

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

Issue	Summary of issues raised
Property impacts	<ul style="list-style-type: none"> Impact to property values along The Northern Road Uncertainty around the property acquisition process, including property compensation Concern about lack of affordable alternate land in the area and level of compensation for impacted property owners Impact of property severance and internal property access Changes to property access arrangements along the corridor Potential cumulative property impacts due to other road projects (e.g. M12 Motorway)
Land use impacts	<ul style="list-style-type: none"> Consideration of land use changes along the corridor Potential impact on future development potential due to changes in road access and property severance
Impacts on agricultural uses	<ul style="list-style-type: none"> Management of weeds Need to minimise impact on good quality cropping land Need to consider impacts on access for farm gate sales Potential impact on farm infrastructure, including need to relocate infrastructure, due to property acquisition (e.g. dams, underground irrigation, fencing, garden beds, etc) Potential impacts on access for articulated vehicles (for the transport of livestock) to farming properties Potential impacts on dams and water retention for farming activities
Business impacts	<ul style="list-style-type: none"> Concern about potential impact on the local community and businesses during construction Compensation to businesses to cover loss of trade during construction Potential impact on home-based business due to property acquisition Need for signage at junctions near Luddenham advertising businesses in the town and to attract passing traffic
Impacts on social infrastructure	<ul style="list-style-type: none"> Impacts of traffic congestion on health facilities Traffic volumes would make the road unsafe for pedestrians that will be closer to the road edges during school times
Impacts on community values	<ul style="list-style-type: none"> Impacts on environmental values, such as Cumberland Plain woodlands, and flora and fauna near Willowdene Avenue.

Issue	Summary of issues raised
	<ul style="list-style-type: none"> Concerns about impacts on Aboriginal heritage (including cultural and archaeological significance) Concerns about security of properties during construction and once the road is operational
Local amenity impacts	<ul style="list-style-type: none"> Impact of the project on local amenity and 'quiet rural life' (e.g. noise, pollution, increased traffic) Impact on wellbeing due to increased traffic Concern about the potential noise impacts at houses from the upgrades Concern about the potential increase in pollution resulting from the upgrades What mitigation measures will be made for issues such as dust and noise during construction? Concerns about noise and air quality impacts on local communities at Luddenham and Mulgoa
Access and connectivity	<ul style="list-style-type: none"> Changes to traffic conditions Potential impacts of the road on congestion and travel times Traffic demand from the planned western Sydney airport. 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 Ensure sufficient time is allowed for those with a disability when crossing roads Construction work zones are safe for motorists and workers Congestion on other arterial roads in the area during construction
Community consultation	<ul style="list-style-type: none"> Need for ongoing consultation Need for consultation with bicycle clubs on the design, facility and treatment of cycle ways Consultation should consider the need for appropriate documentation in languages other than English

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

Property Id	Property (lot number)	Existing land use*	Acquisition type	Dwellings affected	Buildings (sheds) affected
1	Lot 1 DP235845	Residential	Partial	-	-
2	Lot 97 DP27550	Residential	Partial	-	-
3	Lot 1 DP250684	Residential	Partial	-	-
4	Lot 96 DP27550	Residential/ business	Partial	-	-
5	Lot 95 DP27550	Residential/ business	Partial	-	-
6	Lot 94 DP27550	Residential	Partial	-	-
7	Lot 93 DP654182	Residential	Partial	-	-
8	Lot 92 DP27550	Business	Partial	-	-
9	Lot 102 DP812653	Rural/ residential	Partial	-	-
10	Lot 1 DP838361	Rural/ Western Sydney Airport site/ Commonwealth land	Partial	-	Yes (2)
11	Lot 11 DP1092165	Rural residential	Partial	-	Yes (2)
12	Lot 27 DP259698	Residential	Partial	-	-
13	Lot 28 DP259698	Residential	Partial	-	-
14	Lot 33 DP259698	Rural residential	Partial	-	-
15	Lot 22 DP258581	Rural residential	Partial	-	-
16	Lot 21 DP258581	Residential	Dual offer/ partial	Yes (1)	-
17	Lot 20 DP258581	Residential	Partial	-	-
18	Lot 2 DP851626	Business	Partial	-	-
19	Lot 1 DP851626	Rural	Partial	-	-
20	Lot 2 DP623457	Business	Partial	-	-
21	Lot 21 DP614481	Residential	Partial	-	-
22	Lot 1 DP250030	Residential	Dual offer/ partial	Yes (1)	Yes (1)
23	Lot 1 DP90157	Residential	Partial	-	-
24	Lot 2 DP250030	Residential	Partial	-	-
25	Lot 3 DP250030	Residential	Partial	-	-
26	Lot 2 DP519034	Residential	Partial	-	-
27	Lot 104 DP846962	Residential	Partial	-	-
28	Lot 3 DP827223	Residential	Partial	-	-
29	Lot 103 DP846962	Residential	Partial	-	-
30	Lot 102 DP846962	Residential	Partial	-	-
31	Lot 1 DP232996	Rural residential	Partial	-	-

Property Id	Property (lot number)	Existing land use*	Acquisition type	Dwellings affected	Buildings (sheds) affected
32	Lot 101 DP846962	Residential	Partial	-	-
33	Lot 100 DP846962	Residential	Partial	-	-
34	Lot 5 DP232324	Crown land (road reserve)	Full	-	-
35	Lot 4 DP232324	Crown land (road reserve)	Full	-	-
36	Lot 3 DP911607	Crown land (road reserve)	Full	-	-
37	Lot 1 DP517853	Residential	Partial	Yes (2)	Yes (4)
38	Lot 2 DP517853	Rural residential	Partial	-	-
39	Lot 6 DP32026	Rural	Partial	-	-
40	Lot 5 DP32026	Rural	Partial	-	-
41	Lot 4 DP32026	Rural	Partial	-	-
42	Lot 1 DP1169433	Residential/ business	Partial	-	-
43	Lot 3 DP32026	Residential/ business	Partial	Yes (1)	-
44	Lot 504 DP581138	Residential	Partial	-	-
45	Lot 2 DP32026	Residential/ business	Partial	Yes (1)	Yes (1)
46	Lot DP160890	Residential/ business	Partial	Yes (1)	-
47	Lot 5 DP599382	Residential	Partial	-	-
48	Lot 1 DP200435	Residential/ business	Partial	-	-
49	Lot 501 DP580982	Residential	Partial	-	-
50	Lot 12 DP249113	Residential	Partial	-	-
51	Lot 11 DP249113	Residential	Partial	-	-
52	Lot 10 DP249113	Residential	Partial	-	-
53	Lot 9 DP249113	Residential	Partial	-	-
54	Lot 1 DP109697	Residential	Partial	-	-
55	Lot 8 DP249113	Residential	Partial	-	Yes (1)
56	Lot 7 DP249113	Residential	Partial	-	-
57	Lot 101 DP580082	Business	Partial	-	-
58	Lot 11 DP30775	Residential	Partial	-	-
59	Lot 12 DP30775	Sydney Water pumping station	Partial	-	-
60	Lot 9 DP232322	Rural**	Full	-	-
61	Lot 13 DP30775	Residential	Partial	-	Yes (1)
62	Lot 8 DP232322	Rural residential**	Full	-	-
63	Lot 14 DP30775	Residential	Partial	-	-
64	Lot 22 DP32053	Rural	Partial	-	-

Property Id	Property (lot number)	Existing land use*	Acquisition type	Dwellings affected	Buildings (sheds) affected
65	Lot 15 DP30775	Residential	Partial	-	-
66	Lot 23 DP207317	Residential	Partial	-	-
67	Lot 2 DP32053	Residential/ rural	Partial	-	-
68	Lot 1 DP420840	Residential	Partial	-	-
69	Lot 16 DP30775	Residential	Partial	-	Yes (1)
70	Lot DP341893	Water NSW asset maintenance	Partial	-	-
71	Lot A DP341629	Crown land (road reserve)	Partial	-	-
72	Lot 22 DP843123	Residential	Partial	-	Yes (1)
73	Lot 68 DP651114	Residential	Partial	-	Yes (2)
74	Lot 71 DP668758	Residential	Partial	-	-
75	Lot 73 DP2120	Residential	Partial	-	-
76	Lot 1 DP1064093	Residential	Partial	-	-
77	Lot 1 DP232322	Crown land (road reserve)	Full	-	-
78	Lot 77 DP659462	Business	Partial	-	-
79	Lot 79 DP1085461	Residential	Partial	-	-
80	Lot 1 DP1085051	Residential	Partial	-	-
81	Lot 211 DP2255	Vacant	Partial	-	-
82	Lot 210 DP2255	Vacant	Full	-	-
83	Lot 80 DP2120	Residential	Partial	-	-
84	Lot 10 Sec H DP2234	Vacant	Full	-	-
85	Lot 3 DP202647	Residential	Partial	-	-
86	Lot 36 DP959167	Vacant	Partial	-	-
87	Lot 101 Sec H DP2234	Vacant	Partial	-	-
88	Lot 100 Sec H DP2234	Vacant	Partial	-	-
89	Lot 99 Sec H DP2234	Vacant	Partial	-	-
90	Lot 2 DP202647	Residential	Partial	-	-
91	Lot 98 Sec H DP2234	Vacant	Partial	-	-
92	Lot 97 Sec H DP2234	Vacant	Partial	-	-
93	Lot 96 Sec H DP2234	Vacant	Partial	-	-

Property Id	Property (lot number)	Existing land use*	Acquisition type	Dwellings affected	Buildings (sheds) affected
94	Lot 37 DP959167	Vacant	Partial	-	-
95	Lot 84 Sec H DP2234	Vacant	Partial	-	-
96	Lot 83 Sec H DP2234	Vacant	Partial	-	-
97	Lot 38 DP959167	Residential	Partial	-	-
98	Lot 75 Sec H DP2234	Residential	Partial	-	-
99	Lot 74 Sec H DP2234	Residential	Partial	-	-
100	Lot 73 Sec H DP2234	Residential	Partial	-	-
101	Lot 72 Sec H DP2234	Residential	Partial	-	-
102	Lot 71 Sec H DP2234	Residential	Partial	-	-
103	Lot 70 Sec H DP2234	Residential	Partial	-	-
104	Lot 69 Sec H DP2234	Residential	Partial	-	-
105	Lot 1 DP202647	Business	Partial	-	-
106	Lot 68 Sec H DP2234	Residential	Partial	-	-
107	Lot 67 Sec H DP2234	Residential	Partial	-	-
108	Lot 66 Sec H DP2234	Residential	Partial	-	-
109	Lot 65 Sec H DP2234	Residential	Partial	-	-
110	Lot 64 Sec H DP2234	Residential	Partial	-	-
111	Lot 63 Sec H DP2234	Residential	Partial	-	-
112	Lot 42 DP878814	Residential	Partial	-	-
113	Lot 62 Sec H DP2234	Residential	Full	-	-
114	Lot 23 DP29081	Residential	Partial	-	-
115	Lot 61 Sec H DP2234	Residential	Full	-	-
116	Lot 60 Sec H DP2234	Residential	Partial	-	-

Property Id	Property (lot number)	Existing land use*	Acquisition type	Dwellings affected	Buildings (sheds) affected
117	Lot 24 DP29081	Residential	Partial	-	-
118	Lot 28 DP29081	Rural residential	Partial	-	-
119	Lot 1 DP569729	Residential	Partial	-	-
120	Lot 11 DP29081	Rural residential	Partial	-	-
121	Lot 10 DP29081	Residential	Partial	-	-
122	Lot 3 DP238092	Commonwealth Department of Defence uses	Partial	-	-
123	Lot 31 DP244610	Residential	Partial	-	-
124	Lot 32 DP244610	Residential	Partial	-	-
125	Lot 30 DP244610	Rural residential	Partial	-	-
126	Lot 8 DP29081	Residential/ business	Partial	-	-
127	Lot 1 DP1088989	Rural residential	Partial	-	-
128	Lot 6 DP29081	Rural residential	Partial	-	-
129	Lot 2 DP224861	Rural residential	Partial	-	-
130	Lot 1 DP224861	Residential	Partial	Yes (1)	-
131	Lot 7 DP4832	Residential	Partial	-	-
132	Lot 500 DP1133119	Residential	Partial	-	-
133	Lot 1 DP551558	Residential	Partial	-	-
134	Lot 1 DP238092	Commonwealth Department of Defence uses	Partial	-	-
135	Lot 5 DP26658	Rural residential	Partial	-	-
136	Lot 6 DP26658	Rural residential	Partial	-	-
137	Lot 7 DP26658	Rural residential	Partial	-	-
138	Lot 1 DP711076	Residential	Partial	-	-
139	Lot 2 DP711076	Vacant	Partial	-	-
140	Lot 132 DP1002668	Residential	Partial	-	-
141	Lot 113 DP1015911	Rural	Partial	-	-
142	Lot 3 DP711076	Rural residential	Partial	-	-

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

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

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.



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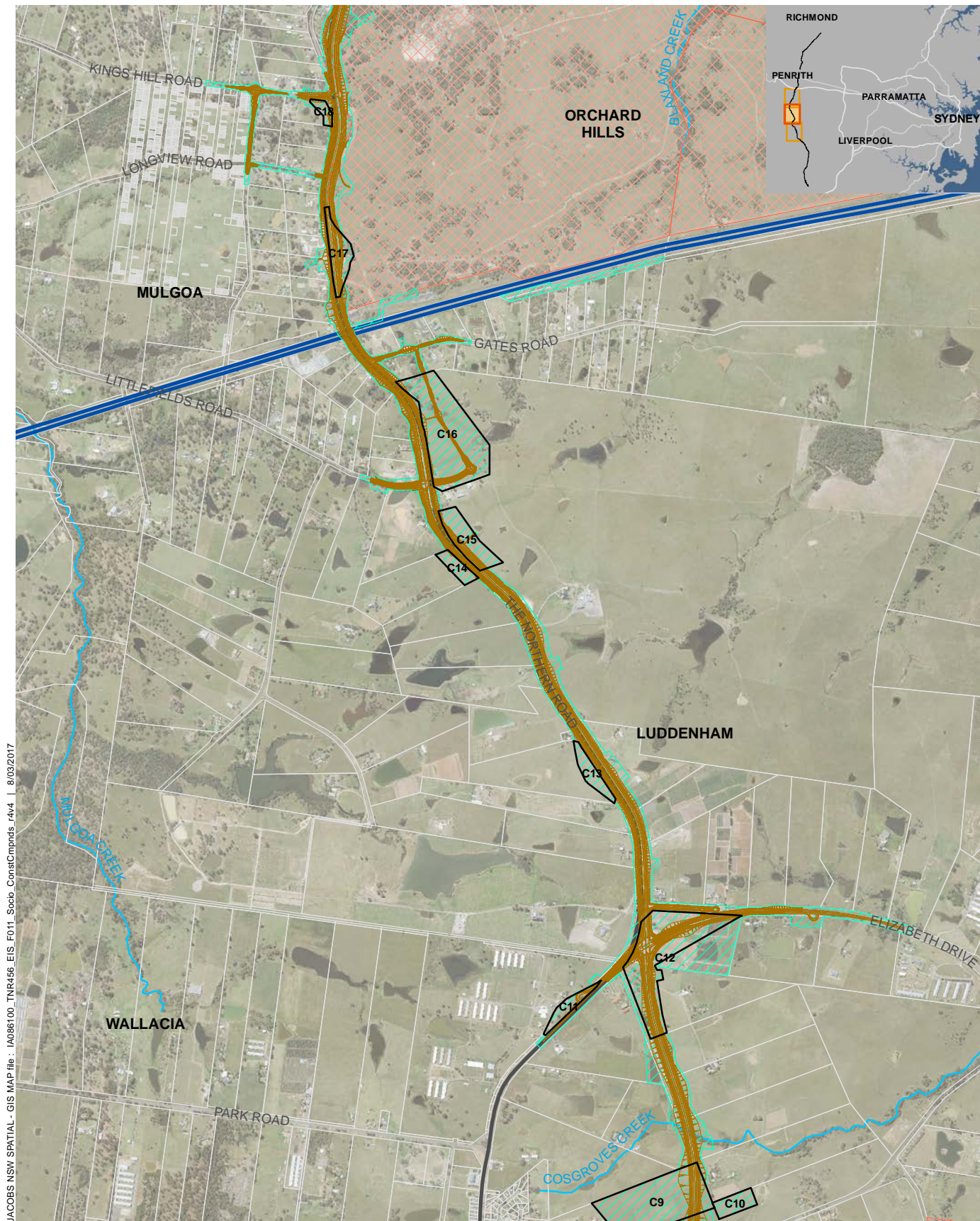
- The Northern Road upgrade - Mersey Road to Glenmore Parkway
- The Northern Road
- Construction footprint
- Construction compound sites
- Western Sydney Airport site (Commonwealth Land)
- Defence Establishment Orchard Hills (Commonwealth Land)
- Commonwealth Land

0 0.5 1 km



3
2
1

Figure 6-1 | Potential locations of construction ancillary facilities



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- The Northern Road upgrade - Mersey Road to Glenmore Parkway
- The Northern Road
- WaterNSW supply pipelines
- ▨ Construction footprint

- Construction compound sites
- Western Sydney Airport site (Commonwealth Land)
- Defence Establishment Orchard Hills (Commonwealth Land)
- Commonwealth Land

0 0.5 1 km

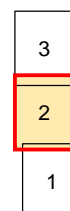
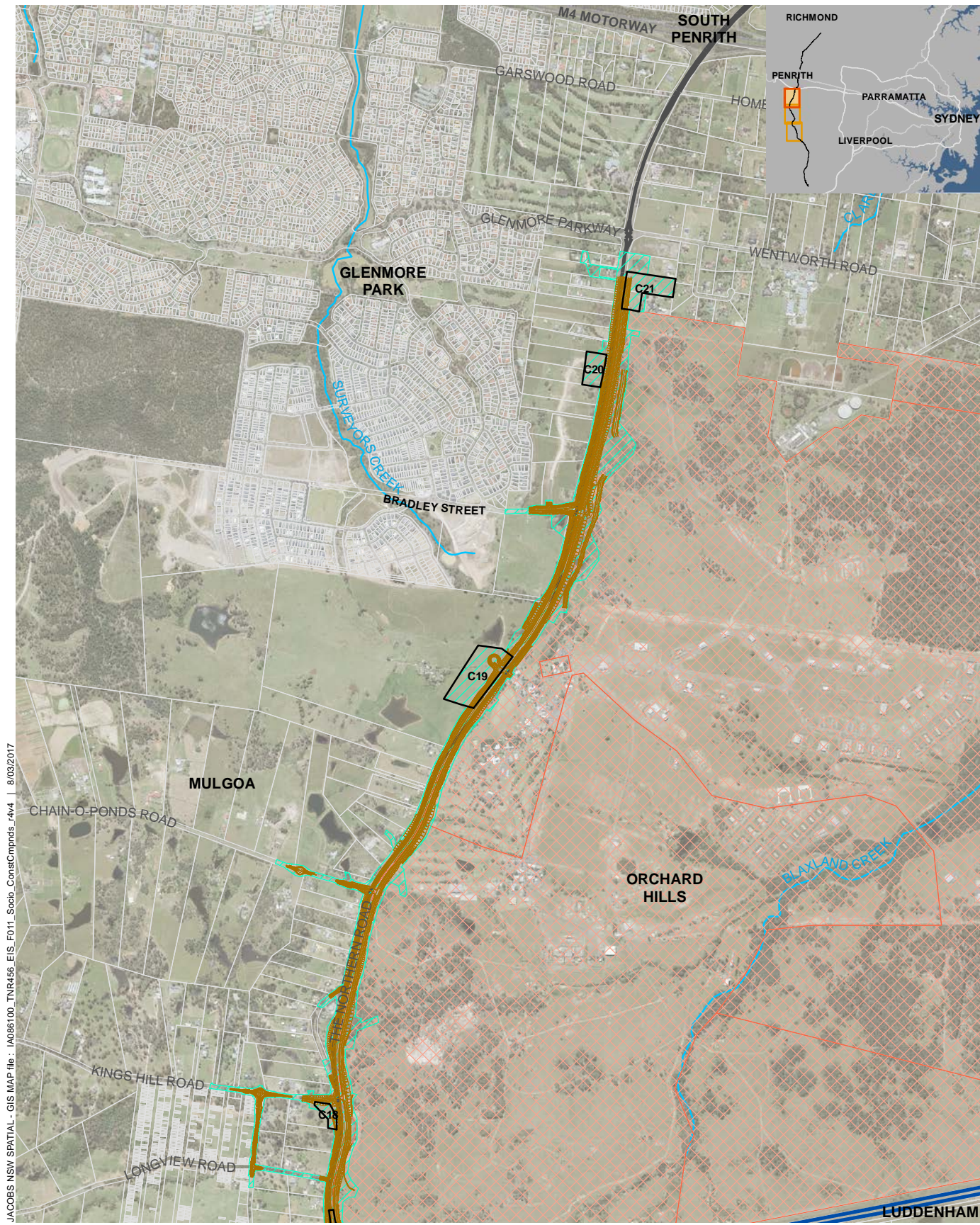


Figure 6-1 | Potential locations of construction ancillary facilities



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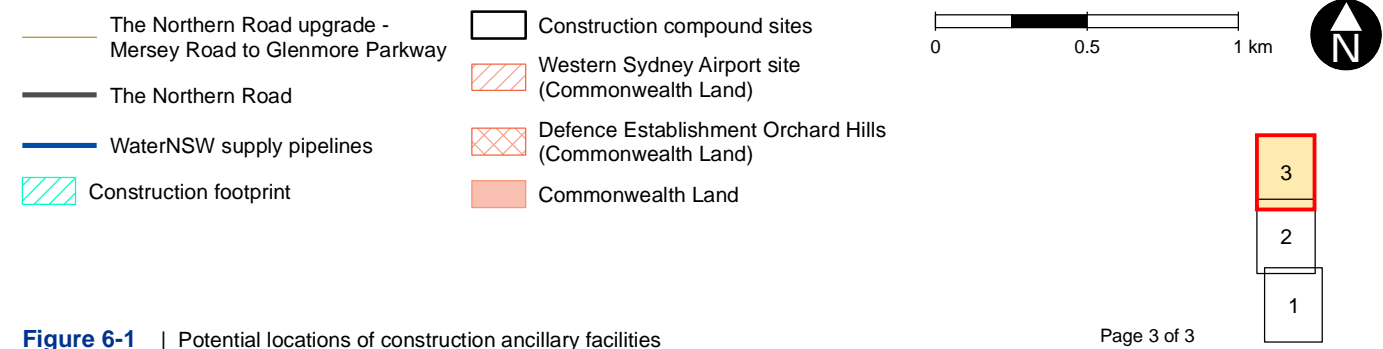


Figure 6-1 | Potential locations of construction ancillary facilities

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

Land use	Penrith LGA		Liverpool LGA		Total region	
	Land in operational footprint (hectares)	Proportion of land in LGA	Land in operational footprint (hectares)	Proportion of land in LGA	Land in operational footprint (hectares)	Proportion of land in the region (%)
Environmental uses	1.39	0.03%	6.34	0.48%	7.73	0.14%
River and drainage system	1.39	0.13%	3.60	0.44%	4.99	0.27%
Tree and shrub cover	-	0.00%	2.74	0.54%	2.74	0.08%
Primary production uses	28.38	0.22%	77.34	0.83%	105.73	0.48%
Cropping	0.07	0.68%	17.30	5.39%	17.37	5.24%
Grazing	27.45	0.25%	53.45	0.70%	80.90	0.43%
Horticulture	0.76	0.10%	5.02	0.67%	5.78	0.39%

Land use	Penrith LGA		Liverpool LGA		Total region	
	Land in operational footprint (hectares)	Proportion of land in LGA	Land in operational footprint (hectares)	Proportion of land in LGA	Land in operational footprint (hectares)	Proportion of land in the region (%)
Intensive animal production	0.10	0.01%	1.57	0.25%	1.67	0.11%
Other uses	72.22	0.38%	16.60	0.09%	88.82	0.23%
Transport and other corridors	45.04	2.72%	13.01	0.94%	58.05	1.91%
Urban	4.58	0.03%	1.35	0.01%	5.93	0.02%
Special category	22.60	0.56%	2.25	0.03%	24.85	0.23%
Total	101.99	0.28%	100.28	0.34%	202.27	0.56%

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

Land use zone	Penrith LGA		Liverpool LGA		Total region	
	LEP zoned land in operational footprint (hectares)	Proportion of LEP zoned land in LGA	LEP zoned land in operational footprint (hectares)	Proportion of LEP zoned land in LGA	LEP zoned land in operational footprint (hectares)	Proportion of LEP zoned land in the region (%)
Environmental conservation	19.88	0.46%	-	0.00%	19.88	0.46%
Environmental management	9.57	0.28%	-	0.00%	9.57	0.28%

Land use zone	Penrith LGA		Liverpool LGA		Total region	
	LEP zoned land in operational footprint (hectares)	Proportion of LEP zoned land in LGA	LEP zoned land in operational footprint (hectares)	Proportion of LEP zoned land in LGA	LEP zoned land in operational footprint (hectares)	Proportion of LEP zoned land in the region (%)
Environmental living	0.72	0.05%	-	-	0.72	0.05%
Large lot residential	-	0.00%	1.27	0.21%	1.27	0.21%
Low density residential	0.00	0.00%	2.73	0.10%	2.73	0.04%
Primary production	0.04	0.00%	74.95	1.50%	74.99	1.18%
Primary production small lots	1.01	0.02%	0.44	0.01%	1.45	0.01%
Rural landscape	26.01	0.51%	-	-	26.01	0.51%
Infrastructure	40.66	3.41%	8.99	0.12%	49.65	0.57%
Special activities	4.17	0.56%	11.81	0.70%	15.99	0.66%
Total	102.06	0.36%	100.19	0.47%	202.25	0.40%

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

Business	Location	Summary of impact
Eireka Pty Ltd	Corner of Kings Hill Road and The Northern Road, Mulgoa	<p>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.</p> <p>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.</p> <p>Access would be maintained to Kings Hill Road, with all movement access provided at the Kings Hill Road/ The Northern Road intersection.</p> <p>These impacts are not expected to impact on the ongoing operation of the business.</p>
Stones Kart Sport	Longview Road, Mulgoa	<p>Widening of The Northern Road would require the strip acquisition of land fronting The Northern Road. This land mainly includes landscaping (grass/ trees).</p> <p>The existing property access arrangements to Longview Road would be maintained.</p> <p>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.</p> <p>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 section 6.9).</p> <p>These impacts are not expected to impact on the ongoing operation of the business.</p>
Complete Roofing	The Northern Road, Mulgoa	<p>Widening of The Northern Road would require the strip acquisition of land fronting The Northern Road. This land mainly includes landscaping (grass/ trees).</p> <p>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</p>

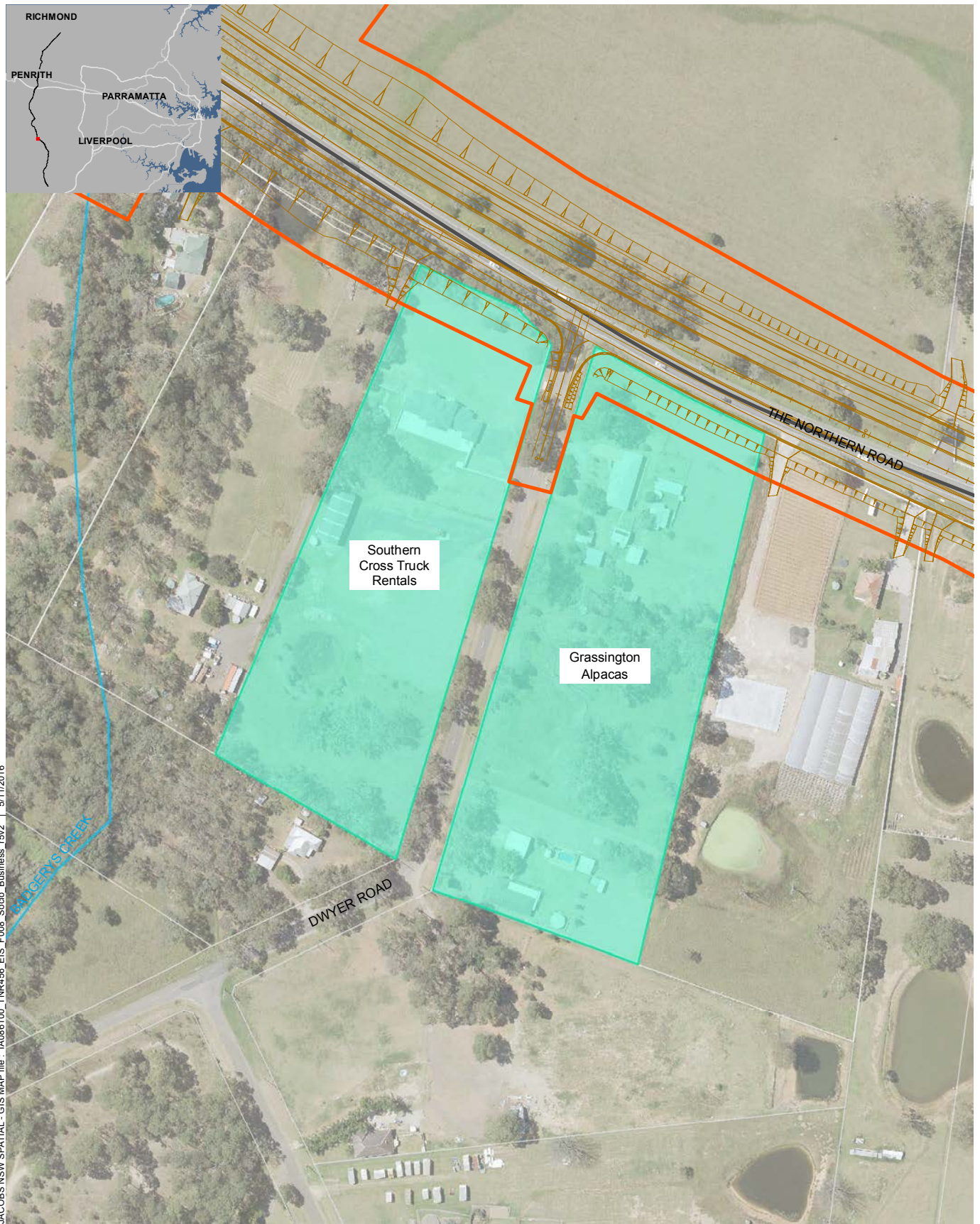
Business	Location	Summary of impact
		<p>facilities would be designed to accommodate movements by large vehicles (further discussion about proposed local access changes is provided in section 6.9).</p> <p>These impacts are not expected to impact the ongoing operation of the business..</p>
GRS Towing	The Northern Road, Mulgoa	<p>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.</p> <p>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).</p> <p>These impacts are not expected to affect the operation of the business.</p>
Warratah Park Puppies	The Northern Road, Mulgoa	<p>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.</p> <p>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.</p>
Horse N Around	Corner of Littlefields Road and The Northern Road, Mulgoa	<p>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).</p> <p>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.</p> <p>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.</p> <p>Full access would be provided at the Littlefields Road/ The Northern Road intersection.</p> <p>These impacts are not expected to impact on the ongoing operation of the business.</p> <p>Roads and Maritime is continuing to consult with the business owner about specific management measures to be considered in the detailed design phase.</p>

Business	Location	Summary of impact
The Honey Shed	The Northern Road, Luddenham	<p>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.</p> <p>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.</p> <p>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).</p> <p>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.</p> <p>Overall, these impacts are not expected to impact on the ongoing operation of the business.</p>
Luddenham Pet Meat	The Northern Road, Luddenham	<p>Widening of The Northern Road would require the strip acquisition of land fronting The Northern Road. This would potentially require the demolition of a dwelling located on the property as well as loss of landscaped areas (grass/ trees). The adjoining shed would not be impacted by the project.</p> <p>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).</p> <p>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.</p>
AL Tours and A & M Excavation	The Northern Road, Luddenham	<p>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</p>

Business	Location	Summary of impact
		<p>sheds on the property would not be impacted by the project.</p> <p>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 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).</p> <p>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.</p>
Top Shape Live Christmas Trees	Corner of The Northern Road and Elizabeth Drive, Luddenham	<p>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.</p> <p>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.</p> <p>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.</p>
Shell service station	The Northern Road, Luddenham	<p>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.</p> <p>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.</p>
Triple A Christmas Tree Farm	Between The Northern Road and Eaton Road, Luddenham	<p>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.</p> <p>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.</p> <p>The project would change access between Eaton Road and Luddenham town centre, with the existing right turn to/ from Eaton</p>

Business	Location	Summary of impact
		Road no longer possible. Access from Eaton Road to Luddenham town centre would be via a new intersection at the southern end of Luddenham. Access from Luddenham town centre to Eaton Road would be via the intersection at Elizabeth Road at the northern end of the town. This would increase travel distance by up to about 4.7 km. This may increase transport costs for the business owner.
Grassington Alpacas	Corner Dwyer Road and The Northern Road, Bringelly	<p>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.</p> <p>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.</p> <p>These impacts are not expected to impact on the ongoing operation of the business.</p>
Southern Cross Truck Rentals	Corner Dwyer Road and The Northern Road, Bringelly	<p>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.</p> <p>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.</p> <p>These impacts are not expected to impact on the ongoing operation of the business.</p>

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).



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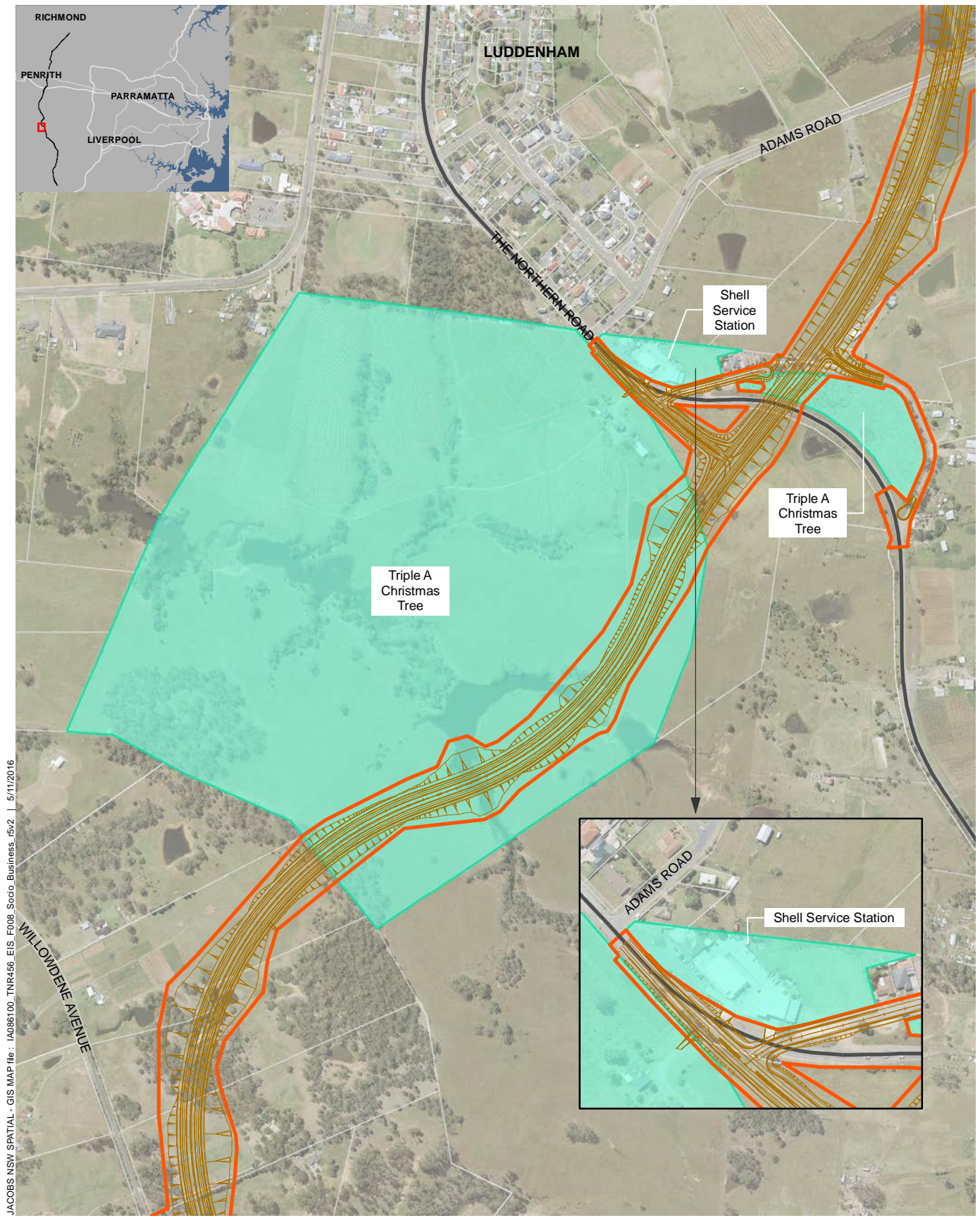
- The Northern Road upgrade - Mersey Road to Glenmore Parkway
- The Northern Road (Existing)
- Operational boundary

Affected businesses

0 50 100 m



Figure 6-2 | Directly affected businesses



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- The Northern Road upgrade - Mersey Road to Glenmore Parkway
- Affected businesses
- The Northern Road (Existing)
- Operational boundary

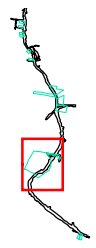
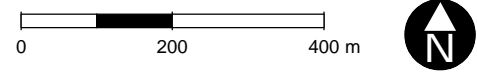
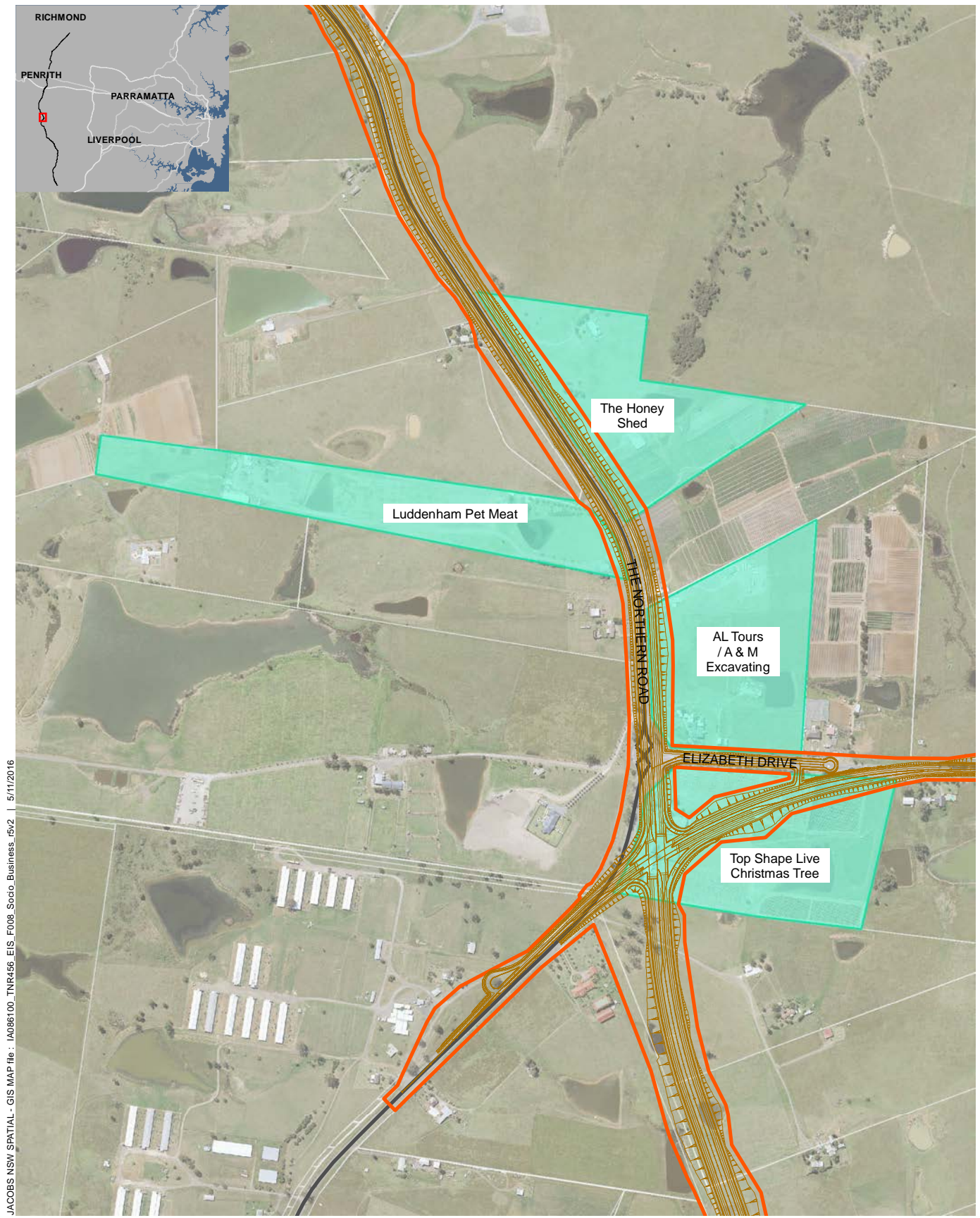


Figure 6-2 | Directly affected businesses



JACOBS NSW SPATIAL - GIS MAP file : JA086100_TNR456 EIS_F008 Socio_Business_v5v2 | 5/11/2016

- The Northern Road upgrade - Mersey Road to Glenmore Parkway
- The Northern Road (Existing)
- Operational boundary
- Affected businesses

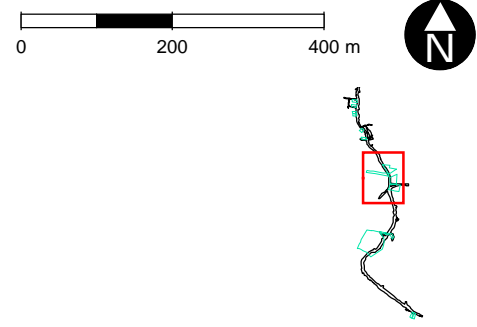
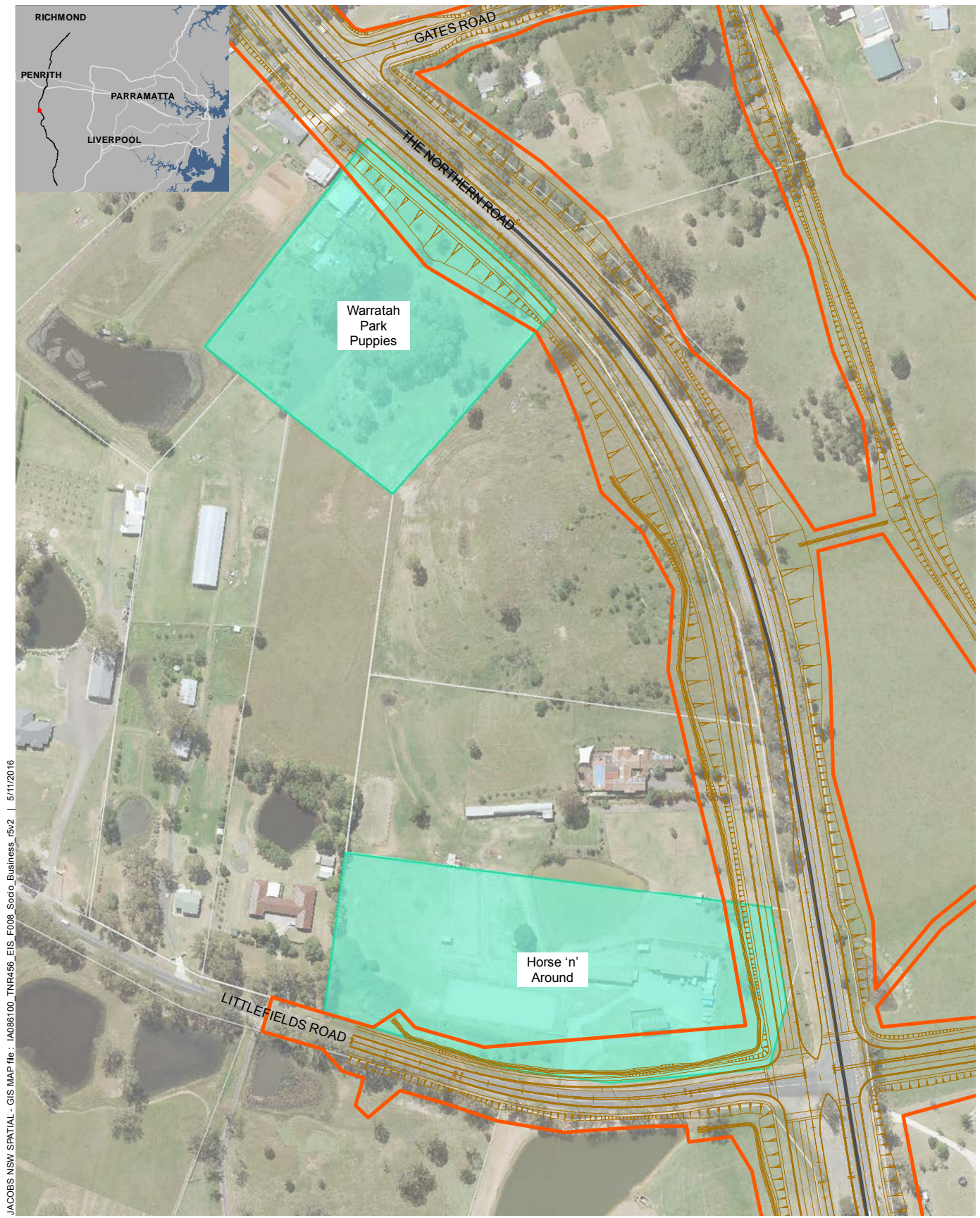


Figure 6-2 | Directly affected businesses



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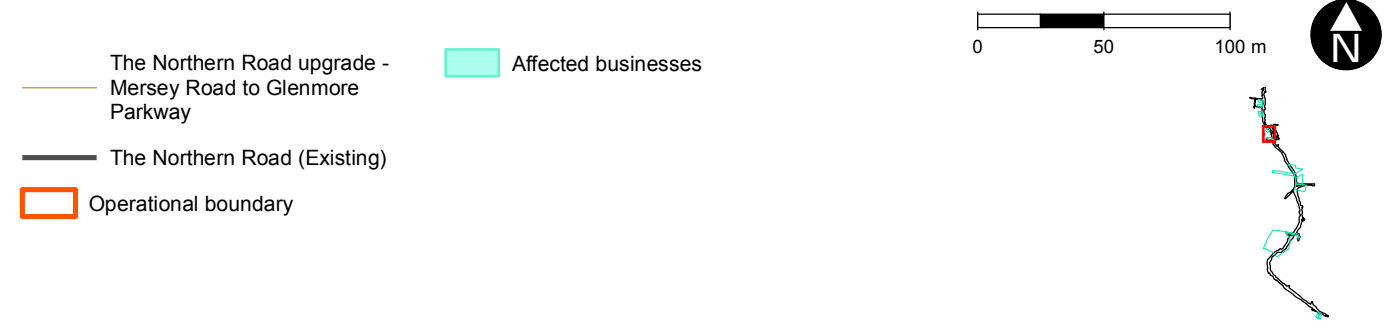
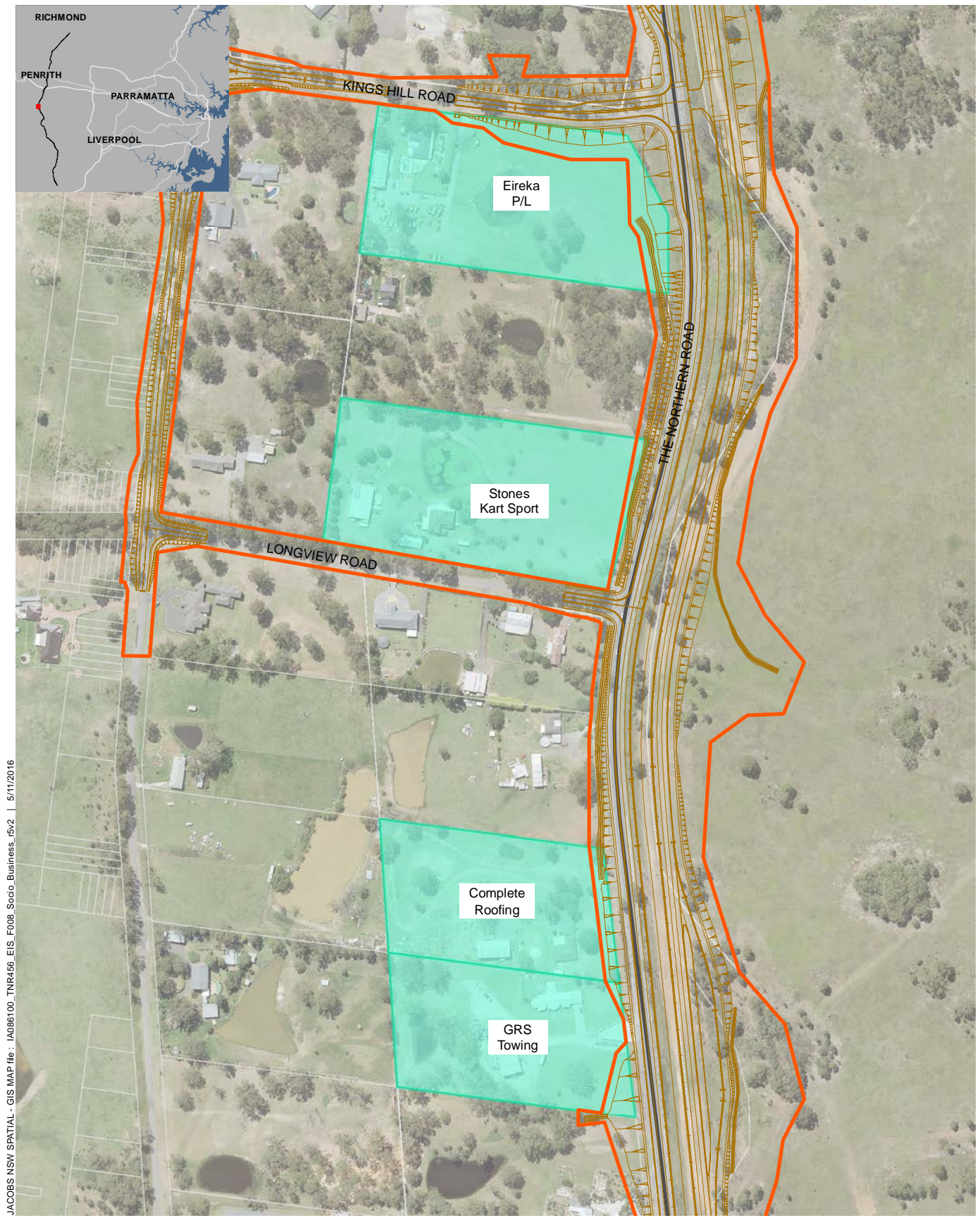


Figure 6-2 | Directly affected businesses



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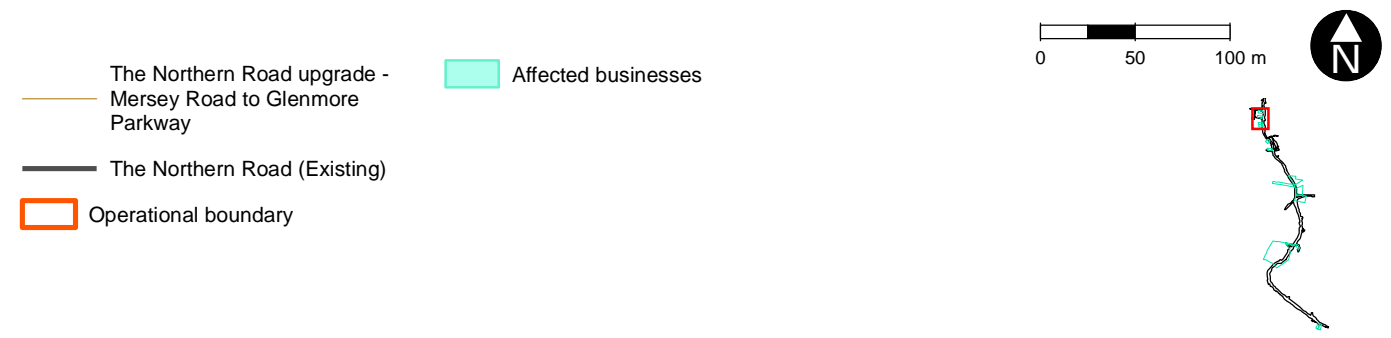


Figure 6-2 | Directly affected businesses

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

Agricultural land use	Penrith LGA		Liverpool LGA		Total region	
	Agricultural land in operational footprint (hectares)	Proportion of agricultural land in LGA	Agricultural land in operational footprint (hectares)	Proportion of agricultural land in LGA	Agricultural land in operational footprint (hectares)	Proportion of agricultural land in the region (%)
Cropping	0.07	0.68%	18.22	5.67%	18.29	5.5%
Grazing	25.10	0.23%	52.62	0.69%	77.72	0.4%
Horticulture	0.83	0.11%	5.44	0.72%	6.27	0.4%
Intensive animal production	0.16	0.02%	1.77	0.28%	1.93	0.1%
Total	99.35	0.25%	99.56	0.33%	104.21	0.47%

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**.

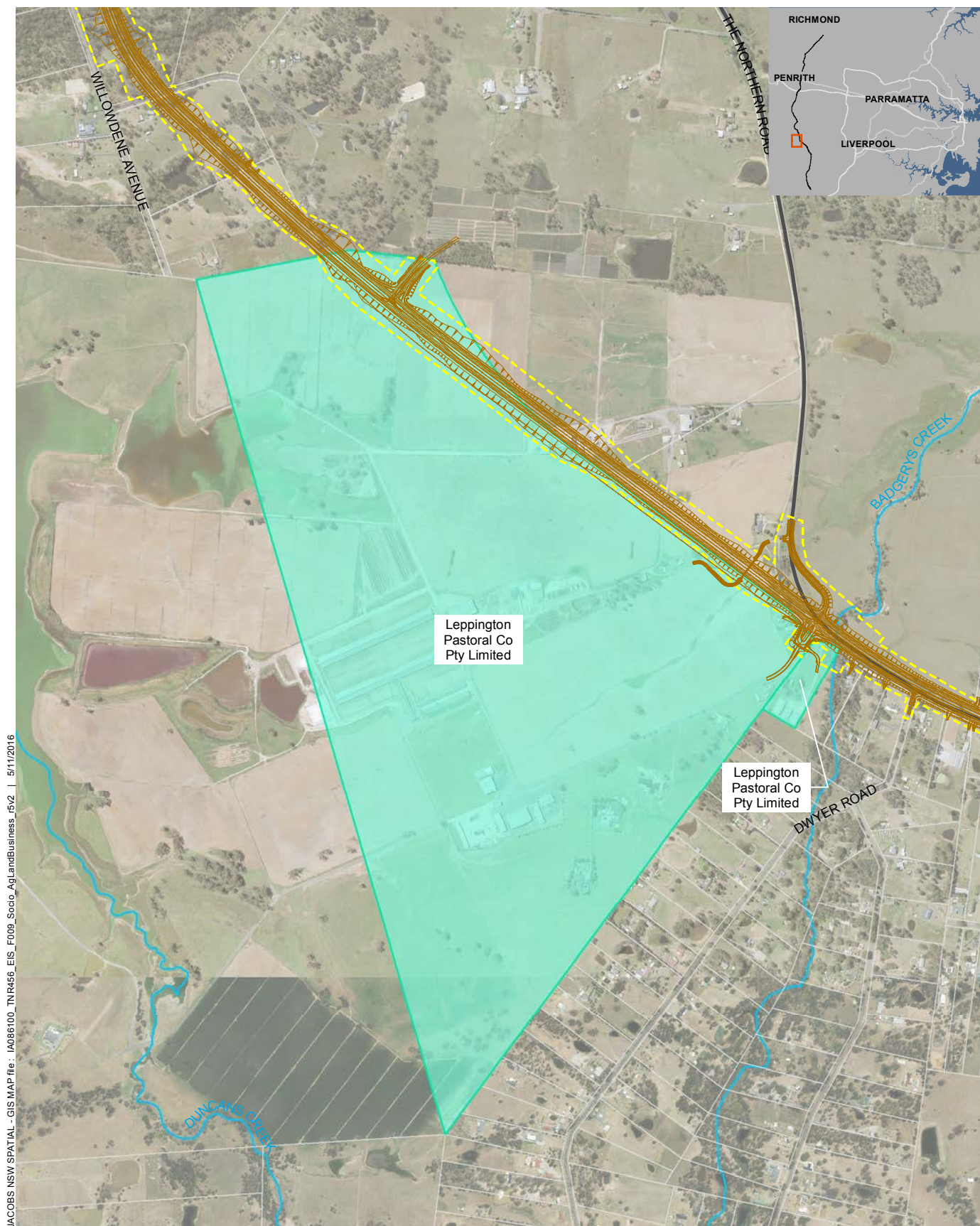
Table 6-7 summarises potential impacts on individual agricultural businesses that would be directly impacted by property acquisition. **Figure 6-2** shows the extent of impacts on individual businesses. Potential impacts on The Honey Shed, Top Shape Live Christmas Trees and Triple A Christmas Tree Farm 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

Business	Location	Summary of impact
Strawberry farm	The Northern Road, Luddenham (north of Elizabeth Drive)	<p>Widening of The Northern Road would require the strip acquisition of land fronting The Northern Road.</p> <p>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.</p> <p>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.</p> <p>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).</p> <p>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.</p>
Leppington Pastoral Company	The Northern Road, Bringelly	<p>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.</p> <p>Acquisition for the project would affect land located immediately west of the Western Sydney Airport site. This area of the farm currently accommodates:</p> <ul style="list-style-type: none"> • Three sheds • Land used for irrigated cropping and associated irrigation infrastructure • Private utilities such as communication cables, water, irrigation and power. <p>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.</p> <p>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</p>

Business	Location	Summary of impact
		<p>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.</p> <p>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.</p>



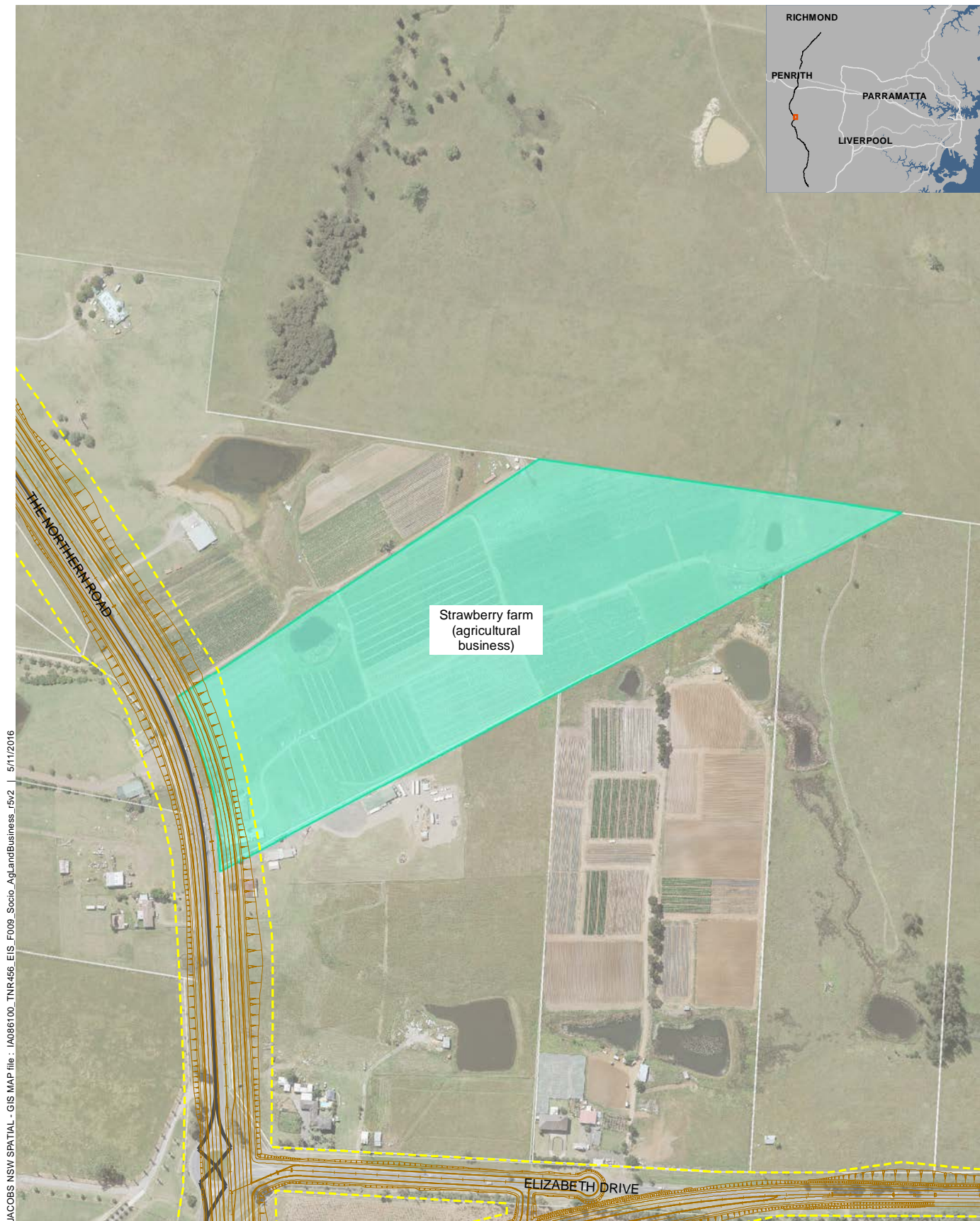
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- The Northern Road upgrade - Mersey Road to Glenmore Parkway
- The Northern Road (Existing)
- - - Operational boundary
- Affected agricultural businesses

0 200 400 m



Figure 6-3 | Directly affected agricultural businesses (Sheet 1)



JACOBS NSW SPATIAL - GIS MAP file : JA086100_TNR456_EIS_F009_Socio_Agl.andBusiness_r5v2 | 5/11/2016

- The Northern Road upgrade - Mersey Road to Glenmore Parkway
- The Northern Road (Existing)
- - - Operational boundary

Affected agricultural businesses

0 100 200 m

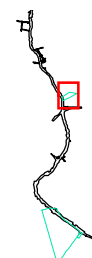


Figure 6-3 | Directly affected agricultural businesses (Sheet 2)

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

- 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

Impact	Environmental management measures	Responsibility	Timing
General impacts	<ul style="list-style-type: none"> • 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 	Construction contractor and Roads and Maritime	Construction
	<ul style="list-style-type: none"> • Areas affected by construction will be 	Construction	Construction

Impact	Environmental management measures	Responsibility	Timing
	reinstated and restored in accordance with the urban design and landscape strategy.	contractor	
Cumulative impacts	<ul style="list-style-type: none"> Mitigation measures specific to cumulative impacts can be found in Chapter 9 of the EIS for this project. 	Refer to EIS Chapter 9.	Refer to EIS Chapter 9.
Noise and vibration during construction and operation	<ul style="list-style-type: none"> Mitigation measures specific to construction noise and vibration can be found in Section 7-2 of the EIS for this project 	Refer to EIS Section 7-2	Refer to EIS Section 7-2
Air quality during construction and operation	<ul style="list-style-type: none"> Mitigation measures specific to construction and operational air quality can be found in Section 8-5 of the EIS for this project 	Refer to EIS Section 8-5	Refer to EIS Section 8-5
Impacts on conservation/natural areas	<ul style="list-style-type: none"> Mitigation measures specific to biodiversity impacts can be found in Section 7-3 of the EIS for this project. 	Refer to EIS Section 7-3.	Refer to EIS Section 7-3.
Property acquisition	<ul style="list-style-type: none"> Provide appropriate compensation in accordance with the (NSW) <i>Land Acquisition (Just Terms Compensation) Act 1991</i> for properties and businesses to be partially or fully acquired for the project 	Roads and Maritime	Pre-construction
	<ul style="list-style-type: none"> 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 	Roads and Maritime	Pre-construction
	<ul style="list-style-type: none"> Undertake property adjustments and relocation of infrastructure (for example, fencing, dams, property access) prior to construction and in consultation with the property owner. 	Construction contractor	Construction
	<ul style="list-style-type: none"> Undertake any adjustments to the Orchard Hills golf course, prior to construction and in consultation with the managers of the Orchard Hills Golf Club. 	Roads and Maritime/ Construction contractor	Construction
Business and economic activity	<ul style="list-style-type: none"> 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 	Construction contractor	Construction
	<ul style="list-style-type: none"> Relocate farm infrastructure, including 	Construction	Construction

Impact	Environmental management measures	Responsibility	Timing
	farm dams, prior to construction and in consultation with property owners/ business managers.	contractor	
	<ul style="list-style-type: none"> Maintain a business impact risk register to identify and manage the specific impacts associated with construction related works for individual businesses. 	Construction contractor	Construction
	<ul style="list-style-type: none"> Access to existing businesses will be provided on a continuous basis throughout the construction of the project 	Construction contractor	Construction
	<ul style="list-style-type: none"> 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. 	Roads and Maritime	Construction
	<ul style="list-style-type: none"> Appropriate road signage will be provided in accordance with the Roads and Maritime Services guidelines <i>Tourist Signposting</i> (2012) to provide guidance to passing patrons on access to shops and services, including within Luddenham town centre 	Construction contractor	Construction
Access and connectivity	<ul style="list-style-type: none"> 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 	Construction contractor	Construction
	<ul style="list-style-type: none"> 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 	Construction contractor	Construction
	<ul style="list-style-type: none"> 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 	Construction contractor	Construction
	<ul style="list-style-type: none"> Mitigation measures specific to Traffic and Transport can be found in Chapter 7-1 of the EIS for this project. 	Refer to EIS Section 7-1	Refer to EIS Section 7-1

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.

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