



Figure 12.12 Subsurface acquisition Map 2



Figure 12.13 Subsurface acquisition Map 3



Figure 12.14 Subsurface acquisition Map 4





Figure 12.16 Subsurface acquisition Map 6



## Summary of property and land use impacts

A summary of property and land use impacts within the surface works footprint and at the construction ancillary facilities, including potential future use of residual land, is provided in **Table 12.9**.

**Table 12.9 Property and land use impacts during and as a result of construction**

<b>Impact</b>	<b>Description</b>
<b>Homebush Bay Drive interchange, including Homebush Bay Drive civil site (C1)</b>	
Property impacts	<ul style="list-style-type: none"> <li>One commercial property would be partially acquired consisting of part of the Ausgrid Mason Park substation that is currently unused vegetated land beneath power lines. About 14.8 per cent of the property would be acquired</li> <li>Work would affect two properties forming part of the M4 road reserve which are owned by Roads and Maritime</li> <li>No residential properties or community facilities would be acquired at this location.</li> </ul>
Land use impacts	<ul style="list-style-type: none"> <li>Land use at the Homebush Bay Drive civil site would change from unused land to a construction ancillary facility for the duration of construction</li> <li>Following construction, land at this site would be used for permanent operational infrastructure, including the motorway operations complex</li> <li>The M4 road reserve would continue to be used as a road, but would be subject to construction work.</li> </ul>
Residual land	<ul style="list-style-type: none"> <li>There would be no residual land at this location as all land would be used for permanent operational infrastructure.</li> </ul>
<b>Widening and realignment of the M4, including Pomeroy Street civil site (C2)</b>	
Property impacts	<ul style="list-style-type: none"> <li>One residential property would be partially acquired, however, this acquisition would be of air space only and would not affect the land. About 0.6 per cent of the property would have air space acquisition</li> <li>One open space property would be leased during construction (Bill Boyce Reserve)</li> <li>Work would affect nine properties comprising the M4 road reserve which are owned by Roads and Maritime</li> <li>No residential or commercial properties would be acquired at this location.</li> </ul>
Land use impacts	<ul style="list-style-type: none"> <li>The land use of Bill Boyce Reserve would change from public open space to a construction ancillary facility for the duration of construction</li> <li>The M4 road reserve would continue to be used as a road, but would be subject to construction work.</li> </ul>
Residual land	<ul style="list-style-type: none"> <li>Bill Boyce Reserve would be rehabilitated and returned to Strathfield Council for use as open space following construction.</li> </ul>
<b>Western tunnel dive and portal, including Underwood Road tunnel and civil site (C3)</b>	
Property impacts	<ul style="list-style-type: none"> <li>13 residential properties containing 14 single dwellings would be acquired</li> <li>Four residential properties containing three single dwellings owned by Roads and Maritime would be affected</li> <li>One property containing the Strathfield Guide Hall would be acquired</li> <li>Work would affect 22 properties comprising the M4 and Underwood Road road reserves which are owned by Roads and Maritime</li> </ul>
Land use impacts	<ul style="list-style-type: none"> <li>Land use at the Underwood Road tunnel and civil site would change from residential to a construction ancillary facility for the duration of construction. The existing dwellings would be demolished</li> <li>The Strathfield Guide Hall would be demolished and the Guides would be relocated to alternative accommodation. This is discussed further in <b>Chapter 14</b> (Social and economic)</li> <li>Following construction, this site would either be used for permanent operational infrastructure, or would be residual land</li> <li>The M4 and Underwood Road road reserves would continue to be used as roads, but would be subject to construction work.</li> </ul>

<b>Impact</b>	<b>Description</b>
Residual land	<ul style="list-style-type: none"> <li>• There would be three residual land areas following construction – Areas 1, 2 and 3 – as shown in <b>Figure 12.6</b> to <b>Figure 12.10</b>. All three areas are zoned R3 Medium Density Residential under the Strathfield LEP</li> <li>• Areas 1, 2 and 3 would have an area of about 950 m<sup>2</sup>, 5,000 m<sup>2</sup> and 1,700 m<sup>2</sup> respectively</li> </ul>
<b>Powells Creek civil site (C4) and North Strathfield construction car parking site</b>	
Property impacts	<ul style="list-style-type: none"> <li>• About 1280 m<sup>2</sup> (about seven per cent of the reserve) of Arnotts Reserve would be acquired for permanent operational infrastructure associated with the Powells Creek on-ramp</li> <li>• About 245 m<sup>2</sup> of air space over one commercial property would be acquired (about one per cent of property)</li> <li>• Seven properties owned by Roads and Maritime and currently used for car parking would be affected</li> <li>• Work would affect four properties comprising the M4 road reserve which are owned by Roads and Maritime</li> <li>• About 3,220 m<sup>2</sup> of Arnotts Reserve (about 19 per cent of the reserve), which is currently fenced off and not open to the public, would be leased during construction</li> <li>• No residential properties would be acquired at this location.</li> </ul>
Land use impacts	<ul style="list-style-type: none"> <li>• The southern part of Arnotts Reserve, which is not currently open to the public, would change from vacant, vegetated land to a construction ancillary facility for the duration of construction</li> <li>• The Roads and Maritime land that is currently used for car parking would be used for construction worker car parking, with no change to land use. Following construction, this land would be returned for use as public car parking</li> <li>• The land use of part of Arnotts Reserve would change from vacant to containing permanent operational infrastructure associated with the Powells Creek on-ramp.</li> </ul>
Residual land	<ul style="list-style-type: none"> <li>• The majority of Arnotts Reserve would be rehabilitated and returned to Strathfield Council for use as open space following construction.</li> </ul>
<b>Concord Road interchange, including Concord Road civil and tunnel site (C5) and Queen Street cycleway on-ramp</b>	
Property impacts	<ul style="list-style-type: none"> <li>• 38 residential properties containing 42 single dwellings would be acquired</li> <li>• Four dwellings within one residential flat building would be acquired</li> <li>• Eight residential properties containing eight single dwellings owned by Roads and Maritime would be affected</li> <li>• One dwelling within the abovementioned residential flat building owned by Roads and Maritime would also be affected</li> <li>• Six vacant properties owned by Roads and Maritime (open space) which are not accessible by the public would be affected</li> <li>• Work would affect two properties comprising the M4 road reserve which are owned by Roads and Maritime</li> <li>• Work would affect seven local road reserves which are owned by Canada Bay Council</li> <li>• Two residential properties would be subject to partial acquisition (between about 12.3 to 28.7 per cent of each property) at the Concord Road frontage</li> <li>• One property containing a place of worship would be subject to partial acquisition (about 28.1 per cent of the property) at the Concord Road frontage</li> </ul>



Impact	Description
Land use impacts	<ul style="list-style-type: none"> <li>Land use at the Concord Road interchange would change from mostly residential to a construction ancillary facility for the duration of construction. With the exception of the properties subject to partial acquisition only, the existing dwellings would be demolished</li> <li>Following construction, the Underwood Road tunnel and civil site would either be used for permanent operational infrastructure, or would be residual land</li> <li>The M4 road reserve would continue to be used as a road, but would be subject to construction work</li> <li>As discussed in <b>section 12.4.2</b>, partial acquisition would not prevent the continued use of the affected land for residential, place of worship and commercial purposes</li> <li>Community impacts associated with partial acquisition of the place of worship are discussed further in <b>Chapter 14</b> (Social and economic).</li> </ul>
Residual land	<ul style="list-style-type: none"> <li>There would be four residual land areas following construction – Areas 4, 5, 6 and 7 – as shown in <b>Figure 12.6</b> to <b>Figure 12.10</b>. Areas 4, 5 and 6 are zoned R3 Medium Density Residential under the Canada Bay LEP, while Area 7 is zoned R2 Low Density Residential under the Canada Bay LEP</li> <li>Area 4 would have an area of about 1,500 m<sup>2</sup></li> <li>Areas 5 and 6 would have areas of about 3,500 m<sup>2</sup> and 880 m<sup>2</sup> respectively. These residual land areas are located in a heritage conservation area (refer to <b>Chapter 19</b> (Non-Aboriginal heritage)), which may restrict future development potential</li> <li>Area 7 would have an area of about 1,970 m<sup>2</sup>.</li> </ul>
<b>Cintra Park tunnel site (C6)</b>	
Property impacts	<ul style="list-style-type: none"> <li>The project would result in the partial acquisition of one property (about 43 per cent of the property) which contains the Cintra Park hockey field and an unsealed car park at Concord Oval. Relocation of the hockey field has been approved and construction of the new hockey field at St Lukes Park has commenced. The new hockey field at St Lukes Park would be in operation before the existing hockey field is closed and construction commences.</li> </ul>
Land use impacts	<ul style="list-style-type: none"> <li>Following relocation of the hockey field, land at Cintra Park would change from active open space to a construction ancillary facility for the duration of construction</li> <li>The existing unsealed car park would be upgraded and would be used for car parking during construction. As discussed in <b>Chapter 6</b> (Construction work), a number of car parking spaces would be made available to the public on days when the adjacent sporting facilities are being used. There would be no change to the land use of the car park</li> <li>The land use of part of Cintra Park would permanently change from open space to operational infrastructure associated with the project (fresh air supply facility, water treatment facility, substation, and incident response centre).</li> <li>The project would not physically affect the existing Council water treatment plant located in the south-west corner of Cintra Park.</li> </ul>
Residual land	<ul style="list-style-type: none"> <li>The majority of Cintra Park would be rehabilitated and returned to Canada Bay Council or the Crown (State of NSW) for use as open space following construction. The nature of this future open space would be determined in consultation with Canada Bay Council.</li> </ul>
<b>Northcote Street tunnel site (C7)</b>	
Property impacts	<ul style="list-style-type: none"> <li>Six residential properties containing six single dwellings would be acquired</li> <li>Five commercial properties containing five buildings would be acquired</li> <li>Work would also affect the existing Northcote Street road reserve.</li> </ul>

Impact	Description
Land use impacts	<ul style="list-style-type: none"> <li>Land use at the Northcote Street tunnel site would change from residential and commercial to a construction ancillary facility for the duration of construction. Existing dwellings and commercial buildings would be demolished</li> <li>Following construction, all land at this site would be residual land</li> <li>The southern end of Northcote Street would be closed to vehicular traffic for the duration of construction.</li> </ul>
Residual land	<ul style="list-style-type: none"> <li>There would be four residual land areas following construction – Areas 8, 9, 10 and 11 – as shown in <b>Figure 12.6</b> to <b>Figure 12.10</b>. Areas 8 and 9 are zoned R2 Low Density Residential, and Areas 10 and 11 are zoned B6 Enterprise Corridor under the Ashfield LEP</li> <li>Areas 8 and 9 would have an area of 2,820 m<sup>2</sup> and 1,390 m<sup>2</sup> respectively. These residual land areas are located in a heritage conservation area (refer to <b>Chapter 19</b> (Non-Aboriginal heritage)), which may restrict the future development potential</li> <li>Areas 10 and 11 would have an area of 6,780 m<sup>2</sup> and 2,570 m<sup>2</sup> respectively.</li> </ul>
<b>Eastern ventilation facility site (C8)</b>	
Property impacts	<ul style="list-style-type: none"> <li>15 residential properties containing 16 single dwellings would be acquired</li> <li>One residential flat building with eight individual dwellings would be acquired</li> <li>Three commercial properties with three buildings would be acquired.</li> </ul>
Land use impacts	<ul style="list-style-type: none"> <li>Land use at the eastern ventilation facility site would change from a mix of residential and commercial to a construction ancillary facility for the duration of construction. Existing dwellings and commercial dwellings would be demolished</li> <li>Following construction, land at this site would be used for permanent operational infrastructure, including the eastern ventilation facility.</li> </ul>
Residual land	<ul style="list-style-type: none"> <li>There would be no residual land at this location.</li> </ul>
<b>Wattle Street and Walker Avenue civil site (C9)</b>	
Property impacts	<ul style="list-style-type: none"> <li>18 residential properties containing 21 single dwellings would be acquired</li> <li>35 dwellings within four residential flat buildings would be acquired</li> <li>22 residential properties containing 21 single dwellings owned by Roads and Maritime would be affected</li> <li>Three dwellings within one of the residential flat buildings owned by Roads and Maritime would be affected</li> <li>About 18 per cent of Reg Coady Reserve would be impacted during construction. 12 per cent of the reserve would be required for operation and the widening of Wattle Street</li> <li>One vacant property owned by Roads and Maritime would be affected</li> <li>Four residential properties would be subject to partial acquisition: <ul style="list-style-type: none"> <li>Three properties would be impacted near their rear boundary with about 8.5 to 10 per cent of each property to be acquired</li> <li>One property would be impacted near its front boundary with about one per cent of the property to be acquired.</li> </ul> </li> </ul>
Land use impacts	<ul style="list-style-type: none"> <li>Land use at the Wattle Street and Walker Avenue civil site would change from predominantly residential with some open space to a construction ancillary facility for the duration of construction. Existing dwellings and would be demolished</li> <li>Following construction, land at this site would be used for permanent operational infrastructure, including the realigned Wattle Street, or would be residual land</li> <li>As discussed in <b>section 12.4.2</b>, partial acquisition of the three residential properties would not prevent the continued use of the land for residential purposes</li> <li>The land use of part of Reg Coady Reserve would permanently change from open space to road as a result of the widening of Wattle Street as part of the project.</li> </ul>

Impact	Description
Residual land:	<ul style="list-style-type: none"> <li>The area of Reg Coady Reserve to be leased would be rehabilitated and returned to Ashfield Council for use as open space following construction</li> <li>The project would result in one area of residual land (Area 11) as shown in <b>Figure 12.6 to Figure 12.10</b>. This land is zoned R2 Low Density Residential under the Ashfield LEP</li> <li>Area 7 would have an area of about 3,812 m<sup>2</sup>. This residual land area is located in a heritage conservation area (refer to <b>Chapter 19</b> (Non-Aboriginal heritage)), which would may further restrict the future development potential.</li> </ul>
<b>Parramatta Road civil site (C10)</b>	
Property impacts	<ul style="list-style-type: none"> <li>Six residential properties containing six single dwellings would be acquired</li> <li>Four residential flat buildings with a total of 19 individual dwellings would be acquired</li> <li>Two properties owned by Roads and Maritime for the pedestrian overbridge at Bland Street would be affected</li> <li>14 commercial properties would be acquired, including the former Brescia Furniture site (which is currently vacant) and one commercial building containing a place of worship</li> <li>One residential property would be partially acquired (about 16.1 per cent of property). This would only involve acquisition of the access driveway only, and an alternate driveway would be provided. The size of the property would not change significantly.</li> </ul>
Land use impacts	<ul style="list-style-type: none"> <li>Land use at the Parramatta Road eastern civil site would change from residential, commercial and place of worship to a construction ancillary facility for the duration of construction. Existing dwellings and commercial buildings would be demolished</li> <li>Following construction, land at this site would be used for permanent operational infrastructure, including the realigned Parramatta Road, or would be residual land.</li> </ul>
Residual land	<ul style="list-style-type: none"> <li>There would be four residual land areas following construction – Areas 13, 14, 15 and 16 – as shown in <b>Figure 12.6 to Figure 12.10</b>. Areas 13, 15 and 16 are zoned B6 Enterprise Corridor under the Ashfield LEP, while Area 14 is zoned R2 Low Density Residential under the Ashfield LEP</li> <li>Areas 13, 15 and 16 would have areas of about 6,150 m<sup>2</sup>, 820 m<sup>2</sup> and 3,500 m<sup>2</sup> respectively.</li> <li>Area 14 would have an area of about 760 m<sup>2</sup>.</li> </ul>

### 12.3.2 Property access impacts

During construction, there is potential for direct impacts on access to property, or road network changes that would alter access to a property.

Access to property not acquired or leased for the project would be maintained at all times during construction. Where impacts on property access are unavoidable as a result of construction activities (eg footpath and pavement works), consultation would be undertaken with the property owner and/or tenant to develop appropriate alternative access arrangements. This may involve provision of a temporary alternate access.

Impacts on property access due to changes in the road network during construction are discussed in **section 8.3.4** of Chapter 8 (Traffic and transport).

### 12.3.3 Impacts on Crown land

The project involves the temporary (lease) and permanent acquisition of land owned by the State of NSW at Cintra Park and Reg Coady Reserve. This land is considered to be Crown land and any works on this land are likely to occur pursuant to a relevant interest (ie licence, permit, easement or right of way) to be granted for works on this land.

The land use and property impacts associated with temporary and permanent acquisition of this Crown land is discussed in the sections above.

## 12.4 Assessment of operational impacts

Land use and property impacts would occur as a result of the presence of operational components of the projects.

Property impacts during operation of the project (not already assessed in **section 12.3**) would include permanent changes to property access.

Land use impacts as a result of the operation of the project would include:

- Direct changes to land use as a result of the presence of operational infrastructure
- Changes to the development potential of properties due to partial acquisition of land
- The potential for indirect impacts on land use in the areas surrounding the project, as a result of enhanced amenity along the Parramatta Road corridor associated with reduced vehicle traffic
- Impacts on the use of land as a result of shadows cast by permanent operational infrastructure (overshadowing).

### 12.4.1 Property impacts

#### Property access

Two properties would have permanent changes to their access as a result of the project.

A place of worship located at the corner of Concord Road and Sydney Street (81 Concord Road, Concord) is currently accessed from a driveway on Sydney Street. This driveway would be required to be realigned to connect with the new cul-de-sac generated by the closure of Sydney Street (east). The adjustment to this property access is not considered to result in any impacts as the new driveway would enter the property at the same location.

A residential apartment block located at 98 Chandos Street at Ashfield is a battle-axe block that is currently accessed from a driveway between 96 Chandos Street and 186 Parramatta Road. The access 'handle' of the battle-axe block would be fully acquired to accommodate the realigned westbound lanes on Parramatta Road. The adjoining properties at 92, 94 and 96 Chandos Street would be acquired as part of the project and the three dwellings on those properties would be demolished. A new driveway would be provided across the acquired properties, with the entrance on Chandos Street moving slightly to the south.

The relocation of the access to these properties is not considered to result in any impacts on the use of the land for its current purposes. All arrangements for altered property access would be subject to consultation with the affected property owners (or the body corporate, in the case of 98 Chandos Street). Access to these properties would be maintained at all times.

### 12.4.2 Land use impacts

#### Permanent direct land use changes

The project would introduce new surface operational ancillary facilities along the project corridor, mainly within areas developed and zoned for residential purposes. Wherever possible, these have been located immediately adjacent to the project or other arterial roads, to limit potential impacts on surrounding land uses. For example, the motorway operations complex has been located immediately to the north of widened M4 corridor to the east of Homebush Bay Drive.

The western ventilation facility would be located adjacent to a residential area near Underwood Road at Homebush. This facility has been located as far from existing residential dwellings as possible, over the westbound cut-and-cover tunnel. As discussed in **Table 12.9**, the immediately adjoining residential properties on the corner of Short Street West and Underwood Road would be affected by the Underwood Road civil site (C4) and the existing dwellings would be demolished.

The eastern ventilation facility would also be located adjacent to residential areas. The ventilation outlet has been located as far from residential dwellings as possible, and is sited close to the corner of Parramatta Road and Wattle Street at Haberfield. As discussed in **Table 12.9**, the immediately adjoining residential properties along Wattle Street and Walker Avenue would be affected by the Wattle Street and Walker Avenue civil site (C9) and the existing dwellings would be demolished. The closest property not affected by acquisition would be about 80 metres to the east of the ventilation facility site, on the eastern side of Walker Avenue.

The operation of the ventilation facilities would not prevent continued use of surrounding land for residential and related purposes. The potential air quality impacts and human health impacts associated with the ventilation facilities are discussed in **Chapter 9** (Air quality) and **Chapter 10** (Human health).

All permanent operational facilities have been designed to integrate with the surrounding areas. Where required, noise attenuation would be incorporated into the design of the facilities in order to meet the relevant guidelines (refer to **Chapter 11** (Noise and vibration)). As such, these elements of the project are not anticipated to affect the local development pattern or result in long-term land use changes.

### Changes to development potential due to partial acquisition

As discussed in **section 12.3.1**, 15 properties (including two properties consisting of two lots) would be affected by partial acquisition to accommodate permanent operational infrastructure on the area of the property that is acquired. No partial acquisition (apart from temporary leases) would be required for construction only.

There would be no impact to buildings located on properties affected by partial acquisition.

**Table 12.10** identifies the 17 lots to be subject to partial acquisition and identifies whether the area of land remaining after partial acquisition complies with the minimum lot size provisions of the relevant local environmental plan.

**Table 12.10 Partial acquired properties – residual lot size**

Lot ref. no.	Lot/DP or SP	Zone	Current land use	Minimum lot size (m <sup>2</sup> )	Area to be acquired (m <sup>2</sup> )	Area after acquisition (m <sup>2</sup> )
<b>Strathfield LEP</b>						
1	1/DP883387	SP2 Infrastructure	Vacant land on existing substation site	Not applicable	10,000	61,715
4	SP85957	R3 Medium Density Residential	Residential apartments	1,000	30 (air space only)	6,476
61	2/DP1002876	RE1 Public Recreation	Arnotts Reserve (not open to the public)	Not applicable	580	15,391
<b>Canada Bay LEP</b>						
62	1/DP1002876	B3 Commercial Core	Vacant commercial	Not applicable	245 (air space only)	23,829
115	5/DP34203	R2 Low Density Residential	Residential dwelling	450	90	641
116	9/DP7594	R2 Low Density Residential	Vacant, part of residential property	450	148	514
117	8/DP7594	R2 Low Density Residential	Residential dwelling	450	192	476

Lot ref. no.	Lot/DP or SP	Zone	Current land use	Minimum lot size (m <sup>2</sup> )	Area to be acquired (m <sup>2</sup> )	Area after acquisition (m <sup>2</sup> )
123	1/DP310934	R2 Low Density Residential	Church	Not applicable	440	1,127
144	50/DP785451	B6 Enterprise Corridor	Commercial	Not applicable	230	5,875
154	7301/DP1159824	RE1 Public Recreation	Concord Oval (unsealed car park) and Cintra Park	Not applicable	27,877	36,766
<b>Ashfield LEP</b>						
220	1/DP115472	R2 Low Density Residential	Residential dwelling	500	74	798
221	1/DP947287	R2 Low Density Residential	Residential dwelling	500	60	634
222	1/DP945634	R2 Low Density Residential	Residential dwelling	500	58	637
245	31/DP872944	R3 Medium Density Residential	Residential dwelling	500	8	818
250 and 249	4/DP852452 and 9/DP852452	SP2 Infrastructure	Reg Coady Reserve	Not applicable	225	5,176
268	SP66454	R3 Medium Density Residential	Residential apartments (access driveway only)	500	800	4,172

Partial acquisition for the project would not result in any of the properties falling below the relevant minimum lot size for the existing land use. The project would therefore not reduce the development potential of any of the properties affected by partial acquisition.

### Indirect land use changes

The project, as part of WestConnex, is expected to reduce through traffic on Parramatta Road. 'Through traffic' in this context refers to traffic that travels more than five kilometres along Parramatta Road to destinations away from Parramatta Road. The reduction in through traffic, particularly trucks, would assist in improving public transport and urban amenity, both of which would support future growth along the corridor, in particular residential development.

As outlined in **section 12.2.3**, the Parramatta Road Strategy identifies three urban renewal precincts in the vicinity of the project corridor. The strategy identifies the following potential growth by around 2050 in the three precincts:

- Homebush – 10,350 to 16,200 additional dwellings, mostly as high rise development
- Burwood – 4,300 to 6,400 additional dwellings, as mixed use and residential development
- Kings Bay (Five Dock) – 3,200 to 4,200 additional dwellings, as mixed use and residential development.

The project, as part of WestConnex, would act as a catalyst for this urban renewal, which has the potential to significantly alter land use in these precincts. However, urban renewal in these precincts or in other parts of the Parramatta Road corridor does not form part of the project and would be subject to separate assessment and approval.

### 12.4.3 Overshadowing

The project includes a number of permanent buildings and structures which have the potential to result in overshadowing on neighbouring residential properties. Shadow diagrams for mid-winter have been prepared for these buildings and structures and can be found in **Appendix K**. The shadow diagrams in **Appendix K** only show the shadows cast by the proposed infrastructure and do not factor in any other structures (eg existing buildings and vegetation). The shadow diagrams are therefore considered to be worst case.

**Table 12.11** summarises the overshadowing impacts expected as a result of permanent operational infrastructure.

**Table 12.11 Overshadowing impacts of project infrastructure during operation**

<b>Location</b>	<b>Description of impact</b>
<b>Buildings</b>	
Motorway operations complex	Shadows from the complex fall on the M4 and there would be no impacts on any residential properties.
Western ventilation facility	Shadows from the facility fall south across the M4 and on to a three storey residential apartment block at 39-45 Powell Street. Impacts at any single dwelling would be limited to no more than two hours and therefore these dwellings would receive a minimum three hours of direct sunlight between 9 am and 3 pm. Some dwellings at this location may also already be subject to overshadowing due to the M4 being elevated above these properties. The residential apartment block at 56-58 Powell Street would also be affected for a period of about one hour.
Ismay Avenue substation and fire pump room	Shadows from the buildings fall south on the M4 road reserve and therefore there would be no impacts on any residential properties.
Distribution substation at Sydney Street	Shadows from the substation would be cast on neighbouring properties. These properties would be acquired as part of the project and therefore there would be no impacts. Overshadowing from the substation is not expected to impact on any adjacent properties to a level that they would not receive the minimum three hours of sunlight between 9 am and 3 pm.
Cintra Park fresh air supply and water treatment facilities	Shadows from these facilities would generally fall onto land within Cintra Park. The exception to this is between 2 pm and 3 pm, when shadows would fall on the backyards of residential properties located on Taylor Street. These properties would receive a minimum of three hours of sunlight between 9 am and 3 pm.
Eastern ventilation facility	Shadows from this facility would largely be contained within the site. Shadows cast by the ventilation facility site would fall on roadways or the commercial property located on the southern side of Parramatta Road.
<b>Noise barriers</b>	
Park Road and M4 noise barriers (southern side of the M4)	Shadows from this noise barrier would fall on the three storey residential apartment block at 39-45 Powell Street for about two hours in the morning. Dwellings within this property would receive the minimum three hours of sunlight between 9 am and 3 pm. A relocated noise wall would cast shadows (at varying degrees) on 21 Short Street for the entire day. This property would experience overshadowing from the existing noise wall at this location, and the relocated wall would be unlikely to significantly alter access to sunlight.
Concord Road noise barrier	Shadows from the noise barrier would generally be cast onto the project or areas acquired for the project. One residential property would potentially be impacted at 3pm, but would not be affected at any other time.

Location	Description of impact
Wolseley Street and Northcote Street noise barriers	Shadows from these noise barriers would generally fall on land which is being acquired as part of the project. Shadows would only fall on the adjacent property at 3 pm; however, they would not affect dwellings or more than 50 per cent of principal private open space.
Wattle Street noise barriers	Shadows from the noise barrier would fall on the rear of properties located along Walker Avenue. Shadows would not fall on any dwellings and would not affect greater than 50 per cent of backyards. These properties would receive the minimum three hours of sunlight to their principal private open space and dwellings between 9 am and 3 pm.
Dobroyd Parade noise barriers	Shadows from this wall do not impact on properties until midday, with shadows falling on dwellings between 1 pm and 3 pm. All properties would receive a minimum of three hours of sunlight between 9 am and 3 pm.
Elevated structures	
Powells Creek on-ramp	Shadows for the new on-ramp would not fall on any residential properties and therefore would not limit daylight received. Any shadow cast would be similar to shadows from the existing M4 which is elevated in this area.
Concord Road interchange M4 westbound on-ramp	Shadows for the new on-ramp would fall to the south of the ramp on to a five storey residential building located at 167-173 Parramatta Road. These impacts would be experienced throughout the day and therefore some dwellings would not receive a minimum of three hours of sunlight between 9 am and 3 pm. Dwellings on the northern side of the building would be most affected.

Overall, residential properties affected by overshadowing from permanent operational components of the project would receive a minimum of three hours of direct sunlight in habitable rooms and in at least 50 per cent of principal private open space between 9.00 am and 3.00 pm on 22 June. The exception to this is at 21 Short Street West and 167-173 Parramatta Road.

Where existing residential development currently receives less than this requirement, such as at 21 Short Street, access to sunlight would not be unreasonably reduced.

Detailed overshadowing analysis would be undertaken during detailed design to confirm the exact nature of any overshadowing impacts and to confirm the number of dwellings that would be affected.

## 12.5 Management of impacts

Environmental management measures relating to property and land use are outlined in **Table 12.12**.

**Table 12.12 Environmental management measures – property and land use**

Impact	No.	Environmental management measure	Responsibility	Timing
Construction				
Acquisition of property required for the project	PL1	Land acquisition for the project will be undertaken in accordance with the <i>Roads and Maritime Services land acquisition information guide</i> (Roads and Maritime 2014b) and the <i>Land Acquisition (Just Terms Compensation) Act 1991</i> (NSW).	Roads and Maritime	Pre-construction
Temporary lease or acquisition of property required for the project	PL2	Consultation will occur with the relevant property owners in relation to temporary land leases and acquisition of properties required for construction. Where acquisition is identified as the preferred option, this will be undertaken in accordance with the <i>Roads and Maritime Services land acquisition information guide</i> (Roads and Maritime 2014) and the <i>Land Acquisition (Just Terms Compensation) Act 1991</i> (NSW).	Roads and Maritime	Pre-construction



<b>Impact</b>	<b>No.</b>	<b>Environmental management measure</b>	<b>Responsibility</b>	<b>Timing</b>
Loss of land use and property access	PL3	Property accesses that are affected as a result of the project will be reinstated in consultation with the affected landowners.	Construction contractor	Pre-construction
Property access	PL4	Affected property owners will be consulted where temporary property access will be required.	Construction contractor	Pre-construction and construction
	PL5	Affected property owners will be provided with advanced notification of relevant project schedules, construction works and changes to access arrangements.	Construction contractor	Pre-construction and Construction
	PL6	Community updates will be provided on changes to the local road network within the project area during construction.	Construction contractor	Construction
Overshadowing	PL7	A Solar Access and Overshadowing report will be developed during detailed design to assess the impacts of overshadowing as a result of the final design.	Construction contractor	Pre-construction

(blank page)

## 13 Urban design and visual amenity

This chapter provides an assessment of the urban design, landscape character and visual amenity associated with the project. A detailed urban design and visual impact assessment has been undertaken for the project and is included in **Appendix L**.

The Secretary of the NSW Department of Planning and Environment (DP&E) has issued a set of environmental assessment requirements for the project; these are referred to as Secretary's Environmental Assessment Requirements (SEARs). **Table 13.1** sets out the Director-General's Requirements as they relate to urban design, landscape character and visual amenity, and identifies where they have been addressed in this environmental impact statement (EIS).

**Table 13.1 Secretary's Environmental Assessment Requirements– urban design and visual amenity**

Secretary's Environmental Assessment Requirement	Where addressed in the EIS
<p>Consideration of the urban design and visual amenity implications of the project, including supporting infrastructure, during construction and operation. The assessment must:</p> <ul style="list-style-type: none"> <li>– identify urban design and landscaping objectives to enhance the interchanges, tunnels, 'cut and cover' and 'slot' arrangements</li> <li>– consider resulting residual land and treatments</li> <li>– demonstrate how the proposed hard and soft urban design elements of the project would be consistent with the existing and desired future character of the area</li> </ul>	<p>Potential impacts to visual amenity during the construction and operation phase are provided in <b>sections 13.3 and 13.3.3</b>.</p> <p>Urban design and landscaping objectives are discussed in <b>section 13.4.4 and Appendix L</b></p> <p>Operational urban design is considered in <b>section 13.4.4 and Appendix L</b>.</p> <p>Consideration of the existing and desired future character of the area is provided in <b>section 13.4.3 and Appendix L</b>.</p>
Consideration of the WestConnex Urban Revitalisation Project	Consideration of the Parramatta Road Urban Transformation Program is provided in <b>section 13.4.5</b>
Identification of opportunities to utilise surplus or residual land, and utilise key structures (such as stacks) for multiple uses i.e. integration with other structures	Operational urban design is considered in <b>section 13.4.3</b> .
Identification and evaluation of the visual impacts and urban design aspects of the project (and its components) on surrounding areas	Impacts of the project are discussed in <b>sections 13.3 and 13.3.3</b> .
A consideration of impacts on views and vistas, streetscapes, key sites and buildings	Impacts of the project are discussed in <b>sections 13.3 and 13.3.3</b> .
Identification of measures to create, promote and enhance connectivity across Parramatta Road, where impacts to connectivity are associated with the project	An assessment of connectivity measures is provided in <b>section 13.5</b>
Measures to manage lighting impacts both during construction and operation	Management and mitigation measures for lighting during construction and operation are provided in <b>section 13.5</b> .
Artists' impressions and perspective drawings of the proposal from a variety of locations along and adjacent to the route	Artist's impressions of the project are provided in <b>Appendix L</b> .

## 13.1 Assessment methodology

The assessment was undertaken in accordance with the *Environmental Impact Assessment Guidance Note – Guidelines for landscape character and visual impact assessment* (EIA-N04) (Roads and Maritime Services (Roads and Maritime) 2013c). Reference has also been made to the UK *Guidelines for Landscape and Visual Impact Assessment Third edition* (known as GLVIA3) (Landscape Institute and Institute of Environmental Management and Assessment 2013).

The assessment defines several landscape character zones, sensitive receivers, and assesses the potential impacts of the proposal on these features. The potential sensitivity of the visual receptors to change was determined and rated. Landscape impacts were assessed from representative receivers and rated.

The significance of potential visual impacts was determined by assessing the magnitude of change to the landscape (views) in combination with the sensitivity of the receptor. Potential impacts were qualified (rated) according to their significance (severity). Significant impacts are considered to be those with a rating of moderate to high or above (see **Figure 13.1**).

		Magnitude of impacts			
		High	Moderate	Low	Negligible
Sensitivity of feature	High	High	Moderate to high	Moderate	Negligible
	Moderate	Moderate to high	Moderate	Moderate to low	Negligible
	Low	Moderate	Moderate to low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

**Figure 13.1** Impact significance rating matrix

The assessment involved:

- A desktop study and site visit
- Photographic inventory
- Identification of landscape character zones, and sensitive receivers
- Review of relevant urban design considerations
- Describing the key visual features of the proposal
- Providing an assessment of the potential for impacts during construction and operation based on two criteria – sensitivity and the magnitude – with the combined assessment of these criteria providing the rating for the potential significance of impacts
- Identification of mitigation and management measures to minimise the potential for negative impacts and enhance the potential for positive impacts of the proposal.

## 13.2 Existing environment

### 13.2.1 General landscape and visual character

The existing visual environment of the study area is characterised by its highly developed urban nature, consisting of:

- Established and densely developed residential/mixed use areas, ranging from inner city suburbs dominated by higher density and attached dwellings, to middle ring suburbs dominated by detached dwellings with scattered areas of higher density apartment buildings

- Major roads such as the M4, Concord Road, Parramatta and Wattle Street
- Established parks and gardens, with scattered mature street trees lining
- Commercial and industrial areas, particularly in the vicinity of the M4 and Parramatta Road.

### 13.2.2 Landscape character zones

For the purposes of the assessment, 15 landscape character zones were identified. These are areas with similar visual landscape and urban design characteristics, and were identified in those areas that have the potential to be impacted by surface components of the project. These character zones are described in **Table 13.2** and shown in **Figure 13.2** to **Figure 13.4**. Further information is provided in **Appendix L**.

**Table 13.2 Characteristics of landscape character zones**

LCZ	Precinct	Characteristics/qualities	Sensitivity
1	M4 (to Concord Road)	This zone is dominated by the M4. The western end of the zone includes two character sub-types – Homebush Bay Drive interchange to west of Underwood Road is relatively narrow and strongly visually enclosed corridor; from west of Underwood Road to the bridge over Powells Creek there is a mix vegetated edges, a narrow road section with noise barriers, and views towards medium density residential development to the south. Extensive regional views across the landscape are available to motorists crossing the bridge over Powells Creek.	Moderate
2	Homebush commercial	Characterised by its location next to the M4, Sydney Olympic Park and residential development in the suburb of Homebush. Includes a large shopping centre (Direct Factory Outlets (DFO)) with associated car parking, a business park and electrical substation.	Low
3	Parramatta Road (west)	This zone is dominated by Parramatta Road and a diverse mix of urban form and land uses along the road and in the surrounds. These include detached houses towards the west, medium density apartment buildings in the centre of the zone, commercial properties fronting Parramatta Road, a number of heritage listed properties (including the Wentworth Hotel and Former Homebush Theatre), light industrial, and an undeveloped open area to the western boundary with Homebush Bay.	Moderate
4	Underwood Road	Exhibits a quiet residential character with strong consistency of built form, well-tended gardens and mature streetscapes. Comprises mainly detached residences from the early 1900s, with more recent apartment buildings accessed from Underwood Road and the end of Verley Drive. The quiet streets generally incorporate mature street tree plantings. A substantial open space (Bill Boyce Reserve) adjoins the M4.	Moderate
5	Powells Creek	Comprises an open corridor with a concrete lined drainage channel that flows from south to north under the M4, and adjoining electricity transmission easement.	Moderate
6	Concord Road	Includes Concord Road and Sydney Street west. Both roads are characterised by low density residential development. Includes a number of locally listed heritage items (houses) and the Sydney Cheil Church. The frontage to the church is dominated by a number of mature trees.	Low

LCZ	Precinct	Characteristics/qualities	Sensitivity
7	Edward Street	Characterised by a detached houses from the early 1900s with a consistent street appearance. Edward Street is lined by a mature avenue of heritage listed brush box trees.	High
8	Concord Oval	Includes Concord Oval with its substantial grandstand and club building in the west, and the Cintra Park hockey facility in the east.	High
9	Dobroyd Parade	Includes Iron Cove Creek and adjacent recreation reserves. The reserves consist mainly of opened grassed areas with scattered trees. Also includes residences fronting Dobroyd Road to the south and east.	Moderate
10	Wattle Street	Characterised by Federation-era detached houses with some more modern infill dwellings and walk-up apartment buildings. The intersection with Parramatta Road is planted with eucalypts and casuarinas.	Moderate
11	Parramatta Road (east)	This zone is dominated by Parramatta Road, which is fronted by a mix of car yards, fast food outlets, furniture and hardware stores and professional offices, interspersed with small pockets of low density residential lots.	Low
12	Haberfield	Characterised by quiet local streets with detached Federation-era houses, wide streets and street trees. Most of the zone falls within the Haberfield heritage conservation area (HCA).	High
13	Yasmar Juvenile Training Facility	Includes the large State heritage listed house 'Yasmar' which fronts Parramatta Road (used as a Juvenile Justice facility). The site contains a distinctive, densely wooded stand of trees to the Parramatta Road frontage including four large Moreton Bay figs.	High
14	Ashfield medium density	The visual character of the precinct is defined by a mixture of medium density and single lot residential development with generous street tree plantings, a quiet setting with relatively low traffic volumes, and a pattern of angled streets.	Moderate
15	Ashfield Park	Includes the heritage listed Ashfield Park, characterised by visually strong axial plantings of large trees. Facilities include a football field, a bowling club with two bowling greens and clubhouse, a playground, a picnic rotunda and BBQ area.	High

### 13.2.3 Representative sensitive visual receivers

Visual receivers outlined in **Table 13.3** are individuals and/or groups of people whose views may be affected by the project. The sensitive receivers for the project include:

- Residents that adjoin and/or have views of the project
- Workers in commercial properties that adjoin and/or have views of the project
- Road users and pedestrians
- Users of recreation areas/reserves with views of the project.

Construction receivers were identified for each construction ancillary facility. These are the receivers with the potential to be visually impacted by some element of the construction works. The construction receivers and layouts of each construction ancillary facility are shown on **Figure 13.5** to **Figure 13.14**.

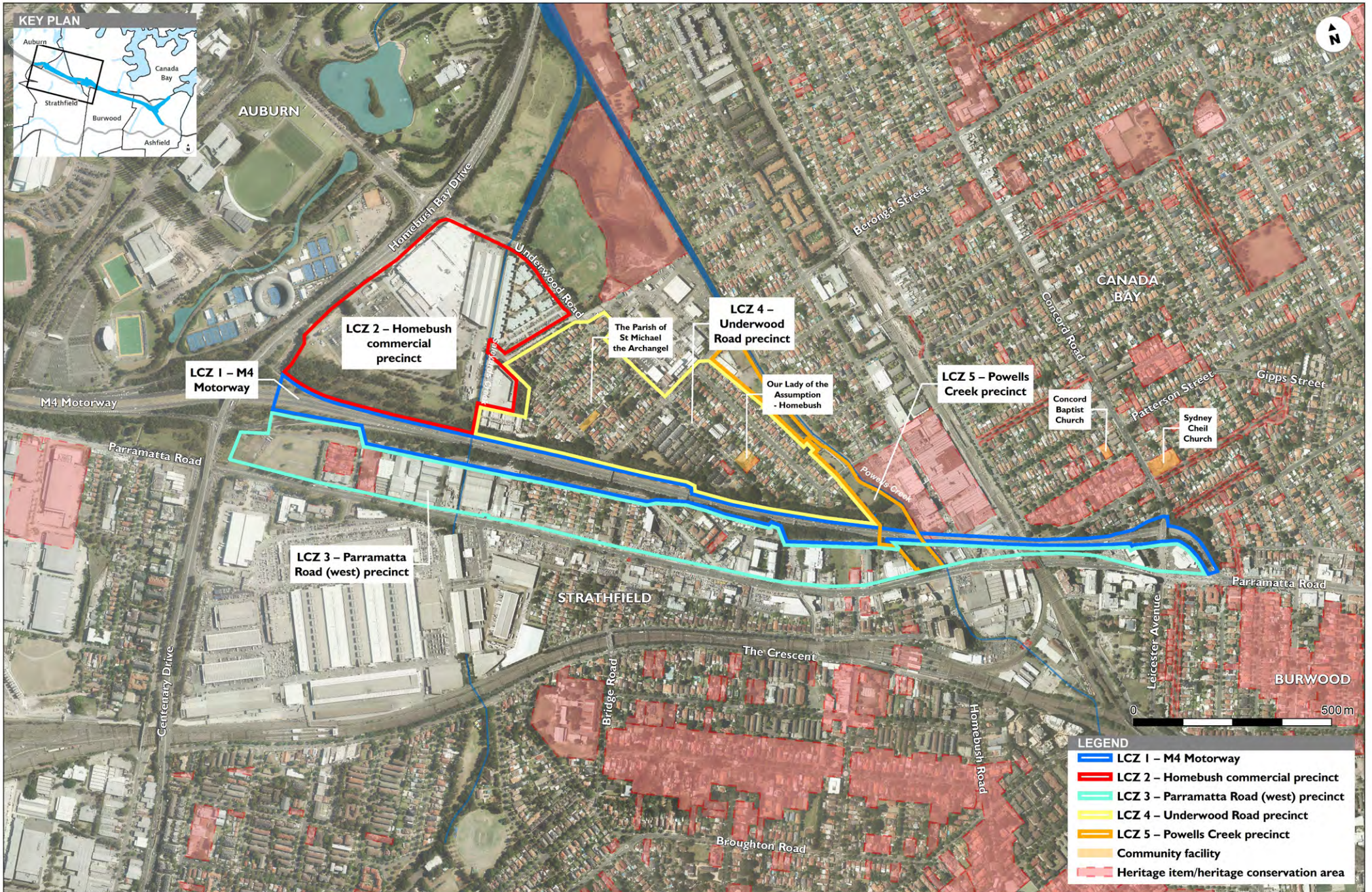


Figure 13.2 Western landscape character zones