmore Parkway and Jamison Road
- Operational boundary
- Impacted properties

The Northern Road
Legend

- The Northern Road Upgrade between Glenmore Parkway and Jamison Road
- Operational boundary
- Impacted properties

**Figure C.1** | Properties to be acquired
Figure C.1 | Properties to be acquired
Figure C.1 | Properties to be acquired
Legend

- The Northern Road Upgrade between Glenmore Parkway and Jamison Road
- Operational boundary
- Impacted properties

Figure C.1 | Properties to be acquired
Figure C.1 | Properties to be acquired

Legend

The Northern Road Upgrade between Glenmore Parkway and Jamison Road

Operational boundary

Impacted properties

The Northern Road
Figure C.1 | Properties to be acquired

Legend

The Northern Road Upgrade between Glenmore Parkway and Jamison Road

- Operational boundary
- Impacted properties

The Northern Road
Figure C.1 | Properties to be acquired
The Northern Road Upgrade between Glenmore Parkway and Jamison Road

Legend
- The Northern Road Upgrade between Glenmore Parkway and Jamison Road
- Operational boundary
- Impacted properties

Figure C.1 | Properties to be acquired
Figure C.1 | Properties to be acquired
Legend

- The Northern Road Upgrade between Glenmore Parkway and Jamison Road
- Operational boundary
- Impacted properties
- The Northern Road

Figure C.1 | Properties to be acquired
Legend

- The Northern Road Upgrade between Glenmore Parkway and Jamison Road
- Operational boundary
- Impacted properties
- The Northern Road

Figure C.1 | Properties to be acquired
Figure C.1 | Properties to be acquired
Figure C.1 | Properties to be acquired
Figure C.1 | Properties to be acquired

Legend
- The Northern Road Upgrade between Glenmore Parkway and Jamison Road
- Operational boundary
- Impacted properties

The Northern Road
Figure C.1 | Properties to be acquired
Figure C.1 | Properties to be acquired

Legend

- The Northern Road Upgrade between Glenmore Parkway and Jamison Road
- Operational boundary
- Impacted properties

The Northern Road Upgrade

The Northern Road

Impact properties

Figure C.1 | Properties to be acquired
Figure C.1 | Properties to be acquired
Figure C.1 | Properties to be acquired
**Legend**

- The Northern Road Upgrade between Glenmore Parkway and Jamison Road
- Operational boundary
- Impacted properties
- The Northern Road

**Figure C.1** | Properties to be acquired
Legend

The Northern Road Upgrade between Glenmore Parkway and Jamison Road

- The Northern Road

Operational boundary

Impacted properties

Figure C.1 | Properties to be acquired
Legend

- The Northern Road Upgrade between Glenmore Parkway and Jamison Road
- Operational boundary
- Impacted properties

Figure C.1 | Properties to be acquired
Figure C.1 | Properties to be acquired

Legend

- The Northern Road Upgrade between Glenmore Parkway and Jamison Road
- Operational boundary
- Impacted properties
- The Northern Road
Figure C.1 | Properties to be acquired

Legend

- The Northern Road Upgrade between Glenmore Parkway and Jamison Road
- Operational boundary
- Impacted properties
- The Northern Road
Legend

- The Northern Road Upgrade between Glenmore Parkway and Jamison Road
- Operational boundary
- Impacted properties

Figure C.1 | Properties to be acquired
Figure C.1 | Properties to be acquired
Figure C.1 | Properties to be acquired
Figure C.1 | Properties to be acquired
Figure C.1 | Properties to be acquired

Legend

- The Northern Road Upgrade between Glenmore Parkway and Jamison Road
- Operational boundary
- Impact properties
- The Northern Road
Figure C.1 | Properties to be acquired
Figure C.1 | Properties to be acquired